This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

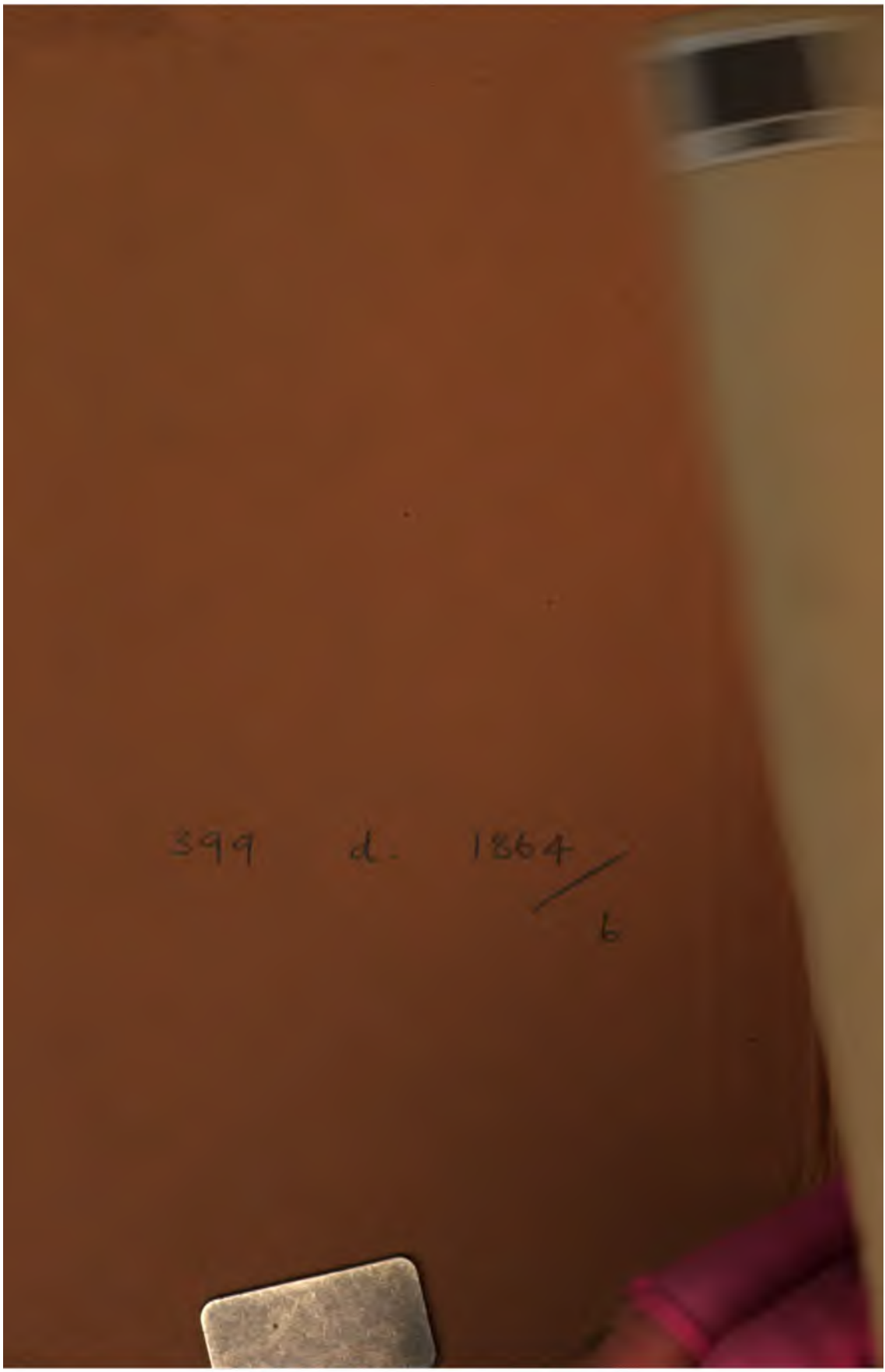
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`


399 d. 1864
6

George Martin

600046963Y

THE

POPULAR ENCYCLOPEDIA;

OR,

"CONVERSATIONS LEXICON:"

BEING A GENERAL DICTIONARY OF

ARTS, SCIENCES, LITERATURE, BIOGRAPHY, HISTORY, ETHICS, AND POLITICAL ECONOMY.

WITH DISSERTATIONS

ON THE RISE AND PROGRESS OF LITERATURE,

BY SIR D. K. SANDFORD, A.M., Oxon., D.C.L.

ON THE PROGRESS OF SCIENCE,

BY THOMAS THOMSON, M.D., F.R.S.L. & E., &c., &c.

AND

ON THE PROGRESS OF THE FINE ARTS,

BY ALLAN CUNNINGHAM, Esq.

VOLUME VI.

BLACKIE & SON, QUEEN STREET, GLASGOW;
SOUTH COLLEGE STREET, EDINBURGH;
AND WARWICK SQUARE, LONDON.
MDCCCXLVI.

BODLEIAN
P
-9 JUN 1964
LIBRARY

GLASGOW, W. G. BLACKIE & CO., PRINTERS, VILLAFIELD.

THE

POPULAR ENCYCLOPEDIA;

OR,

CONVERSATIONS LEXICON.

ROME (HISTORY OF).

ROME (Roma), the *eternal city*, as it is often called, with which almost every thing great and memorable that has happened in Europe for 2500 years has been connected, and which, first with the sword, and afterwards with the more powerful arms of religious faith, ruled a large portion of the European world for centuries, and saw people of all climes bend before its majesty, is now only the shadow of its former greatness. Ancient Rome was situated nearly on the site of the modern city, in Latium, on several hills (whence the poetical appellation of the *seven-hilled city*), on both sides of the river Tiber, not far from the Mediterranean sea; but the principal part of the city lay upon the eastern side of the river. Here was situated the Pincian mount, and on the river lay the Campus Martius, the Capitoline hill, the Roman forum, and mount Aventine. The Quirinal, Palatine, and Cœlian hills, formed a second range eastward of the preceding, extending from north to south; the Viminal and Esquiline a third. On the other side of the Tiber lay the Vatican mount and Janiculum. This region was inhabited before the foundation of Rome. The city of Palantium, built by some Greek colonists on the Capitoline mount, was perhaps still in existence when Romulus and Remus led a colony thither from Alba Longa; so that this city was only extended, and Rome Proper was not entirely new. The new city probably derived its name, not from its founder (who was, perhaps, called *Romulus* from it), but from the river, which, as Servius informs us, was anciently called *Rumon*. The derivation from the Greek ῥωμη (strength) is an absurdity, and of late origin. Two different epochs are assigned for the foundation of Rome. According to Cato, it was built 752, according to Varro, 754 years before Christ. The latter date is generally adopted. The founding of the city commenced with ceremonies borrowed from the Etrurians. Romulus traced a square furrow round the Palatine hill with a plough drawn by two white cattle, and caused a wall of earth to be thrown up in the direction of the furrow. The interior was filled with huts.

The history of Rome is divided into three periods, in the first of which Rome was a kingdom, in the second a republic, and in the third an empire.

I. From the foundation of the city to the year 245, Rome was a monarchy. Romulus was chosen the first king of the new city. He adopted the Etrurian emblems of royalty—twelve lictors; but his power, and that of his successors, was so circumscribed, that Rome was, even then, in reality, a free state. A sort of municipal constitution was formed, probably after the model of that of the mother city. The principal points of this constitution are the creation and constitution of the senate; the origin and permanent establishment of the patricians, or hereditary nobility; the division of the people into classes, and the different kinds of popular assemblies (*comitia*) founded thereupon; the religious institutions; and, finally, the domestic relations of clientship, marriage, and particularly of the power of a father. Romulus, the leader of the colony (from A. U. 1 to 37), increased the number of the citizens by the establishment of an asylum, and by the incorporation of a part of the Sabines. Numa Pompilius (39—82) founded the Roman state-religion; Tullus Hostilius (82—114) conquered Alba, and laid the foundation for the supremacy of Rome over Latium; Ancus Martius (114—138) built Ostium; Tarquinius Priscus (138—176) carried on a war with the Etrurian confederacy; Servius Tullius (176—220), the ablest of the kings, placed Rome at the head of the Latin confederacy, and divided the nation, according to property, into six classes, upon which the *comitia centuriata* and the census were founded; the seventh and last king, Tarquin the Proud (220—245), aspired to absolute power, and was expelled on account of his tyranny. The constitution was then remodelled (509 B. C.). (See *Romulus*, *Numa*, and *Tarquinius*.) Even at this period, we can perceive in the Romans a manly, free, bold, and ambitious people. Agriculture and war were their chief occupations. In private life, simplicity of manners and pleasures prevailed.

II. Rome as a republic, from 245 to 727 A.U.

First Period. The royal power, with the same indefiniteness as it had been exercised by the kings, was committed to two consuls chosen annually. At the commencement of the new government, Rome had to sustain a contest with the Etrurians and Latins for its freedom. The oppressions of the patricians, who arrogated the whole power to themselves, exasperated the plebeians, and

produced, in the year 261, the establishment of tribunes of the people, (*tribuni plebis*,) who were to protect their rights and liberties against the encroachments of the nobility. A protracted contest arose between the patricians and the guardians of the plebeians, the principal points of which were as follows:—1. The tribunes, in their accusation of Coriolanus, claimed the right of bringing individual patricians before the tribunal of the people, and thus gave rise to the *comitia tributa*, so fatal to the nobility. 2. They demanded that the lands taken from the neighbouring states should be distributed among the poorer people, and thus gave rise to the contests relative to the agrarian laws, (*leges agrariæ*.) 3. The tribune Publius Volero extended the prerogatives of the *comitia tributa*, and gave them the choice of the tribunes. 4. The tribune Caius Terentius Arsa endeavoured to circumscribe the consular power, by the formation of a code of laws. (See *Twelve Tables* and *Appius Claudius*.) Although the new laws defined the legal relations of all citizens, yet the government of the state remained in the hands of the aristocracy which was kept totally distinct from the plebeians by the prohibition of intermarriage. This prohibition gave rise to new contests which ended in its abolition. The plebeians likewise obtained, eighty years after, a participation in the honours of the consulship. During these disputes the office of censor was established. Meanwhile, Rome was constantly engaged in petty wars and quarrels with the neighbouring states. That the population might not diminish, freedmen, and even prisoners of war, were admitted into the number of citizens. Rome became altogether a military state; pay was introduced into the Roman armies, which rendered it necessary to impose higher taxes. The city was, at this time, reduced to the brink of destruction, by the Senonian Gauls, who captured and reduced it to ashes, (A. U. 365.) Camillus, (q. v.), however, the saviour of Rome, restored it from its ruins. The first plebeian consul was elected in the year 388, and the plebeians soon participated in all offices—in the dictatorship, in 398; in the censorship, in 403; in the praetorship, in 417; and in the priesthood, in 454 (300 B. C.). A complete political equality of patricians and plebeians existed at the end of this period; internal contests ceased, and, in the same proportion, the power of the state abroad increased, and the splendid period of conquests began. During this period, the manners of the Romans were characterized by the ancient simplicity and rudeness; science and the fine arts were as yet unknown to them; but useful arts, commerce (a treaty of commerce was concluded with the Carthaginians in 409), navigation, and mechanical arts, were cultivated. Agriculture was still the chief source of national wealth.

The first years of the *second period* were yet marked by contests between the plebeians and patricians. Rome was also visited by the plague, which gave rise to the introduction of theatrical shows from Etruria. The Romans now gained several victories over the Gauls in which Titus Manlius Torquatus (see *Manlius*) rendered himself conspicuous. Two laws settled the rate of interest in favour of debtors. From an alliance which had been concluded a few years before with the Samnites (q. v.), a formidable war between the two nations broke out in 411, which lasted till 464, opened the way for the subjugation of all Italy, and laid the foundation of the future greatness of Rome. This war was the heroic age of the Romans; it taught them tactics; it settled their relations with their neighbours, the Latins and Etrurians, the former being completely reduced, and the latter repeatedly humbled; and brought the Romans sometimes into friendly, and sometimes into hostile contact with the distant Lucanians, Apulians, and Umbrians. In this period the principles of their policy towards conquered nations were also developed. After the subjugation of the Samnites, the Romans attempted to secure their authority in Lower Italy, in consequence of which the Tarentines called to their aid (A. U. 473) Pyrrhus king of Epirus, who, notwithstanding his knowledge of the Macedonian art of war, was finally worsted, and obliged (479) to evacuate Italy. Tarentum fell into the hands of the Romans in 482, and soon after all Lower Italy. The fame of Rome extended even to Egypt, the king of which, in 481, sent an embassy to seek for the friendship of the Romans. Authority was maintained among the conquered people chiefly by the establishment of colonies of Roman citizens, who served as garrisons in those cities in which they were placed. Each colony had its own constitution, similar to that of Rome. This colonial system gradually embraced all Italy. For convenience of communication, great military roads were laid out in different directions. Some of the Italian cities and people enjoyed all the rights of Roman citizens (*municipia*); others had the rights of colonies (*jus coloniarum*); the others were either allies (*socii*) or subjects (*dedititii*.) The latter were governed by prefects sent from Rome. Rome had already a navy, and the office of *duumviri navales* was instituted for the general management of naval affairs. The judiciary was improved by the appointment of the pretors, (q. v.,) and the police by that of *curule ædiles* and the *triumviri capitales*. Learning and the arts now began to appear. Fabius Pictor introduced the art of painting into Rome; Lucius Papirius Cursor brought (461) the first dial; and Spurius Carvilius caused a statue of Jupiter to be cast. With the worship of Æculapius the science of medicine came to Rome; the works of Appius and the temple of Concord by Camillus, prove the progress of architecture. But by the side of noble specimens of morality, temperance, integrity, and patriotism, individual examples of luxury, effeminacy, and degeneracy already began to appear.

In the *third period*, Rome made the first advances to the dominion of the world. She maintained, in three wars, a desperate struggle with Carthage, and destroyed her rival. (See *Carthage*, *Hannibal*, *Fabius*, *Scipio*, *Masinissa*, &c.) The first war with Carthage was made for the possession of Sicily, and the dominion of the sea; it lasted twenty-three years, (from 489 to 511 of the building of the city,) and ended with the expulsion of the Carthaginians from Sicily. Rome, made arrogant by success, then deprived them of the island of Sardinia, in the time of peace (517). She next humbled the piratical Illyrians, on the Adriatic sea, and thus appeared as the friend of Greece. Corcyra, Apollonia, and other Greek cities, put themselves under the protection of Rome; the Achæans, Ætolians and Athenians emulated each other in expressions of gratitude. When Carthage endeavoured to indemnify herself in Spain for her former losses, and was compelled by the Romans to promise not to pass the Iberus, (Ebro,) a bloody

war broke out with the Cisalpine Gauls, which continued for six years, and resulted in the foundation of the Roman dominion in the north of Italy (about 222 B. C.) Then began the second Punic war. Hannibal commenced the attack, and made Italy the theatre of the war. It continued from 536 to 553. After many bloody battles, Carthage was subdued; but Rome, notwithstanding her great loss of men and the devastation of Italy, came out of the war more powerful than she had entered it, with an acquisition of foreign territory and the dominion of the sea. Without any change of the form of the constitution, the senate had now acquired an almost absolute power. The ambition of universal dominion already inspired the nation. At the end of the second Punic war, Sicily, Sardinia, Corsica, and a part of Spain and Cisalpine Gaul, were Roman provinces; Carthage was entirely dependent upon Rome. On the other hand, the kingdom of Macedonia in the East, with the Grecian republics, composed a political system, very complicated in itself, but first brought into connexion with Rome, after the Illyrian war, and the connexion of Phillip II. with Hannibal. Of the three powers of the first rank,—Syria, Macedonia, and Egypt,—the two first were allied against the latter, which was on friendly terms with Rome. The powers of the second rank—the Ætolian league, the kings of Pergamus, the republic of Rhodes, and other smaller states, such as Athens —were already allies of Rome, and had been leagued with her against Philip (543); the Achæan confederacy, on the contrary, was attached to the Macedonian interest. Hardly was the peace made with Carthage when the war broke out with Philip of Macedonia. In the beginning of this war, the Romans were unfortunate, till Titus Quinctius Flaminius, by his policy and military talents, laid the foundation for the power of Rome in the East. By the decisive battle of Cynocephale, (557,) Philip lost his naval superiority, and his influence over Greece, whose dependence upon Rome was secured by Quinctius granting her freedom. Roman deputies, such as retained Carthage and Numidia in subjection, exercised a supervision in Greece and Macedonia, and interfered in the domestic policy of these states. To the Greeks, particularly to the proud Ætolians, this was the more intolerable, as the Roman army remained in their country three years. The peace with Philip contained the seeds of a greater war with Antiochus, from whom Rome demanded the Grecian cities which Philip had possessed in Asia, and which Antiochus had now occupied. The difficulties began in 558, when Antiochus took possession of the Chersonese; they were increased by Hannibal's flight to the court of that prince (559), and soon broke out into a formal war, in the conduct of which, Antiochus and Hannibal did not agree, the former being unwilling to adopt decisive measures. Antiochus, defeated by sea and land, found himself, after the battle of Magnesia (564) forced to conclude a peace, which obliged him to retire behind the Taurus, and made him altogether dependent upon Rome. At the same time, bloody wars were carried on in Spain and Upper Italy. In 569 the troubles with Philip broke out anew, because he had made some small conquests; but the negociations which were entered into with his son Demetrius, and the death of Philip, (which took place in 575,) delayed the war till 582. The war with Perseus of Macedon, the son of Philip, terminated in the total subjection of the kingdom by the victory of Paulus Æmilius, at Pydna. The conquest of Egypt, by Antiochus Epiphanes, was prevented by the decision of Popilius, the Roman ambassador. After the conquest of Macedonia, Rome openly pursued her plan of universal dominion, and spared no means for attaining it. The division of Egypt was accomplished, and the protection of Syria assumed, which country was thenceforth rendered defenceless. After unparalleled oppressions, Carthage was now to be destroyed. This was accomplished in the third Punic war, which lasted from 604 to 608, when the proud Carthage was destroyed (146 B. C.). At the same time, a new war was carried on in Macedonia, against Andriscus, who had placed himself at the head of the disaffected, but who, in 606, submitted to Metelles. Then commenced the Achæan war, the object of which was the dissolution of the Achæan league. Mummius terminated this war in 608 (146 B. C.), by the destruction of Corinth; Greece and Macedonia were reduced to Roman provinces. Thus had Rome, within the space of 118 years, made herself mistress of the world. The Roman tactics had now become so perfect, that no phalanx could withstand the legions. But the Romans were, as yet, unskilled in naval warfare, and the younger Africanus was the first who carried the arts of conducting a siege to some perfection. Out of Italy, Rome occupied, under the name of provinces, Hither and Thither Spain, (neither of which was entirely reduced,) Africa, (the territory of Carthage,) Sicily, Sardinia, Corsica, Liguria, Cisalpine Gaul, Macedonia, and Achaia. Not only individual opulence, but the public revenue, was greatly increased. The finances of Rome were conducted with the strictest regularity. With the wealth, the cultivation and refinement of the Romans also increased. Their first poets appeared, and the first regular dramas were now exhibited in Rome. Learning flourished after the wars in Greece and Asia. Lucilius wrote satires, and Fabius Pictor and Cato composed the annals of Roman history. The language was developed. The calculation of solar and lunar eclipses, and the construction of water-clocks, and of more accurate sun-dials, became known to the Romans. In the fine arts, the Romans were, as yet, barbarians. After the second Punic war, the ancient purity and simplicity of manners gradually declined. At funerals the cruel combats of gladiators were exhibited; immense sums were spent in public shows; and licentiousness began to prevail. Even in this period laws were enacted against luxury, and the shameless *bacchanalia* were prohibited in 568.

Fourth Period. The wars in Spain, particularly against the Celtiberians and Lusitanians, were prosecuted with vigour. In the peasant Viriathus, the Romans found a formidable enemy. The rapacity of the proconsul Licinius Lucullus (603), and of the pretor Sulpicius Galba (604), caused the war to break out with renewed fury, under the conduct of Viriathus. After his assassination (614), Lusitania was reduced; but, on the other hand, the Numantines compelled the consul Mancinus to a disadvantageous treaty. (See *Numantia.*) Scipio terminated this war in 621; but Northern Spain still remained unsubdued. In the same year, the Romans received from Attalus the kingdom of Pergamus, in Asia, by bequest, and maintained their claims to it against

Aristonicus. With this acquisition, foreign wars ceased for a time; but Rome was agitated with internal commotions, which finally broke out into bloody civil wars. The unlimited power of the senate had created a hateful family aristocracy, which the tribunes of the people resisted, and which produced contests between the aristocratic and democratic parties more fatal than the former disputes between the patricians and plebeians. The contest began with Tiberius Gracchus who, for the relief of the lower orders of the people, demanded a juster distribution of the public lands. He was killed in an insurrection of the people; but the agrarian law remained in full force, and the disturbances still continued. Although the return of Scipio Æmilianus gave new strength to the aristocracy, yet the general insurrection of slaves in Sicily (620—623) was favourable to the democratic party. The tribunes of the people obtained a voice and a seat in the senate: they also endeavoured to make their re-election legal. The disturbances were quieted for a time by removing the chiefs of the popular party, under honourable pretences. During these events, the foundation of the Roman power in Transalpine Gaul was laid by Marcus Fulvius Flaccus, in 626, and as early as 632 the southern part was made a Roman province. In 631, Caius Gracchus was chosen tribune of the people; he renewed the agrarian laws with severer provisions, and gave rise to more dangerous excitements than his brother Tiberius. He endeavoured to make the equestrian order a counterpoise to the power of the senate, and attempted to strengthen his party by the admission of the whole population of Italy to the rights of Roman citizens; but the senate succeeded in depriving him of the favour of the people, and in effecting his ruin. In 633, he was killed in a riot, and the aristocracy took advantage of their victory to abolish the agrarian laws. On the other hand, difficulties arose with the Italian allies, who demanded the privileges of citizenship, and the breaking out of the war was prevented merely by accident. These factions had an injurious effect upon morals, which neither the strictness of the censorship, nor the sumptuary laws, nor the laws against celibacy (which were already become necessary), could control. Rapacity was the prevailing vice of the great, and licentiousness that of the multitude. The enormous wealth of the public treasury produced public luxury, which was soon followed by private luxury, that found ample means for its gratification in the extortions of the governors, and in the presents of foreign princes. The influence of bribery was particularly apparent in the war against Jugurtha (636—648), which was even protracted by it. The end of this bloody war opened to a plebeian, Caius Marius, the way to the highest dignities of the state, by which the aristocracy received a severe blow. He succeeded in overturning the constitution, while the war with the Cimbri, during a new servile war in Sicily, rendered him indispensable to the state. He was consul four years successively. At length, in 654, the storm burst over him, and, after a long struggle, he retired to Asia. (See *Marius*.) From 656 to 663, quiet prevailed, and the provinces enjoyed a short rest. The power of the equestrian order became a new source of abuses. It held the senate in dependence, and could easily oppose all reforms in the provinces, since it had not only the control of the judiciary, but farmed the revenues of the state. The contest which arose between the knights and the senate concerning the judicial power, was ruinous to the state. The knights were deprived of a part of their judicial power by Lucius Drusus, the tribune; but the manner in which this was effected kindled the dangerous social war. He proposed to admit the allies to the rights of citizenship, but his proposition excited so much dissatisfaction that he was murdered. The people of Italy, from the Liris to the Adriatic, now took up arms with the design of throwing off the Roman yoke. The danger was great. The *fasces* were committed to Lucius Julius Cæsar and Publius Rutilius Lupus, and under these consuls were formed the greatest generals of the time—Cn. Pompeius, C. Marius, Cæpio, C. Perpenna, Valerius Messala, Cornelius Sylla, T. Didius, P. Lentulus, P. Licinius, and M. Marcellus. But there were also men of distinguished talents on the other side; and, after the war had been carried on from 653 to 656, with various success and the greatest fury, it was terminated only by conceding the claims of the allies; and Rome thus ceased to be regarded as the exclusive head of the state. The devastations of Mithridates, and the disputes between Sylla and Marius, made this concession necessary. The quarrel between these two distinguished Romans commenced at the beginning of the first Pontic war. (See *Marius*, and *Sylla*.) The senate having given the chief command to Sylla, Marius united himself (656) with the tribune Sulpicius, for the purpose of displacing him from this office. But Sylla, at the head of his army, drove Marius from Rome, restored the dignity of the senate, and hastened to his province, after he had, in order to gain the people, raised his adversary, Cinna, to the consulship. The consequence was, that, during this war (656—659), a new anarchy prevailed in Rome, which became still more terrible after the death of Marius. In 671, the banished Sylla returned to Rome: a terrible civil war was the result, which was ended, in 673, by Sylla's elevation to the dictatorship. Sylla endeavoured to overthrow the democratic party. The attempt of Æmilius Lepidus to oppose him was without success. The war which broke out in Spain, under Sertorius, a leader of the democratic party, was more serious, and was concluded, in 682, by his assassination. At the same time, the frightful war of the gladiators and slaves broke out in Italy, and a new and more dangerous war began with Mithridates in Asia. The pirates were so powerful at this time, that they rendered the seas unsafe with their fleets, and threatened Rome with a famine. Pompey saved the state, however, by conquering first the pirates, and afterwards Mithridates. Asia Minor, Syria and Crete were made Roman provinces; Armenia, Cappadocia, the Bosphorus and Judea became wholly dependent upon Rome, and the Thracian power was broken. No foreign enemy could any longer be dangerous to Rome; but new commotions were constantly agitating her. Some attempts to overturn the constitution of Sylla were indeed frustrated; but, even in 679, Opimius carried a law providing that the tribunes should not be excluded from higher offices, and that the judicial tribunals should be restored to the knights; and Pompey and Crassus, during their consulship in 684, nearly annihilated it by completely restoring

the tribunitial power. By this victory of the democratic party, a kind of oligarchy was established, and powerful individuals obtained the direction of affairs. The conspiracy of Catiline (see *Catiline*) had for its object the overthrow of the existing powers, and the elevation of a party from the dregs of the people. Cicero defeated it, and restored internal tranquillity. Nevertheless, the state continued to decline; luxury, introduced by the immense wealth of Asia, had destroyed all the remains of ancient virtue. Selfishness and ambition were the ruling passions of the great. Pompey, who had now returned from Asia, found in the severe Cato a superior, and attached himself to the popular party, in order to prosecute his designs with their assistance. Cæsar's return from Lusitania (694) gave affairs a different turn. He formed with Pompey and Crassus the first triumvirate as it was called, and succeeded (695) to the consulship, which prepared the way for his assumption of the dictatorship. He obtained the province of Gaul for five years, and thus gained an opportunity of making conquests and forming an army. The chiefs of the senate, Cicero and Cato, were banished by the tribune Clodius before his departure; but the triumvirate caused Cicero to be recalled by the tribune Milo, without being able to destroy the power of Clodius. Cæsar accomplished, during his administration in Gaul, the subjugation of that country (696—704). The contest which arose during his absence between himself, Pompey, and Crassus, was settled in 698 by the treaty of Lucca, by which Cæsar obtained his province for five years more, and Pompey and Crassus the consulate for the succeeding year, after which the former was to have Spain and Africa, and the latter Syria, as their respective provinces. In spite of Cato's opposition, this plan was effected; but when Crassus fell, on his expedition against the Parthians, and Pompey, instead of departing to his province, remained at the head of the republic as sole consul, with almost dictatorial power, a civil war was unavoidable. (See *Cæsar*, and *Pompey*.) Instead of obeying the decree of the senate, Cæsar passed the Rubicon, and compelled Pompey to fly from Rome. The civil war broke out, and was ended in 706 at Pharsalia. Cæsar now became dictator, with the most extensive power. His first object was the entire reduction of the party of Pompey, and the restoration of order to Italy. He was assassinated in 710; but his adversaries could not preserve the republic. In 711, a new triumvirate was formed between Octavius, Antony and Lepidus; the object of which was the annihilation of the republican party. For the manner in which they pursued this object, by proscriptions and violence, and for their subsequent divisions, until the battle of Actium rendered Octavius master of the Roman empire, see the articles *Antony*, and *Augustus*. Rome now ceased to be a republic. The principal changes which the Roman constitution underwent during this period, have already been related. Bribery and private interest governed the assemblies of the people; interest and ambition actuated the public officers. The equestrian order now gained great power and immense riches. Marius extended the military system, but discipline was destroyed. The armies fought for their generals rather than for the state. They obeyed whoever paid them. But literature made great progress. To this period belong the poets M. Pacuvius, C. Lucilius, Plautus, Terence, Lucretius and Catullus; the historians Calpurnius Piso, Porcius Cato, Rutilius Rufus, Claudius Quadrigarius, and particularly Cæsar, Sallust, Cornelius Nepos, Hirtius Pansa, &c.; Cicero, the orator and philosopher, and Terentius Varro, the learned grammarian, who likewise wrote upon agriculture. At the close of this period began the golden age of Roman literature and art. The Greeks were imitated with taste and success. Not only the Roman youths went to Greece to complete their education, but learned Grecians flocked to Rome, and were employed in education and instruction. The language reached its highest perfection, and the theatre exhibited its masterpieces. Of the philosophical sects of Greece, the schools of Epicurus and Zeno met with the greatest success. Grecian artists elevated the standard of the arts, and Rome was filled with splendid buildings and the master works of sculpture. In the time of Cæsar and Pompey, the Grecian artists Arcesilaus, Pasiteles, Zopyrus, Criton, Nicolaus Strongylion, and the great lapidary Dioscorides, resided at Rome. But the corruption of morals increased with the increase of luxury; the greatest part of the people, especially of the nobility, was sunk in debaucheries and vices of every description. Laws were of little avail; agriculture and the mechanical arts were left entirely to slaves, who were treated in the most cruel manner. The common people lived, in spite of their poverty, in idleness, and were ready to devote themselves to those who would give them largesses. Every thing was to be obtained by gold.

III. We are next to consider Rome with a monarchical government, under the Cæsars, from the foundation to the division of the empire, from the year of the city 727 to 1148 (or 395 A. D.). This period forms four divisions:

1. Octavius returned to Rome as a conqueror in 725, and for forty-three years remained at the head of the government. He was the first sovereign in Rome without adopting this title. Satisfied with the surname of Augustus, which was given him in 727, he ruled with mildness, retaining the republican forms of government. He united in his own person the offices of consul, tribune, imperator and proconsul in all the provinces, and finally that of "*magister morum*" and *pontifex maximus*. To avoid the appearance of usurpation, he caused the supreme power to be confirmed to him from time to time. The senate acted the part of a council of state. The republican magistracies were retained, but their power was lost: on the other hand, the prefects of the city and of provisions became the most important officers, because upon them depended the public tranquillity. A city militia (*cohortes urbanæ*) and a body-guard (*cohortes prætorianæ*) were formed. The governors of the provinces were paid and limited in their power. Improvements were introduced in the financial system. The distinction between the public treasury and private purse of the emperor, naturally existed at first; but afterwards both were united. The boundaries of the empire were extended, particularly by the addition of Egypt (724), Pannonia (719), Mœsia (725), Rhætia, Vindelicia and Noricum (739), and by the complete subjugation of Northern Spain and Western Gaul (729). On the other hand, the Romans were unsuccessful against the Germans. The successor of Augustus was his

step-son Tiberius (q. v.), from 767 to 790. Under him despotism was established by the tribunals of majesty (*judicia majestatis*). The servility and timidity of the senate in this matter was as criminal as the tyrannical character of the prince, who suffered himself to be guided from 776 to 784 by the monster Sejanus. His successors were Caligula (until 794) and Claudius (until 807); the former a mad tyrant, and the latter a dotard. The conquests in Britain began (796) under Claudius, and Mauritania (795), Lycia (796), Judæa (797), and Thrace (800), were declared provinces. His successor, Nero (from 807 to 821), a hypocritical tyrant, addicted to debauch and cruelty, was the last emperor of the family of Augustus. Under him the greatest part of Britain was made a Roman province, and war was successfully carried on in Armenia and against the Jews. During the disturbances which followed Nero's death, in less than two years, three persons made themselves masters of the throne by force—Galba, Otho and Vitellius. (See the articles.) This period, particularly the reign of Augustus, was the golden age of literature and the arts. Instead of politics, the distinguished men of the empire were engaged in science, and especially in polite literature: they also protected and patronised men of letters: such patrons, for example, were Mæcenas and Agrippa. Augustus and Asinius Pollio founded public libraries. In poetry, the names of Virgil, Ovid, Cornelius Gallus, Cornelius Severus, Tibullus, Propertius, Gratius Faliscus, Manilius, Horace and Phædrus are distinguished; and there were a multitude of epigrammatists. Livy and Dionysius of Halicarnassus wrote their valuable histories. Eloquence necessarily declined, but philosophy and mathematics found both admirers and cultivators. Vitruvius was celebrated on account of his knowledge of architecture, and Hyginus on account of his *Astronomicon*. As a grammarian, M. Verrius Flaccus deserves to be mentioned; geography had a Strabo, and jurisprudence Q. Antistius Labeo, C. Anteius Capito and C. Trebatius Testa. Architecture, sculpture and glyptics also flourished. After the death of Augustus, literature declined, and the style and language degenerated. M. Annæus Lucan, Valerius Flaccus and Persius Flaccus distinguished themselves, however, as poets; Velleius Paterculus, Diodorus Siculus and Valerius Maximus as historians; M. and L. Annæus Seneca as rhetoricians and philosophers; and Aurelius Cornelius Celsus as a physician. Asconius Pedianus wrote commentaries on the writings of Cicero; and in jurisprudence Masurius Sabinus, M. Cocceius Nerva, Cassius Longinus and Sempronius Proculus were eminent. The arts declined; the corruption of manners was increased by debauchery and unnatural passion; foreigners and freedmen were the confidants of the emperor; the soldiers formed a distinct order, and served not the state, but the despots whom they rendered dependent upon themselves.

2. After the fall of Vitellius, Flavius Vespasianus (823) ascended the throne. He restored the empire by introducing order into the finances, promoting public education, reviving discipline, and abolishing the tribunals of majesty. Under his government, the war with Civilis the Batavian broke out, and the conquest of Britain by Agricola was completed. Vespasian reigned till 832, his excellent son Titus till 834, and the brother and successor of the latter, Domitian, a perfect tyrant, until 849. Under his reign arose the war with Decebalus, the king of the Dacians, who stirred up the wars of the Marcomanni, Quadi and Jazyges, from 839 to 843, which proved so unfortunate to the Romans. He was murdered, and was followed by several celebrated sovereigns. Nerva (until 851) abolished the reign of terror, diminished the taxes, and encouraged industry; Trajan (until 870) restored, as far as possible, a free constitution, and enlarged the empire by fortunate wars against the Dacians, Armenians and Parthians; and Adrian (to 891) improved the internal condition of the empire, and the discipline of the soldiery. Rome was happy under the peaceful government of Antoninus Pius (until 914); under that of Marcus Aurelius, or Antoninus, the philosopher (until 933), great disasters and bloody wars with the Catti, Parthians, and especially the Marcomanni, disturbed the empire; but his wisdom healed all wounds. With him (180, A. D.) ended the prosperity of Rome. The constitution of the state was now a limited monarchy, founded upon civil freedom. The offices of state became in part mere titles of honour; and, on the other hand, a great number of court offices were instituted, which were continually usurping power. Italy was divided into four provinces, which were governed by men of consular rank. The *edictum perpetuum* effected great changes in the administration of justice, and the imperial commands were continually encroaching upon the decrees of the senate. In the military department, likewise, great alterations had taken place, particularly a different division of the troops. Literature, particularly poetry and eloquence, were on the decline; but the emperors endeavoured to promote learning, by the collection of libraries, by the erection of public halls, and by supporting instructors. The poets of this period are Silius Italicus, Papinius Statius, Juvenal and Martial; the historians are Tacitus, Appian, Florus, Justin, Curtius, Arrian, Suetonius and Plutarch; the principal orator was Pliny the younger; Epictetus and Marcus Aurelius were distinguished as Stoic philosophers; and besides these there were many New Platonists; Galen and Scribonius Largus were the chief physicians. Frontinus wrote upon hydraulic architecture. Pliny the elder upon the productions of nature and art, Columella upon agriculture and gardening, and Polyænus and Frontinus upon military stratagems; Gellius was celebrated for his knowledge of antiquity; in geography Ptolemy and Antoninus, author of a journal of travels to Britain, were eminent; and Quinctilian was distinguished in rhetoric: Salvius Julianus, Aburnus Valens, Sextus Cæcilius Africanus, Terentius Clemens, Vinidius Verus, and Junius Mauritianus, were celebrated jurists; and Sextus Pomponius, C. Velusius Mæcianus, Q. Cervidius Scævola, and Ulpius Marcellus, were yet more distinguished authors on the subject of jurisprudence.

3. From this time the decline of the Roman empire was constantly accelerated. Commodus, the son of Marcus Aurelius (from 933 to 945) was a monster. He purchased peace of the Marcomanni, and his generals fought successfully in Dacia and Britain. Great commotions followed his death. Pertinax reigned only two months, and Marcus Didius Julianus, who purchased the empire, as the highest bidder, for an equal period; the army in Illyria then chose Septimius Severus emperor, and the one in Syria, Pescenninus Niger. The former maintained his claims, and reigned till 965. He

kept in check the Parthians and Britons. Caracalla (till 970) was a tyrant; his murderer, Macrinus, succeeded, and reigned till 971; Heliogabalus, a shameless voluptuary, till 975; and Alexander Severus, an excellent prince, till 988. After the latter, his murderer, Maximin the Thracian (till 991), exercised a military despotism. While he was carrying on the war in Germany with success, the senate chose the elder Gordian emperor, and, after the death of Gordian, Maximus Pupienus and Clodius Balbinus. The pretorians murdered them, and raised the younger Gordian to the throne; and he reigned until 997, and Marcus Julius Philippus till 1002. Then succeeded Trajanus Decius (slain by the Goths, 1004); Trebonianus Gallus (till 1006); Æmilius Æmilianus (three months); Pulius Licinius Valerianus (1011); Publius Licinius Gallianus (until 1021), under whom almost all the governors raised themselves to the rank of emperors, and the Germans and Persians triumphed over the Romans; M. Aurelius Claudius (until 1023), who overthrew the Alemanni and Goths; Domitius Aurelianus (until 1028), who recovered all the lost countries, took Zenobia prisoner, and voluntarily evacuated Dacia; M. Claudius Tacitus (until 1029); Probus (until 1035), a warlike and prudent prince; M. Aurelius Carus (until 1036); and Marcus Aurelius Numerianus (until 1037), an accomplished and gentle prince: Dioclesian succeeded him (until 1058); he appointed M. Valerius Maximian his colleague, and united Caius Galerius, Maximian associating Flavius Constantius Chlorus, in the empire, as assistants: they distributed the empire among themselves, without dividing it, and not only resisted the barbarians, but extended the empire in the East to the Tigris; the two emperors retired from the government (1058), and Galerius succeeded in the East, and Constantius in the West. Galerius appointed two assistants (Cæsars), Flavius Severus and Maximin. Constantius died in 1059, and left his dominions to his son Constantine, who, in 1076, succeeded to the whole empire, by a series of perfidious artifices. In this period, the constitution remained nominally the same, but a military despotism controlled every thing. The soldiery made and unmade emperors. In the administration of justice, the emperors decided by their constitutions, so called. The corruption of manners, the weakness of the empire, oppressive taxes, the poverty of the people, the tyranny of the rulers, and the encroachments of the barbarians, continually increased. Literature and taste declined; language and style degenerated. Some individuals studied the ancients, and took them for models. Among the poets, Terentianus Maurus and Nemesianus are worthy of notice; among the historians, Dio Cassius and Herodian are of acknowledged merit; and the *Scriptores Historiæ Augustæ*, Spartianus, Capitolinus, Trebellius Pollio, Vopiscus, Lampridius, and Vulcatius Gallicanus, must be mentioned. Apuleius wrote romances, and Ælian compiled anecdotes. Mamertinus, Nagarius, Magnus Ausonius, &c., panegyrists of the emperors, and Latinus Drepanius, Eumenius and Pacatus composed rhetorical works. Latinus Solinus the grammarian wrote an abridgment of Pliny's Natural History, under the title of *Polyhistor;* Serenus Samonicus a didactic poem upon medicine; Palladius a work upon agriculture; and Censorinus the grammarian a learned chronological work *De Die natali*. Papinian, Ulpian, Julius Paulus and Herennius Modestinus were eminent jurists. Art was extinct. The Christian religion was already widely extended.

4. Constantine the Great (reigned until 1099) embraced Christianity, in 1064, from political motives, and it thus became the predominant religion. The imperial residence was removed to Constantinople; the empire was divided anew, and the civil and military power were separated. After the death of Constantine, his three sons, Constantine, Constantius and Constans, divided the empire, until Constantius, in 1106, united the whole after a war of twelve years' duration. He reigned first with Cæsar Constantius Gallus, and afterwards with the Cæsar Julian, until 1114, maintaining constant wars with the barbarians. His successor was Julian (until 1116), an able and virtuous prince, called the *Apostate*, because he relapsed into heathenism. After him Jovian reigned until 1117, Valentinian I., in the West, until 1128, Valens, in the East, until 1131, in whose reign the Huns entered Europe; Gratian and Valentinian II. succeeded in the West; the former reigned until 1136, the latter until 1145, and Theodosius until 1147 in the East, and until 1148 over the whole empire. He divided the empire (395 A. D.), which henceforth remained separated, into the Eastern and Western Roman empires. (See the history of the former under the head *Byzantine Empire*, and of the latter under *Western Empire*.) To this period belong the following authors: Claudian the poet, Ammianus Marcellinus, Aurelius Victor, Eutropius, and Zosimus, historians. Symmachus was celebrated as a rhetorician, and Themistius as a sophist. Vegetius wrote upon the science of war, and Macrobius was a successful follower of Varro and Gellius. Victor and Sextus Rufus wrote upon the topography of Rome. From this time the Roman language continually degenerated by the intermixture of barbarous words, and the corruption of taste, until at length it wholly disappeared in the Romanic languages, and all learning perished. For the earlier periods of Roman history, see Niebuhr's *Roman History*, Ferguson's *History of the Roman Republic*, Wacksmuth's *Early History of Rome* (in German 1819). For the history of the empire, see the works of Tillemont, Crevier, Gibbon, and that of Hübbler (3 vols., Freyburg, 1803).

Ancient Rome, although visited for a thousand years by various calamities, is still the most majestic of cities. The charm of beauty and dignity still lingers around the ruins of ancient, as well as the splendid structures of modern Rome, and brilliant recollections of every age are connected with the monuments which meet the passing traveller at every step. The characteristics of ancient and modern times are no where so distinctly contrasted as within the walls of Rome. Ancient Rome was built upon several hills, which are now scarcely discoverable, on account of the vast quantities of rubbish with which the valleys are filled. (See the preceding historical sketch.) The eastern bank of the Tiber was so low as to subject the city to frequent inundations. The extent and population were very different at different times. We speak here of the most flourishing period. Vopiscus, in his life of Aurelian, relates that the circumference of the city, after its last enlargement by that emperor, was 50,000 paces, for which we must probably read 15,000, as Pliny estimates the circumference, just before the reign of Aurelian, at 13,000 paces, and the accounts of modern travellers agree with this statement. The inhu-

bitants at that time may have amounted to about 3,000,000. The number of inhabitants enjoying the rights of citizenship was never more than 300,000. Romulus surrounded the city with a wall, or rather with an earthen mound. Of the four gates which he built—the Porta Carmentalis, the Pandana or the Saturnia, the Roman gate, and the Mugionia—the Carmentalis alone remains. The wall ran from mount Palatine, at the foot of mount Aventine, to the Tiber; one part of it then extended between the Tiber and the Capitoline hill, and on the other side separated the Palatine from the Cœlian, Esquiline, Viminal, and Quirinal hills, and finally terminated at the capitol. The second, or the Servian wall, was much more extensive, and embraced all the above mentioned hills, on the southern and eastern sides; ran round under mount Aventine to the Tiber; thence passed to the west side of the river, where, being continued in the form of a triangle, as far as the summit of Janiculum, it separated this from the other hills; and then, proceeding to the southern end of the island of the Tiber in a direct course, embraced the whole body of the buildings beyond the river. On the north side of the city, the old walls of Romulus were mostly preserved; but the old wall terminated at the summit of Quirinalis, while the Servian extended to its easternmost extremity, and then ran round the other hills towards the east. The Pincian hill, Campus Martius, and the Vatican hill, therefore, lay entirely outside of it. The third, or Aurelian wall, likewise included all these parts. It ran from the north-eastern extremity of Quirinalis, northwardly; embraced the Campus Martius, which it separated from the Pincian hill; extended beyond the latter to the river; enclosed, beyond the river, the Vatican, in a large bend; and then joined the old wall, which reached to the summit of Janiculum; so that the island of the Tiber was now contained within the limits of the city. In so large a circuit the number of gates must have been considerable. Pliny enumerates thirty-seven, of which several yet remain, but under different names. Ancient Rome had several bridges, of which some are still passable. The lowest and oldest bridge was the Pons Sublicius, which led from mount Aventine into the valley below Janiculum, and is no longer standing. The second led from the forum to Janiculum, and was called Pons Senatorius, because the solemn procession of the senate passed over it, when the Sybilline books were to be carried from Janiculum. It was the first stone bridge in Rome, and still exists in ruins under the name of Mary's bridge (Ponte Rotto). Two bridges led to the island in the Tiber, one from the east, and the other from the west side; the former was called Pons Fabricius (now Ponte di Quattro Capi), and the latter Pons Cestius (now Bartholomew's bridge). A fourth bridge, Pons Janiculensis (now Ponte Sisto), led from the Campus Martius, near the theatre of Marcellus, to Janiculum. The ruins of the fifth, Pons Vaticanus, or Triumphalis, may be seen near the hospital of S. Spirito, and led from the Campus Martius to the Vatican. The Ælian bridge (Pons Ælius; now the beautiful bridge of St Angelo) led to the Moles Adriani. Beyond the wall, and above the Pincian hill, was the seventh bridge, Pons Milvius, (now Ponte Molle), built by Æmilius Scaurus, after the time of Sylla. The streets of Rome, even after the city was rebuilt under Nero, were very irregular. The public squares, of which there were a great number, were distinguished into *areæ*, squares in front of the palaces and temples; *campi*, open places, covered with grass, which served for popular assemblies, public processions, for the exercise of the youth in arms, and for the burning of the dead bodies; and *fora*, which were paved, and served either for the assembling of the people, for the transaction of public affairs, or for the sale of goods, or for ornament. Among the latter, the Forum Romanum (see *Forum*), and Campus Martius were the most celebrated. The earliest division of Rome was made by Servius Tullius; he divided it into four quarters, which he called Tribus urbanæ; they were the Tribus Suburbana, Collina, Esquilina and Palatina. This division continued till the reign of Augustus, who divided the city into fourteen regions, according to which ancient Rome is generally described: 1st. Porta Capena; 2d. Cœli Montium; 3d. Isis et Serapis, or Moneta; 4th. Via Sacra, afterwards Templum Pacis; 5th. Esquilina cum colle et turri Viminali; 6th. Alta Semita; 7th. Via Lata; 8th. Forum Romanum; 9th. Circus Flaminius; 10th. Palatium; 11th. Circus Maximus; 12th. Piscina Publica; 13th. Aventinus; 14th. Trans Tiberim. The temples, theatres, amphitheatres, circuses, naumachæ, porticoes, basilicæ, baths, gardens, triumphal arches, columns, sewers, aqueducts, sepulchres, &c., are the principal public buildings and monuments. For the capitol, the citadel, and principal temple of Rome, consecrated to Jupiter Capitolinus, and the Pantheon, see the articles. Next to these, the following were the most remarkable; the temple of Æsculapius, in the island of the Tiber, which was consecrated to that god, now the church of St Bartholomew; the temple of Antonius and Faustina, in the Via Sacra, now the church of S. Lorenzo in Miranda; the magnificent temple of Apollo, which Augustus built of white marble, on the Palatine, in which were preserved the Sybilline books (it contained, besides many other curiosities, a splendid library, and served as a place of resort to the poets, who here recited their works); the temple of the Cæsars (Templum Cæsarum), which contained the statues of the Cæsars, the heads of all which were struck off at once by lightning; the temple of the Dioscuri, in the Forum Romanum, under the Palatine hill, opposite the church of Sta. Maria Liberatrice, built in honour of the two youths, who, in the battle of the lake Regillus, assisted the Romans in gaining the victory, and were supposed to be Castor and Pollux; the temple of the goddess Seia, under the Palatine, built by Servius Tullius, which Nero enclosed in his golden palace, and caused to be covered with transparent Cappadocian marble; the temple of the confederacy, under the name of *Templum Dianæ commune*, which the Latin cities built in union, by the persuasion of Servius Tullius, and upon a monument in which were inscribed the articles of the confederation (this temple was situated upon the Aventine hill, near the church of Sta. Prisca); the temple of Janus, upon the island of the Tiber, near the modern Sistine bridge, one of the most beautiful of ancient Rome; the temple of the Flavian family, in which Domitian was buried, still standing on the Piazza Grimana; the temple of Hercules and the Muses, built in the ninth region by Fulvius Nobilior, who placed here the images of the Muses, brought by him from Ambracia; the temple of Honour and Virtue, in the first region, built by Marcus Marcellus, and ornamented

by the Marcelli with the monuments of their family; the temple of Jupiter Stator, on the declivity of the Palatine hill, and vowed by Romulus on an occasion when his soldiers began to flee; the temple of Jupiter Tonans, built by Augustus with much splendour on the slope of the Capitoline hill; the beautiful temple of the Lycaonian hill, on the island of the Tiber, which thence received the name of Lycaonia; two temples of Isis and of Serapis; the temple of Juno Moneta, built upon the spot where the house of Manlius was torn down, on the fortifications of the Capitoline hill, because the awakening of the garrison on the attack of the Gauls was attributed to this goddess; the temple of Liberty, built by Gracchus in the thirteenth region, and restored by Asinius Pollio, who there established the first public library; the temple of Mars, on the east side of the Appian Way, before the Porta Capena, in the first region, in which the senate gave audience to generals who claimed the honour of a triumph, and likewise to foreign ambassadors (the church delle Palme stands upon its ruins); the temple of Mars Ultor, built by Augustus with great splendour, when he recovered the eagles of the legions that had been conquered by the Parthians; the splendid temple of Minerva, which Domitian built in the forum of Nerva; another temple of the same goddess, which Pompey built in the Campus Martius, and which Augustus covered with bronze; the temple of Peace, once the richest and most beautiful temple in Rome, built by Vespasian, in the Via Sacra, in the fourth region, which contained the treasures of the temple of Jerusalem, a splendid library, and other curiosities, but was burnt under the reign of Commodus; the temple of the goddess Salus, which was painted by Fabius Pictor, the first Roman painter; the temple of Saturn, built by Tarquin the younger, which was afterwards used for the treasury and the archives of Rome; the temple of the Sun, which Aurelian erected at an enormous expense, and of which some ruins still exist; several temples of Venus, and among them, particularly, the magnificent temple of Venus Genitrix, which Cæsar caused to be built to her as the origin of his family, and the temple of Venus and Roma, of which Adrian himself designed the model; the temple of Vesta, one of the oldest and most remarkable, built by Numa on the southern summit of the Palatine: in it were contained the *ancilia*, or sacred shields, and the palladium, sacred fire, &c. Of the palaces, the imperial was the most distinguished. It was built by Augustus upon the Palatine hill, and gave the name to the tenth region of the city. The front was on the Via Sacra, and before it were planted oaks. Within the palace lay the temple of Vesta, and also that of Apollo, which Augustus endeavoured to make the chief temple in Rome. The succeeding emperors extended and beautified this palace. Nero burnt it, but rebuilt it, of such extent that it not only embraced all the Palatine hill, but also the plain between that and the Cœlian and Esquiline, and even a part of these hills, in its limits. He ornamented it so richly with precious stones, gold, silver, statues, paintings, and treasures of every description, that it justly received the name of *domus aurea* (golden house). The following emperors not only stripped it of its ornaments, but Vespasian and Titus caused some parts of it to be pulled down. Domitian afterwards restored the main building. In the reign of Commodus, a great part of it was burnt; but it was restored by him and his successors. In the time of Theodoric, it needed still further repairs; but this huge edifice subsequently became a ruin, and on its site now stand the Farnese palace and gardens, and the Villa Spada. Among the theatres, those of Pompey, Cornelius Balbus, and Marcellus, were the most celebrated. Pompey built that which bore his name, after his return from Greece, and adorned it with the most beautiful Grecian statues. An aqueduct brought water into every part of it. In order to protect it from destruction, he built within its precincts a splendid temple to Venus Victrix. It was capable of containing 40,000 persons. Caligula first finished it, but Tiberius had previously restored the scenes: Claudius, still later, did the same thing, and the gothic king Theodoric caused it to be repaired. A few remains of it are yet to be distinguished near the palace Ursini. The theatre of Balbus, the favourite of Augustus, was situated in the Campus Martius. The theatre of Marcellus was built by Augustus in memory of his nephew Marcellus. It accommodated 22,000 spectators, and was repaired by Vespasian. Some beautiful ruins of it are still to be seen. Among the amphitheatres, that of Titus was the most remarkable. (See *Coliseum;* and for the circus maximus and the circus of Caracalla, see *Circus.*) Among the remaining circuses, the following deserve to be mentioned: the circus Agonalis, in the ninth region; the circus Aurelius, in the gardens of Heliogabalus, in the fifth; the circus Flaminius, in the ninth, one of the largest and most remarkable, upon the ruins of which the church of Sta. Caterina de' Funari and the palace Maffei now stand; the circus of Flora in the sixth region, upon the same spot which the Piazza Grimana now occupies, where the licentious *Floralia* were celebrated; lastly, the circus of Nero, in the fourteenth region, near the modern church of St Peter; and the circus of Sallust, the ruins of which are still visible near the Colline gate. Without stopping to describe the Naumachiæ (q. v.), we will proceed to the porticoes or colonnades. Among these are the Porticus Argonautarum, also called Porticus Neptuni, Agrippæ, or Vipsanii, which Marcus Vipsanius Agrippa built in 729, and adorned with paintings, representing the history of the Argonauts: it was situated in the Campus Martius, surrounded by a laurel grove, and the marble pillars, still visible in the Piazza di Pietra, probably belonged to it; the splendid portico of Europa in the Campus Martius, supposed to have been built by Augustus, and containing the history of Europa; the Porticus Hecatonstylon, in the ninth region, so called from its having 100 pillars; the portico of Livia, in the third region, built by Augustus, and demolished by Nero; the portico of Metellus, founded by Metellus Macedonicus, between the temple of Apollo, built by him; and that of Juno, in the ninth region, and ornamented with statues, brought by him from Macedonia; the Porticus Milliarensis, or of the thousand columns, the ruins of which are yet to be seen in the gardens of the duke of Muti; the portico of Octavia, built by Augustus; and the portico of Pola, built by Marcus Vipsanius Agrippa; the portico of Pompey, called the Corinthian, from its pillars being of that order of architecture; Pompey built it near his theatre, and ornamented it with golden tapestry: finally, the portico of the sun (*Porticus Solis*), which was built by Aurelian. Among the Basili-

cæ (q. v.), one of the most beautiful was the Æmilian, on the northerly side of the Forum Romanum, built by Paulus Æmilius. We will also mention the Basilica Caii, or Lucii, on the Esquiline hill, the splendid Basilica Julia, on the southern side of the Forum Romanum, built by Julius Cæsar, and the Basilica Portia, which was the oldest, and was built by Cato the Censor. Of the public baths, some of which equalled in extent large palaces, and were ornamented with still greater splendour, there have been enumerated about twenty-two warm, and 856 cold, besides 880 private baths. Mæcenas and Agrippa founded the first public baths, which were afterwards surpassed by those of Caracalla, and these, in their turn, by those of Dioclesian, vestiges of which remain till this day. Rome was likewise rich in magnificent gardens. The gardens of Lucullus, in the ninth region, hold the first rank; after these the gardens of Asinius Pollio, Julius Cæsar, Mæcenas, Heliogabalus, &c. Of the triumphal arches, the most celebrated are, that of Constantine, the ruins of which are yet seen; that of Drusus, in the Appian Way, of which the modern gate of St Sebastian is said to have been built; that of Gallienus, and those of Severus and Titus, which are yet in good preservation; the former in the Forum, and the latter in the Vicus Sandalarius. Among the columns, the most beautiful was Trajan's pillar, 118 feet in height, still standing. Instead of the statue of that emperor, which it formerly bore, Sixtus V. placed upon it a statue of St Peter, in bronze, twenty-three feet in height. The bass-reliefs, with which it is ornamented, represent the exploits of Trajan, and contain about 2500 half and whole human figures. A flight of stairs, within the pillar, leads to its summit. The *columna rostrata*, which Duillius erected in commemoration of his victory over the Carthaginian fleet, and the pillars of Antoninus and Aurelian, are still standing. The sewers (*cloacæ*), by means of which the filth and superfluous water of the city were conveyed into the Tiber, are among the most remarkable architectural works of ancient Rome; they are subterranean canals, of from ten to sixteen feet in height, and from twelve to fourteen in width, and, although constructed in the earliest ages of the city, are of such an indestructible solidity, that several earthquakes have but slightly injured them; and some parts of them are in perfect preservation. (Concerning the aqueducts of Rome, of which about twenty have been enumerated, see *Aqueduct*.) Among the magnificent sepulchral monuments, the mausoleum of Augustus and the Septizonium of Septimius Severus surpassed all others in splendour. This city was also rich in splendid private buildings, and in the treasures of art, with which not only the public places and streets, but likewise the residences and gardens of the principal citizens, were ornamented, and of which but comparatively few vestiges have survived the ravages of time. See Burton's *Antiquities of Rome* (Oxford, 1821); Nardini's *Roma Antica* (Nibby's edition, with annotations, plans, &c., Rome, 1820, 4 vols., 8vo.); Venuti's *Descrizione topographica delle Antichità di Roma* (3d edition, with Piali's notes, Rome, 1824, 2 vols. quarto, with seventy-two engravings).

Modern Rome; the capital of the States of the Church, the residence of the pope, and for centuries the capital of Christendom, at present the capital of the world of the arts (41° 53′ 45″ N. lat.; 12° 28′ E. lon.) It is about thirteen miles in circuit, and is divided by the Tiber into two parts. The churches, palaces, villas, squares, streets, fountains, aqueducts, antiquities, ruins,—in short, every thing proclaims the ancient majesty and present greatness of the city. Among the churches, St Peter's is the most conspicuous, and is, perhaps, the most beautiful building in the world. Bramante began it; Sangallo and Peruzzi succeeded him; but Michael Angelo, who erected its immense dome, which is 450 feet high to the top of the cross, designed the greatest part. Many other architects were afterwards employed upon it; Maderno finished the front and the two towers. The erection of this edifice, from 1506 to 1614, cost 45,000,000 Roman crowns. Before we arrive at this beautiful temple, the eye is attracted by the beautiful square in front of it, surrounded by a magnificent colonade by Bernini, and ornamented by an Ægyptian obelisk, together with two splendid fountains. Upon entering the vestibule, Giotti's mosaic, la Navicella, is seen. Under the portico, opposite the great door, is Bernini's great bass-relief representing Christ commanding Peter to feed his sheep; and at the ends of the portico are the equestrian statues of Constantine by Bernini, and of Charlemagne by Cornachini. The union of these master works has an indescribable effect. The harmony and proportion which prevail in the interior of this august temple are such, that, immense as it is, the eye distinguishes all the parts without confusion or difficulty. When each object is minutely examined, we are astonished at its magnitude, so much more considerable than appears at first sight. The immense canopy of the high altar, supported by four bronze pillars of 120 feet in height, particularly attracts the attention. The dome is the boldest work of modern architecture. The cross thereon is 450 feet above the pavement. The lantern affords the most beautiful prospect of the city and the surrounding country. The splendid mosaics, tombs, paintings, frescoes, works in marble, gilded bronze and stucco, the new sacristy, a beautiful piece of architecture, but not in unison with the rest, deserve separate consideration. The two most beautiful churches in Rome next to St Peter's are the St John's of the Lateran, and the Santa Maria Maggiore. The former, built by Constantine the Great, is the parochial church of the pope; it therefore takes precedence of all others, and is called *Omnium urbis et orbis ecclesiarum mater et caput* (the head and mother of all churches of the city and the world.) In it is celebrated the coronation of the popes. It contains several pillars of granite, *verde antico*, and gilt bronze; the twelve apostles by Rusconi and Legros; and the beautiful chapel of Corsini, which is unequalled in its proportions, built by Alexander Galilei. The altar-piece is a mosaic from a painting of Guido, and the beautiful porphyry sarcophagus, which is under the statue of Clement XII., was found in the Pantheon, and is supposed to have contained the ashes of M. Agrippa. The nave of the church of Santa Maria Maggiore is supported by forty Ionic pillars of Grecian marble, which were taken from a temple of Juno Lucina: the ceiling was gilded with the first gold brought from Peru. We are here struck with admiration at the mosaics; the high altar, consisting of an antique porphyry sarcophagus; the chapel of Sixtus V., built from the designs of Fontana, and

richly ornamented; the chapel of Paul V., adorned with marble and precious stones; the chapel of Sforza, by Michael Angelo; and the sepulchres of Guglielmo della Porta and Algardi. In the square before the front is a Corinthian column, which is considered a master-piece of its kind. The largest church in Rome next to St Peter's was the Basilica di San Paolo delle Mura, on the road to Ostia, burnt a few years since. (See *Paul, Churches of St*). The church of S. Lorenzo, without the city, possesses some rare monuments of antiquity. The church of San Pietro in Vincola contains the celebrated statue of Moses, by Michael Angelo. The church of St Agnes, in the place Navona, begun by Rainaldi and completed by Borromini, is one of the most highly ornamented, particularly with modern sculpture. Here is the admirable relief of Algardi, representing St Agnes deprived of her clothes, and covered only with her hair. The Basilica of St Sebastian, before the Porta Capena, contains the statue of the dying saint, by Giorgetti, a pupil of Algardi, and the master of Bernini. Under these churches are the catacombs, which formerly served as places of burial. In the church of St Agnes, before the Porta Pia, among many other beautiful columns, are four of porphyry, belonging to the high altar, and considered the most beautiful in Rome. In a small chapel is a bust of the Saviour by Michael Angelo, a masterpiece. In the church of St Augustine, there is a picture by Raphael, representing the prophet Isaiah, and an Ascension, by Lanfranco. The monastery has a rich library, called the Angelica, and increased by the library of cardinal Passionei. The following churches also deserve to be mentioned, on account of their architecture and works of art; the churches of St Ignatius, St Cecilia, S. Andrea della Valle, S. Andrea del Noviziato, the Pantheon (also called la Rotonda), in which Raphael, Annibal Caracci, Mengs, &c., are interred. All the 364 churches of Rome contain monuments of art or antiquity. Among the palaces, the principal is the Vatican, an immense pile, in which the most valuable monuments of antiquity, and the works of the greatest modern masters, are preserved. Here are the museum Pio-Clementinum, established by Clement XIV., and enlarged by Pius VI., and the celebrated library of the Vatican. The treasures carried away by the French have been restored. Among the paintings of this palace, the most beautiful are Raphael's frescoes in the *stanze* and the *logge*. The principal oil paintings are in the *appartamento* Borgia, which also contains the Transfiguration, by Raphael. In the Sixtine chapel is the Last Judgment of Michael Angelo. The popes have chosen the palace of Monte Cavallo, or the Quirinal palace, with its extensive and beautiful gardens, for their usual residence, on account of its healthy air and fine prospect. The Lateran palace, which Sixtus V. had rebuilt, by Fontana, was changed, in 1693, into an alms-house. Besides these, the following are celebrated: the palace della Cancelleria, the palace de' Conservatori, the palace of St Mark, the buildings of the academy, &c. Among the private palaces, the Barberini is the largest; it was built by Bernini, in a beautiful style. Here are the Magdalen of Guido, one of the finest works of Caravaggio, the paintings of the great hall, a masterpiece of Peter of Cortona, and other valuable paintings. Of the works of sculpture, the Sleeping Fawn, now in Munich, was formerly here; the masterly group representing Atalante and Meleager, a Juno, a sick Satyr, by Bernini, the bust of cardinal Barberini, by the same artist, and the busts of Marius, Sylla, and Scipio Africanus, are in this palace. The library is calculated to contain 60,000 printed books and 9000 manuscripts; a cabinet of medals, bronzes, and precious stones, is also connected with the library. The Borghese palace, erected by Bramante, is extensive, and in a beautiful style; the colonnade of the court is splendid. This palace contains a large collection of paintings, rare works of sculpture, valuable tables, and utensils of rich workmanship, of red porphyry, alabaster, and other materials. The upper hall is unrivalled; the great landscapes of Vernet, with which it is adorned, are so true to nature, that, upon entering, one imagines himself transported into real scenes. The palace Albani, the situation of which is remarkably fine, possesses a valuable library, a great number of paintings, and a collection of designs by Caracci, Polydoro, Lanfranco, Spagnoletto, Cignani, and others. The palace Altieri, one of the largest in Rome, is in a simple style of architecture, and contains rare manuscripts, medals, paintings, &c., and valuable furniture. In the palace Colonna there is a rich collection of paintings by the first masters; all the rooms are decorated with them, and particularly the gallery, which is one of the finest in Europe. In the gardens are ruins of the baths of Constantine and those of the temple of Sol. The Aldobrandini palace contains the finest monument of ancient painting—the Aldobrandine Wedding, a fresco purchased by Pius VII., in 1818, in which the design is admirable. The great Farnese palace, begun from designs of Sangallo, and completed under the direction of Michael Angelo, is celebrated both for its beauty and its treasures of art. The Caracci and Domenichino have immortalized themselves by their frescoes in its gallery. The Farnese Hercules, the masterly Flora, and the urn of Cæcilia Metella, formerly adorned the court; and in the palace itself was the beautiful group of the Farnese bull. But when the king of Naples inherited the Farnese estate, these statues, with other works of art, were carried to Naples, where they now adorn the palace degli Studj. Not far off is the palace Corsini, where queen Christina lived and died in 1689. It contains a valuable library and gallery. The palace Giustiniani also had a gallery adorned with numerous valuable statues and works of sculpture; its principal ornaments were the celebrated statue of Minerva, the finest of that goddess now known, and the bass-relief of Amalthea suckling Jupiter. These treasures were nominally bought by Napoleon, and are now in Paris. The paintings are chiefly in the possession of the king of Prussia. In the palace Spada is the statue of Pompey, at the foot of which Cæsar fell under the daggers of his murderers. We have yet to mention the palace Costaguti, on account of its fine frescoes; Chigi, for its beautiful architecture, its paintings, and library; Mattei, for its numerous statues, reliefs, and ancient inscriptions; the palace of Pamfili, built by Borromini, for its splendid paintings and internal magnificence; that of Pamfili in the square of Navona, with a library and gallery; Rospigliosi, upon the Quirinal hill, &c. Among the palaces

of Rome, which bear the name of *villas*, is the Villa Medici, on the Pincian mount, on which were formerly situated the splendid gardens of Lucullus: it once contained a vast number of masterpieces of every kind; but the grand-dukes Leopold and Ferdinand have removed the finest works (among them, the group of Niobe by Scopas) to Florence. This palace, however, is yet very worthy of being visited. Under the portico of the Villa Negroni are the two fine statues of Sylla and Marius, seated on the *sella curulis*. In the extensive garden, which is three miles in circuit, some beautiful fresco paintings have been found in the ruins of some of the houses. The Villa Mattei, on the Cœlian mount, contains a splendid collection of statues. The Villa Ludovisi, on the Pincian mount, not far from the ruins of the circus and the gardens of Sallust, is one and a half miles in circuit, and contains valuable monuments of art, particularly the Aurora of Guercino, an ancient group of the senator Papirius and his mother (or rather of Phædra and Hippolytus), another of Arria and Pætus, and Bernini's rape of Proserpine. The Villa Borghese, near Rome, has a fine, but an unhealthy situation. The greatest part of the city, and the environs as far as Frascati and Tivoli, are visible from it. It has a garden, with a park three miles in circuit. This palace was ornamented in its interior, and furnished with so much richness and elegance, that it might have been considered the first edifice in Rome, next to the capitol, particularly for its fine collection of statues. The most remarkable among them were the Fighting Gladiator; Silenus and a Faun; Seneca, in black marble, or rather a slave at the baths; Camilius; the Hermaphrodite; the Centaur and Cupid; two Fauns playing on the flute; Ceres; an Ægyptian; a statue of the younger Nero; the busts of Lucius Verus, Alexander, Faustina, and Verus; various relievoes, among which was one representing Curtius; an urn, on which were represented the festival of Bacchus; another supported by the Graces; two horns of plenty, &c. The greatest part of these has not been restored from Paris. The exterior is ornamented with ancient reliefs. The Villa Pamfili, before the Porta di San Pancrazio, also called Belrespiro, has an agreeable situation, and is seven miles in circumference. The architecture is by Algardi, but has been censured by connoisseurs. In the interior there are some fine specimens of sculpture. Full descriptions of this and and of the Villa Borghese have been published. The Villa Albani, upon an eminence which commands Tivilo and the Sabina, is a temple of taste and splendour. The cardinal Alexander Albani expended immense sums upon it, and, during the space of fifty years, collected a splendid cabinet. The ceiling of the gallery was painted by Mengs, and is a model of elegance. The Villa Lante and the Villa Corsini deserve to be mentioned on account of their fine prospects. The Villa Doria (formerly Algiati), in which Raphael lived, contains three frescoe paintings of this great master. The Villa Farnese contains the remains of the palace of the Roman emperors. The capitol contains so many and such magnificent objects of every description, that it is impossible to enumerate them here. We must be satisfied with mentioning the equestrian statue of Marcus Aurelius, before the palace; the Captive Kings, in the court; the *columna rostrata;* and within, the colossal statue of Pyrrhus, the tomb of Severus; the Centaurs, of basalt; the beautiful alabaster pillars; the masterpiece in mosaic, which once belonged to cardinal Furietti, representing three doves on the edge of a vessel filled with water, which is described by Pliny. The fountains are among the principal ornaments of the squares in Rome. The fountain in the Piazza Navona, the most splendid of them all, has been particularly admired; it is surmounted by an obelisk, and ornamented by four colossal statues, which represent the four principal rivers in the world. The fountain of Paul V., near the church di San Pietro in Montorio, is in bad taste, but furnishes such a body of water, that several mills are carried by it. The fountain di Termini is adorned with three reliefs, representing Moses striking water from the rock, and with a colossal statue of that prophet, with two Ægyptian lions in basalt. The splendid fountain of Trevi supplies the best water, which it receives through an ancient aqueduct. Among the streets, the Strada Felice and the Strada Pia, which cross each other, are the most remarkable; among the bridges, that of St Angelo (formerly Pons Ælius), 300 feet in length; and, among the gates, the Porta del Popolo (formerly Porta Flaminia). Of ancient monuments, the following yet remain: the Pantheon, the Coliseum, the column of Trajan, that of Antonine, the amphitheatre of Vespasian; the mausoleum of Augustus, the mausoleum of Adrian (now the fortress of St Angelo); the triumphal arches of Severus, Titus, Constantine, Janus, Nero and Drusus; the ruins of the temple of Jupiter Stator, of Jupiter Tonans, of Concordia, of Pax, of Antoninus and Faustina, of the sun and moon, of Romulus, of Romulus and Remus, of Pallas, of Fortuna Virilis, of Fortuna Muliebris, of Virtue, of Bacchus, of Vesta, of Minerva Medica, and of Venus and Cupid; the remains of the baths of Dioclesian, of Caracalla and Titus, &c.; the ruins of the theatre of Pompey, near the Curia Pompeii, where Cæsar was murdered, and those of the theatre of Marcellus; the ruins of the old forum (now called Campo Vaccino); the remains of the old bridges; the circus maximus; the circus of Caracalla; the house of Cicero; the Curia Hostilia; the trophies of Marius; the portico of Philip and Octavius; the country house and tower of Mæcenas; the Claudian aqueduct; the monuments of the family of Aruns, of the Scipios, of Metella (called Capo di Bove); the prison of Jugurtha (Carcere Mamertino), in which St Peter was imprisoned; the monument of Caius Cestius, which is entirely uninjured, in form of a pyramid, near which the Protestants are buried; the Cloaca Maxima, built by Tarquin, &c. Besides the obelisk near the Porta del Popolo, that raised in the pontificate of Pius VI., on mount Cavallo, is deserving of notice. The principal collections of literature and the arts have already been noticed; but the Museo Kircheliano deserves to be particularly mentioned: there are, besides, many private collections and monastic libraries, which contain many valuable works. Such treasures, especially in the arts, make Rome the great school of painters, statuaries and architects, and a place of pilgrimage to all lovers of the arts; and there are here innumerable *studj* of painting and sculpture. Roman art seems to have received a new impulse. The academy of San Luca was established solely for the art of painting; and there are also many liter-

ary institutions in the city. The principal college of the university, erected by the popes Innocent IV. (1245), Boniface VIII. (1303), and Clement VI. (1311), is called *della Sapienza*, from its motto, *Initium sapentiæ timor Domini*. It is a splendid building, in which there are eight professors in theology, six in law, eight in medicine, five in philosophy, one in the fine arts, and four in the Hebrew, Greek, Syriac and Arabic languages. Of the other colleges, in which instruction is given in the sciences and in languages, the Collegium de propoganda Fide is particularly remarkable for its rich library and its printing-office, which is worthy of being visited, and which contains works in thirty ancient and modern languages; besides these are the Collegium Clementinum, the Collegium Romanum, the Collegium Nazarenum, institutions for instruction in the Oriental languages, the Hungarian and the German college, &c. Among the academies and learned societies in Rome, the most important are the academies of Roman history, of geography, of ecclesiastical history, of Roman antiquities, of the Arcadians, &c. The two principal theatres are those of Alberti and Argentina, in which operas and ballets are exhibited; the theatres della Valle and di Capranica are of the second rank, in which comic operas, comedies, and sometimes tragedies, are performed. La Paze and La Palla Corda are of the lowest rank, in which the opera buffa and farces are acted for the amusement of the populace. But they are opened only for a short time during the year. The festivals in Rome most worthy of notice are the grand procession on Corpus Christi day, and the ceremonies of Passion week in the Sistine chapel, where is performed the immortal Miserere of Leo Allegri; the illumination of the cross on St Peter's, the illumination of the Pauline chapel, &c.; besides these, there are the illumination of the immense dome of St Peter's, upon the day of that saint, the great fire-works, or the Girandola of 4500 rockets, which are discharged from the castle of St Angelo, upon the anniversary of the pope's coronation, and which produce an indescribable effect, on account of the vicinity of the river, in whose waters the lights are reflected. (For the *Carnival*, see the article.) The climate of Rome from July to October is unhealthy, and the foreigner is then exposed to dangerous fevers. This *aria cattiva* renders whole quarters of the city uninhabitable during these months. It appears to extend gradually, and to be about to take full possession of the eternal city. (See *Campagna di Roma*, *Malaria*, and *Pontine Marshes*.) The south wind, known by the name of *sirocco*, affects the elasticity of the muscles without being dangerous. Consumption has in Rome a malignant character, communicating itself to the healthy by means of articles of clothing and furniture, and spreading among occupants of the same house with the diseased person, even without such adventitious aid. It is even communicated by books. The water is different in different parts of the city. The fountain of Trevi furnishes the most wholesome water; that from the *thermæ* of Diocletian and the fountain Gianicola is unwholesome, and banished from all tables. In Rome, the hours are counted up to twenty-four, as is the case in many of the other Italian cities. The most frequented promenade is the Corso. From twenty-two to twenty-four o'clock (five to seven), it is filled with pedestrians and equipages. In 1824, Rome contained 136,300 inhabitants; 35,900 houses; 346 churches, eighty-one of them parish churches; thirty monasteries, and upwards of 120 palaces. In 1830, the population was 144,542, among which were thirty-five bishops and archbishops, 1490 priests, 1983 monks, 2390 nuns, and 10,000 Jews residing on the left bank of the Tiber, in a quarter called Ghetto. The view of the majestic ruins; the solemn grandeur of the churches and palaces; the recollections of the past; the religious customs; the magic and almost melancholy tranquillity in the splendid villas; the enjoyment of the endless treasures of art,—all this raises the mind to a high state of excitement. See Fea's *Descrizione;* the splendid *Vedute di Roma*, by Piranesi (2 vols., folio, 138 plates); *Description of Rome*, by Platner, Bunsen, and Gerhard, with a Sketch of the History of the old, and of the Restoration of the new City, by Niebuhr, with plans and views, in two volumes (in German); *Rome in the 19th Century*. For other works on the subject, see the article *Italy*, *Travels in*.

Roman Æra, and Calendar. See *Calendar*, and *Epoch*.

Roman Language. The old Latin and the Roman languages are different. From the first—traces of which are yet to be found in the laws of the twelve tables, and which became obsolete so early that, in the time of Cicero, the hymns of the salii (priests of Mars) were unintelligible—the Roman language was formed, posterior to the adoption of the laws of the twelve tables, not without being influenced by the Greek. It was divided into the *sermo urbanus*, *rusticus*, and *perigrinus*. The first of these dialects was spoken in Rome itself, the second in the country, and the third generally in the provinces. If we possessed the *Origines* of the elder Cato, we should be able to decide with certainty who were the earliest inhabitants of Italy, and what was the origin of the native Latin language. We are able only to discover from the scattered and disconnected accounts of the ancients, that the Œnotrii (who were probably of Arcadian, or, rather of Pelasgian origin), the Ausonii (among these are included the Osci and Volsci), the Sabelli or Sabines, the Tyrhenii (Etrurians and Tuscans, from whom originated the augury and the priesthood of the Romans), and, lastly, the Umbri, are to be considered as the principal aborigines of Italy, to whom the old Latins, or the *aborigines*, as they were called, joined themselves. With these the Trojans under Æneas were incorporated; but the number of these was too small to have any decisive influence upon the Latin language, although these foreigners at length obtained dominion over the whole country. The Greek colonies are more important in this view, viz. the Achaians, Locrians, and Dorians, who inhabited Middle and Lower Italy, and extended their customs, and even the common use of their language, beyond their own settlements in this country. The Latin must, therefore, necessarily have been much influenced by the language of these colonies. Besides the old Italian language, we read of the Etrurian, the Oscian, and the Volscian, which, perhaps, were only different dialects. The Oscian maintained itself still later among the Atellani. After the conquest of the south of Italy and Sicily, of Macedonia and Achaia, the Greek language must have been better known to the Romans; and thus the influence of the Greek language upon the formation of the Roman came to be of more impor-

tance. We likewise find, in the derivation of many words, as well as in the syntax of this language, frequent traces of Greek origin; and, indeed, the oldest Roman authors (for example, Plautus, Terence, Lucretius, and even Catullus), make use of many Greek idioms. The Romanic languages (see *Romanic*) are formed, for the most part, from the dialect of the country and the provinces.

ROMAN LITERATURE. The history of Roman literature is generally divided into four periods:—1. From the earliest times till Cicero; 2. till the death of Augustus, usually called the *golden age*, to which, however, some earlier writers are considered to belong; 3. till the death of Trajan, called the *silver age;* 4. till the subjugation of Rome by the Goths, called the *brazen age.*

Poetry, in this language, as in all others, preceded prose; but Roman prose was not of native growth; it was an exotic, to which Greek models first gave birth, and which rhetoric and the schools afterwards improved (see *Rhetoricians*); for native poetry in Rome was blighted in the bud by Grecian influence. To this belonged the Saturnian songs. Among the first essays in poetry were the *Atellanæ Fabulæ*, and the succeeding attempts were likewise, with few exceptions, dramatic. Livius Andronicus, a Greek captive of Tarentum, first gave the Odyssey to the Romans, about 500 years after the foundation of the city, and made them acquainted with the dramatical riches of the Greeks by means of Latin translations, or imitations of Greek tragedies and comedies. He was followed by Nævius, who wrote a historical poem on the first Punic war, the two tragic writers Pacuvius and Attius, and by Ennius, the first epic poet, and the founder of Roman poetry, whom Cicero and Virgil esteemed very highly. Ennius introduced the Greek hexameters, and wrote the Roman annals, in eighteen books, &c. Contemporary with him was Plautus, of whose pieces twenty-one are now extant. His power was greatest in low comedy; he possessed humour, wit, and a genuine comic language. Next followed Cæcilius, of whose works we are acquainted with the titles and fragments of forty-five pieces, and Terence, a successful imitator of Menander and others, who was distinguished by the truth and delicacy of his dialogue, his finished style, and the regular disposition of his Greek character pieces. These three comic writers took the new comedy of the Greeks as their model (*Comœdia palliata*). On the other hand, Afranius, with a few others, introduced Roman manners upon the stage (*Comœdia togata*). Soon after him, Lucilius discovered a talent for satire, of which he was the father among the Romans. The Romans, after this period, had no distinguished dramatic writers; their pieces were mostly translations or imitations of Grecian works. Of the *mimæ* (comic monodramas) of Laberius and Syrus, we know too little to assign them a definite place; but they are celebrated. The later tragic writers, likewise, of the Augustan age, Asinius Pollio, Varius with his Thyestes, and Ovid with his Medea, are praised; but it is easy to imagine the causes which must have contributed to prevent tragedy from flourishing on the Roman stage. We need only to remember the kings led in triumph, and left to perish in prison, the gladiatorial games, and the combats of wild beasts. Among a people who took delight in such scenes, we could not expect to find a relish for the tamer excitement and moral influence of tragic spectacles. The only specimen of the tragic poetry of a later age which is preserved to us, is the ten tragedies under the name of Annæus Seneca, but which are, not without reason, ascribed to several authors. They are rude declamations, without nature or truth, which originated from the schools of the rhetoricians; and their bombast could please only the most uncultivated minds. Lucretius, who took a new path among the earlier poets of Rome, wrote a philosophical poem, in six books, concerning the nature of things, after the system of Epicurus, which he adorned with a true poetic colouring. He took a different course from many scientific poets among the Greeks, and is an animated delineator of nature, full of strength and originality, but not without hardness and obscurity. Catullus was distinguished in a different department—in lyric poetry, in elegy, and in epigrams. He had much real wit and delicacy of feeling, but, like most of the amorous and satirical poets of the ancients, paid too little regard to decency of expression, which is easily explained by the relative condition of the two sexes at that time. Much purer and more graceful are the works of Tibullus, to whom we may, with Quinctilian, adjudge the first rank among elegiac poets.

With the age of Augustus, and the loss of liberty, a new spirit appeared in Roman literature. Augustus himself and Mæcenas were the patrons of poetic talent. The first of the poets thus patronised is Virgil, who, in his Æneid, represents the landing of Æneas and the foundation of his dominion in Latium. Although the poet himself directed this work to be destroyed, on account of its imperfect state, it is a noble monument of his wish to create for his contemporaries a new Iliad; and, though he has fallen short of his model, he cannot be denied the praise of patriotic feeling, refined taste, and highly poetical language. More perfect, of its kind, is his poem on agriculture (Georgica), which, in the form of a didactic poem, and in a highly finished style, exhibits his views and feelings respecting rural life. His earlier Eclogues, or pastorals, manifest the same love for nature and a country life. If we recognise in Virgil the first epic and didactic poet of the Romans, Horace is the favourite of the lyric muse, and the priest of the muses, although one cannot judge with certainty concerning his originality, after the loss of his Grecian models; yet his odes are often founded upon national subjects, and then he discovers strong feelings, expressed in a manner becoming a Roman. Many of his odes are patriotic, and others breathe a most charming grace. This poet is also eminent in satire, a species of writing original with the Romans, and which appears to have had a decisive influence on the character of their literature. In most of his epodes and epistles, he touches, with a playful ease and great versatility, upon the ridiculous rather than the criminal, although the latter was not altogether excluded from his satire. In the Augustan age, Propertius and Ovid are among the elegiac poets whom we still possess. In Propertius a certain dignity appears in the midst of his habitual sensuality, although he was often forced in his thoughts and expressions. The most fruitful poetic talent, and the greatest ease of versification, cannot be denied to Ovid; he only indulged too much in his fertility of invention, and was often unmanly in his elegiac complaints. The most characteristic of his poems are the *Fasti*, or the poetical description of the Roman festivals

and their origin; the least pleasing are, perhaps, his *Heroides*, or heroic epistles, of which he is the inventor. They are too monotonous, and too much filled with amorous complaints, to have either dignity or truth; they are rather to be considered as rhetorical exercises. Of the other poets belonging to this age there is little to be said. Some esteemed elegiac writers, such as Pedo Albinovanus and Cornelius Gallus, are almost entirely lost to us. A poem upon Ætna, attributed to Cornelius Severus, who is praised by Quinctilian, has little inventive power; and the didactic poem of Gratius Faliscus upon the chase *(Cynegeticon)*, and that of Manlius upon astronomy, some passages excepted, are more valued for their materials than their manner, which, though inferior, resembles the productions of the Alexandrian school of Greek poetry.

The third age, after the death of Augustus, begins with Phædrus, an imitator of Æsop, who has more merit, in regard to style, than invention and manner. The degeneracy of Roman poetry is displayed in the harsh and obscure Persius. He and the later Juvenal expressed their indignation at the corruption of the age with unrestrained severity, but have more moral than poetical value. In the principal writers of the later poetry—Lucan, who, returned to the historical epic in his versification of the civil war between Cæsar and Pompey, and the bombastic Statius, who wrote the Thebaid and the beginning of the Achilleis, in verse, to say nothing of the minor poets—we find a universal barrenness of invention, and a coldness, which vainly endeavours to kindle itself and its hearers by the fire of rhetoric. These poets had long since lost all poetic feeling, and even the love of republican freedom. With such a corrupt taste as that of the Romans, poets like the pompous Statius, or the wanton epigrammatist Martial, to whom we cannot deny wit and fertility of invention, could alone be successful. Lucan, however, with all his defects of plan and unworthy adulation, sometimes exhibits great elevation of sentiment, vigour of expression, and a happy delineation of character. Valerius Flaccus, who described the Argonautic expedition in verse, in imitation of Apollonius Rhodius, endeavoured to shine by his learning, rather than by his originality and freshness of colouring, and Silius Italicus, a great admirer of Virgil, who selected the second Punic war, as the subject of a heroic poem, is merely a historic poet. In the fourth period, Roman literature sunk to a still lower state. The twenty-four fables of Arvienus, or Arvianus, are in a stiff and forced style; on the other hand, the poem of Nemesianus, on the pleasures of the chase, and the seven eclogues of Calpurnius, have some pretensions to purity and ease of style. Ausonius, in his epigrams and idyls (so called), and particularly in his poems on the Moselle, forms as it were the line of division between the ancient and the modern world; Claudian appears almost a miracle in this brazen age. Although not free from rhetorical and epigrammatical excrescences, and from the desire of displaying his learning, he is still far above his age, and often approaches to a graceful style. We conclude this part of the subject with Rutilius Numantianus, whose voyage to Gaul, in elegiac measure, is not without merit, and with two Christian poets, Prudentius and Sedulius, in whose writings we find hardly any thing but modern features and the first germs of the church songs.

In the Roman prose literature, which is, on the whole, of a higher character than the poetical, eloquence, history, philosophy and jurisprudence are the principal departments. After the Romans had entered Greece as conquerors, and began to pay more attention to learning, and particularly after they became sensible of the political importance of eloquence, the Greeks were necessary to their conquerors, as teachers of rhetoric, and of the Greek language and literature, although in this period they were twice banished from Rome. (See *Rhetoricians*, and *Grammarians.)* Theoretical instruction was connected with the practice of declamations, as a preparation for public speaking, as forensic eloquence was always the object of ambition during the republic. Of their orators we know many merely by name and by the reputation which they enjoyed. To this class belong Cornelius Cethegus, Tiberius Gracchus, Cotta, Sulpicius, but particularly Licinius Crassus, Antonius, Hortensius, and even Cæsar himself. Cicero not only acquired the most splendid fame in eloquence, the finest models of which we possess in the fifty-nine orations of his yet extant, but also appears as a teacher in his rhetorical works, and in general had a most important part in founding Roman prose literature. In the age of Augustus, after the death of the last champion of Roman liberty, free eloquence necessarily became silent; yet the works of this, and even of later periods, were more or less imbued with the old spirit. The panegyric of Pliny the younger upon Trajan may be considered as the last note of Roman eloquence: the author was distinguished in Rome as a forensic orator. We can best judge of the fallen state of eloquence by examining the works of Fronto, and later orators (the panegyrists), in imitation of Pliny. Quinctilian, a contemporary of Pliny, is to be regarded as the last stay of rhetoric, both by instruction and his own example. We have under his name nineteen greater and 145 smaller declamations. But his merit is greater as a rhetorician and grammarian. In his twelve books *De Institutione oratorica*, he explains the characteristics of the best models, and at the same time lays down the best rules. Cicero, Cæsar, and Terentius Varro, in the most flourishing ages of Roman literature, had, by their grammatical writings, contributed to promote a scientific study of the language, and to give it thereby a settled form. Varro, the most learned philologist and antiquarian of his age, wrote a work upon the Latin language, in twenty-four books, of which only six remain entire. In a rhetorical view, the declamations *(controversiæ* and *suasoriæ)* of Marcus Seneca, and particularly the valuable dialogue On the Causes of the Decline of Eloquence, which has been attributed by most authors to Quinctilian, must be named. Later grammarians, or teachers of language and literature of the age of the Antonines, are Aulus Gellius, Censorinus, Nonius Marcellus, Pomponius Festus, Macrobius, Donatus and Priscianus, who are valuable for their grammatical information, their commentaries upon more ancient authors, and their preservation of fragments of them. The first historical writings were merely details of events, preserved in the annals of the high priest *(pontifex maximus)*, upon a tablet in his house, and the catalogue of the consuls, with a notice of the most remarkable events, recorded in the temple of Juno Moneta *(libri lintei)*. Fabius Pictor, Albinus Posthumius, the elder Cato, Cœlius Fannius, Valerius of Antium, and some others, were the first historians

among the Romans, but without any pretensions to skill in the historical art. Great authors first appeared in the most splendid age of Rome. The spirit, the beautiful simplicity and the judicious style of Julius Cæsar, in his Commentaries on the Gallic and Civil Wars, carried on by himself, have always been admired. The style of Sallust is sometimes forced, but he displays great care in his narrative and in his delineation of character, with such richness of thought and depth of observation, that he may not disadvantageously be compared with his model Thucydides. If we except the lost universal history of Trogus Pompeius, Livy embraces the widest field among the Roman historians, and deserves to be called perfect in narration and style, although some have attributed to him a certain Patavinity (the provincial dialect of his native city, Patavium.) His history begins with the arrival of Æneas in Italy, and reaches to the year of Rome 744; but a few books only are extant. Cornelius Nepos stands next to these models of historical writing, with his lives of distinguished generals, at least for purity of style. It is to be lamented that his principal historical work is lost. Under the oppression of despotism, even history, which had hitherto been so well sustained by the Romans, degenerated: this appears from the forced and declamatory style of Velleius, from whom we possess a short sketch of Roman history, in which he indulges in the grossest flattery. Florus is still more to be condemned: he wrote an abridgment of Roman history; but his style is bombastic, and his adulation disgraceful. Valerius Maximus, in his memoirs of memorable men, is a mere compiler and collector of anecdotes. Suetonius, besides his rhetorical and grammatical works, wrote the lives of the emperors, which are interesting from their contents. Tacitus elevated himself above a degenerate age by his truly Roman spirit, his depth of thought, and power of expression, which has been often imitated, but seldom with success. It may be said, with truth, that in him the poet, the philosopher and the historian are united.

After Trajan, we meet no great authors; but Greek literature again asserted its claims, and Roman history was treated of by Greek authors. It is perhaps owing to Justin's abridgment, that we have lost the general history of Trogus Pompeius, in forty-four books. So great was the ignorance of Roman history under the later emperors, that Eutropius was ordered by the emperor Valens to write a short sketch of it. Of Aurelius Victor little need be said, and we cannot greatly lament the loss of his principal work upon the origin of the Roman people, which extended only through one year after the foundation of Rome. Ammianus Marcellinus is of superior merit, and, although his style is somewhat barbarous, contains interesting views, and displays a sound judgment. The six authors of the imperial history (*Scriptores Historiæ Augustæ*), Spartianus, Capitolinus, Trebellius, Vopiscus, Gallicanus and Lampridius, deserve little praise.

The Romans distinguished themselves in philosophy only by spreading the doctrines of the Greek philosophers in a popular language; and the most eminent statesmen, in the most flourishing periods of Rome, were friends and admirers of philosophy: among the earlier Romans, Lælius, Scipio Africanus the younger, and Lucullus, deserve to be mentioned. Of the lofty spirit of Lucretius, although he embraced an odious system, and the principles of Horace, who called Epicureanism an *insane wisdom*, we have already spoken; but Cicero, by the introduction of the more elevated moral philosophy of the Greeks, rendered the most important service to the intellectual cultivation of his countrymen. He did not wander in the labyrinths of speculation, but he clung to philosophy in prosperity and adversity, and taught it in a classical language. Originally a follower of Plato, he often adopted the ethical lessons of the Stoics, or, when their excessive austerity repelled him, embraced those of Aristotle. The doctrines of Epicurus he rejected as injurious to men, and especially in their relation of citizens. His works also afford much information in regard to the history of ancient philosophy; for example, his Tusculan questions. Philosophy, although sometimes persecuted by the emperors, as it had been earlier by Cato the elder, always found admirers at Rome, and almost every school had its adherents there; but it was more the subject of conversation in the schools and in the world, than of writings. The old academy and the school of Epicurus were at first the most popular; but oppression turned men to Stoicism, which, with its pompous apothegms, influenced some of the poets also, as Lucan, for example. The philosopher Annæus Seneca, in the age of Nero, of whom, besides other works, we possess twelve philosophical treatises, is distinguished for his artificial subtleties and glittering antitheses; but his writings contain many excellent thoughts, finely expressed. In the fourth period of Roman literature, we shall only mention Apuleius. The most known of his productions is the Golden Ass. He was of the sect of the new Platonists; and even in the pleasing tale of Psyche, we find traces of the Platonic philosophy. The epistolary style is connected with eloquence, and Roman literature contains some collections of epistles worthy of imitation. The letters of Cicero are mostly addressed to the greatest men of his age, on passing events, and are written with purity, and elegance, and simplicity. They contain authentic materials for the history of the time, and are the last memorials of the republic. The letters of Pliny the younger are written with taste and elegance, and give us a pleasing picture of their author; but they are too artificial, and appear to owe their existence less to any real occasion for writing than to the wish of appearing as an author. The twenty-four letters of Annæus Seneca to Lucilius relate chiefly to the philosophical system of the Stoics, and are more worthy of attention for their matter, than their manner, which partakes of the common faults of his style. We have yet to notice the letters of Symmachus, about the end of the fourth century, and those of the still later Apollinarius Sidonius, who was also known as a poet. The former are not unsuccessful imitations of Pliny the younger; the latter are marked by the faults of their age, but are interesting for their contents. With the poets are connected the mythological authors of the Romans. The Roman worship was in a great measure similar to that of the Greeks, but by no means entirely the same, as many have supposed: the heroic mythology of the Greeks was introduced into Rome by the poets, although it had no connexion with the national traditions. The Roman mythological writers, therefore, derived their knowledge mostly from Greek sources, and have little that is peculiar or original. The domestic religion of the Romans is to be learned from their antiquarian and historical authors. Hyginus, whose age we cannot accurately determine, left a collection of 277 mytholo-

gical stories, which are, perhaps, the outlines of ancient tragedies. A poetical astronomy of the same author illustrates the constellations celebrated in poetry. The age of Fulgentius, by whom we have three books of mythological tables, is equally uncertain. Petronius, a contemporary of Nero, may most properly be mentioned here, as he is connected with the poets by his *Satyricon*, in which he describes the corruption of his age with wit and vivacity, and by his poetical pieces interspersed through that work. In mathematics, the Greeks had laid the foundation for a scientific geometry and astronomy, and medicine opened a wide field for their inventive spirit. In all these departments, the Romans were not much distinguished. Among the mathematical authors, Vitruvius is the first, both in time and merit. He was also an architect; and his work on architecture is still highly esteemed. Frontinus wrote upon aqueducts, Vegetius upon the military art, (the application of mathematics to the art of war could not fail to find favour among the Romans;) and after him Firmicus Maternus wrote a Mathesis; but this is, in reality, a treatise on astrology, as was also the work of Julius Obsequens on prodigies. Pomponius Mela and Vibius Sequester are worthy of being mentioned as geographers. The latter gives a list of the names of rivers, seas, mountains, forests, &c. Tacitus, by his description of ancient Germany, may be included under this head. Physicians were first esteemed among the Romans, after the time of Cæsar and Augustus; and the eight books of Celsus on medicine, which form only a part of a large Encyclopedia, are very important, both on account of their contents and their style. Æmilius Macer and Aulus Apuleius (not the Apuleius before mentioned) wrote concerning the qualities of plants. We also possess some unimportant treatises on medicine by Scribonius Largus and Marcellus Empiricus; and there is still extant a poem on the subject of this science by Serenus Sammoniacus, a favourite of the emperor Severus. Several agricultural works of the Romans are entirely lost to us. There is still extant a work on agriculture, which bears the name of Cato the elder: and the three books of the learned Varro on husbandry are very important and instructive. The works of Columella and Palladius on agriculture, are partly written in verse and deserve commendation. A miserably written work on the art of cookery is ascribed to the notorious *gourmand* Apicius.—Among the polyhistors is Pliny the elder, who wrote a work on natural history, in which he at the same time treated of cosmography and geography, medicine and the arts, with great erudition, but yet in a stiff style. He has given us an example of what the Romans might have done, with their great advantages, for the extension of human knowledge. Solinus made an abridgement of this work. Finally Marcianus Capella, in the fifth century, wrote, in barbarous language, a sort of Encyclopedia, under the name of *Satyricon*, (on account of the variety of its contents,) in which he treated of several of the sciences, with their most important principles.

On a review of Roman literature, we find that it continued to flourish only for a short time, from Cicero till the death of Trajan, that the prose reached a higher degree of excellence than poetry, in which various departments obtained various success, and that notwithstanding the merits of the Romans in art and literature, the Greeks excelled them. Perhaps their literature, at least the poetry, would have attained a greater elevation, if they had imitated less, and sought for original ideas in domestic scenes.

In jurisprudence alone did Roman literature acquire an entirely peculiar character, and an elevation which it has maintained down to the latest times, and which has enabled it to exert a powerful influence on all the refined nations of modern Europe. See *Civil Law*.

See Manso, *On the Characteristics of Roman Literature* (in German, Breslau, 1818); Cavriana, *Delle Scienze, Lettere ed Arti dei Romani dalla Fondazione di Roma fino al Augusto*, (Mantua, 1822, 2 vols.); Dunlop's *History of Roman Literature* (2 vols. 1828).

ROMAN SCHOOL. See *Italy*; division, *Italian Art*.

ROMILLY, SIR SAMUEL, an eminent lawyer, was the son of a jeweller, of French extraction, born in London, in 1757. He received a private education, and was placed in the office of a solicitor, which he quitted to study for the bar, to which he was called in 1783. For some years his practice was chiefly confined to draughts in equity; but he gradually rose to distinction in the court of chancery, in which he ultimately took the lead, being equally distinguished by his profound legal information, and logical and forcible eloquence. His general politics agreeing with those of the whigs, he was, during the short administration of Mr Fox and Lord Grenville (1806), appointed solicitor-general, and knighted. When his party went out of office, he remained in parliament, where he became distinguished by his talent in debate, and particularly by the eloquence with which he pleaded the necessity of a revision of the criminal code, with a view to the limitation of capital punishment, and a more appropriate regulation of the scale of penalties. On this subject he also composed a very able pamphlet—Observations on the Criminal Law of England (1810)—and to his exertions may be traced the final determination of the executive to the reforms and condensation of the various acts in regard to crime, which have since taken place under the superintendence of Sir R. Peel. Sir Samuel Romilly also published Objections to the Creation of a Vice-Chancellor (1812); and was in the height of popularity and reputation, when a nervous disorder, produced by grief at the death of his wife, to whom he was devotedly attached, deprived him of reason, and in a fit of temporary frenzy, he terminated his useful and philanthropic existence, November 2, 1818. A collection of his speeches, with a Memoir of his Life, by H. Peters, was published in 1820. B. Constant published his *Eloge*, (Paris, 1819).

ROMULUS was the founder and first king of Rome. According to tradition, his mother was Rhea Sylvia, a daughter of Numitor, king of Alba, and one of the priestesses of Vesta, who were employed in preserving the fire sacred to this goddess, and were bound to spend their lives in strict chastity. She was devoted to the service of Vesta, by her uncle Amulius, who had deprived her father of his throne, and wished to prevent her from having posterity who might dispossess him of his usurped crown. But the royal maid forgot her vow of chastity, and male twins were the fruit of her clandestine amour. In order to escape the horrible punishment denounced by the law against those vestals who violated their vows, Rhea Sylvia gave out that Mars, the god of war, was the father of her children. This artifice saved the mother, and a

fortunate accident, her children, who were exposed by command of Amulius in a wild and desert country on the banks of the Tiber. Here a she wolf is said to have found them, and to have suckled them until chance brought thither a countryman, Faustulus by name, who took them home and educated them. With him Romulus and Remus spent their youth, exercising themselves in the chase, and sometimes in rapine. The younger, Remus, was taken prisoner by the servants of Amulius, and his courageous brother collected a small band of enterprising companions, with whom he not only freed his brother, but likewise deprived Amulius of his usurped throne, and reinstated his old grandfather Numitor in his dominions. After the termination of this exploit, Romulus, in connexion with his brother, resolved to build a city. The gods, it is said, during a solemn sacrifice, pointed out the proper site, by the flight of seven eagles. Thus Rome was founded in the year 752 (according to others 754) B. C. The unanimity which had heretofore prevailed between the two brothers, ended with this enterprise: either from ambition, or a sudden burst of anger, Romulus imbrued his hands in his brother's blood. According to another tradition, Remus fled from the anger of his brother, beyond the Alps, and founded Rheims. The small number of friends who had followed Romulus were by no means sufficient to people his city; he saw himself, therefore, compelled to make it a place of refuge for every houseless exile. Men enough were thereby gained; but the Roman citizens soon wanted women, and their proposals for the daughters of the neighbouring cities were rejected by the fathers of the maidens, who looked with an envious eye on the increase of this city. On this account Romulus instituted a religious festival, to which he invited the Sabines (see the article *Sabines*), with their wives and daughters. They came; but in the midst of the festival, the unarmed strangers were suddenly attacked, and deprived of their wives and daughters, and every Roman hastened to provide himself with a female companion. The two states thus became engaged in war; but the entreaties of the ravished females, who threw themselves between the contending parties, at length effected a peace, and Rome gained by her union with the Sabines, an important addition. Many successful wars, which always ended in additions of population and territory to the infant state, confirmed and extended its power. Romulus was strict and arbitrary; too much so, perhaps, for his subjects; and his sudden disappearance naturally excited the conjecture that he fell by the hand of a malcontent. According to tradition, he ascended to heaven into the company of the gods, after he had completed the work of founding the eternal city; and, until the introduction of Christianity, Rome worshipped its founder in temples expressly dedicated to him. It is likewise possible that he was struck by lightning; for his disappearance is said to have happened during a thunderstorm, while he was without the city, near the marshes of Caprea, reviewing his army. Romulus reigned about thirty-seven years, and was about fifty years of age; and the rude, but, considering the time and circumstances, the appropriate laws and ordinances, which he gave his people, bear witness of his capacity as a ruler. When Romulus died, Rome, according to a census which he caused to be made a short time before his death, is said to have contained between 3000 and 4000 men capable of bearing arms. See *Rome*.

RONA, OR NORTH RONA; an island in the northern ocean, sixteen leagues from the Butt of Lewis, and considered as the most north-westerly part of Europe. It belongs to the parish of Barvas, county of Ross, and is inhabited by one family. It is only about a mile in length, and half a mile in breadth. Macculloch, in his work on the Highlands and Islands of Scotland, has given an interesting description of this lonely place. Its produce is corn, butter, cheese, wild fowl, and feathers; and there are a few sheep. Near the centre of the island is a chapel, dedicated to St Ronan. Four leagues eastward of this island is the rock of Sulisker, about a quarter of a mile in circumference, noted for the abundance and variety of sea-fowl by which it is frequented.

RONA; the name of an island and islet in the Hebrides. See *Hebrides*.

RONALDSHAY, NORTH AND SOUTH. See *Orkney Islands*.

RONCESVALLES (French *Roncevaux*); a valley in Navarre, between Pampeluna and St Jean de Port, where, according to tradition, the rear of Charlemagne's army was defeated by the Arabs, in 778, and the brave Roland killed. The battle forms an essential part in the fabulous cyclus of Charlemagne. The chief place of the valley, called also Roncesvalles, is traversed by the (so called) gates of Roland, leading over the Pyrenees to France; and in the church of the little place, fabulous antiquities bearing the name of Roland are shown. The French, under Moncey, here defeated the Spaniards in 1794; and Soult took a strong position here in 1813, from which Wellington drove him.

RONDO (*Italian*), OR RONDEAU (*French*); a composition, vocal or instrumental, generally consisting of three strains, the first of which closes in the original key, while each of the others is so constructed, in point of modulation, as to reconduct the ear, in an easy and natural manner, to the first strain. The *rondo* takes its name from the circumstance of the melody *going round*, after both the second and third strain, to the first strain, with which it finally closes.

RONSARD, PIERRE DE, an early French poet, who contributed to the improvement of the language and literature of his country, was born of a noble family of Vendome, in 1524. Having finished his education, he resided some time at the court of James V. of Scotland, and, on his return from his travels, was employed in a diplomatic capacity in Germany. At the Floral games, at Toulouse, he triumphed over his competitors, and received a silver statue of Minerva, which he presented to Henry II. He was greatly esteemed by that prince, and by his successors, Francis II. and Charles IX. He distinguished himself in the wars against the Huguenots; obtained the abbey of Bellozane; and was also prior of St Cosme, near Tours, where he died in 1585. His writings, consisting of sonnets, madrigals, eclogues, lyric pieces, elegies, and satires, and an epic poem, *La Franciade*, are of little merit. See *France, Literature of*, division *Poetry*.

ROOF. See *Architecture*.

ROOKE, SIR GEORGE, an English admiral, descended of an ancient family, in the county of Kent, was born in 1650. His strong predilection for a seafaring life induced him to enter the royal navy at an early age, in which he rose to the highest situations. His conduct in several naval expeditions under king William and queen Anne placed his

name high in his profession; especially the gallantry which he displayed in the destruction of the French and Spanish fleets in Vigo bay, 1702, and the capture of Gibraltar, in 1704. Sir George occupied a seat, during several parliaments, for Portsmouth, and another at the council-board of the lord high admiral, prince George of Denmark. His votes on several occasions, particularly one in favour of Harley as speaker of the house of commons, in 1701, obscured his merits in the eyes of the court party; the value of his services was depreciated, and his good fortune ascribed to accident. He at length retired in disgust from the service to his family seat in Kent, where he died in 1709. See Campbell's *Lives of the Admirals*.

ROOT, in arithmetic and algebra, denotes any number or quantity, which, by successive multiplications into itself, produces powers. (See *Power*.) Thus 2 is a root of 4, 8, 16, because $2 \times 2 = 4$; $2 \times 2 \times 2 = 8$; $2 \times 2 \times 2 \times 2 = 16$. The power is named from the number of the factors, and the root is named from the power. Thus if a quantity be multiplied once by itself, the product is called the second power, or square, and the quantity itself the square root, or the second root of the product; if multiplied twice, we have the third power, or cube, and the quantity is the cube root, or third root; and so on: the fourth root is the biquadrate. Beyond this the roots are commonly called the fifth, sixth, &c. roots. The algebraic sign of root is $\surd$, and the fourth root of sixteen, equal to two, is written thus: $\sqrt[4]{16} = 2$. The same is the case with algebraic magnitudes: as, $\sqrt[2]{(a^2 + 2ab + b^2)} = a + b$. To extract the given root of mathematical expressions, is one of the most important of mathematical operations.

ROOT HUSBANDRY. See the article *Agriculture*.

ROOT, of plants. See *Plant*.

ROPE, in mechanics. See *Mechanics*.

ROPINESS; a frequent disease of wines, which have undergone an incomplete fermentation; or of sweet wines that have been bottled too soon. It shows itself by a milky or flaky sediment, and an oily appearance of the liquor when poured out. It arises from a partial combination of the mucilaginous, extractive, and saccharine principles of the wine.

ROSA, MOUNT (Mons Sylvius); the highest summit of the Swiss Alps, separating the Valais from Italy (lat. 45° 55′ N.). (See *Alps*.) According to the latest measurements, it is about 15,535 feet high, being from 200 to 250 feet lower than Mont Blanc. (q. v.) From the ever-blooming gardens of the Borromean isles, the traveller arrives in nine hours at Macugnaga, at the foot of the glaciers (q. v.) of mount Rosa. The valleys on the east and south are inhabited by people of German origin. Those on the west are uninhabited. Mount Rosa derives its name from its consisting of a number of lofty peaks, rising from a centre somewhat like the leaves of a rose. Jos. Zumstein made five journeys (1819—1822) to the summit. In 1820, he passed the night in a cleft in the ice twelve fathoms deep, to be able to reach the summit the next day. The group seems to consist, particularly in its upper half, of mica slate, which alternates occasionally with gneiss. It contains gold, silver, copper, and iron mines. Granite, in large masses, is found only at the foot of the mountain. Winter and summer rye ripen here at the height of from 5500 to 6000 feet; the grape, as high as 3090 feet (on the northern side 2200 feet); a covering of green turf is found as high as 9639 feet; the *pyrethrum Alpinum* and *Phyteuma pauciflorum* grow 11340 feet above the sea, on rocks free from ice. Between the north and south side there is a difference in the limit of vegetation of almost 1000 feet. The limit of perpetual snow is, on the south side, 9500 feet; the limit of trees, 7000 feet.—See *Der Monte Rosa, eine topographische und naturhistorische Skizze nebst einem Anhange der von Herrn Zumstein gemachten Reisen zur Ersteigung seiner Gipfel* (Vienna, 1824).

ROSA, SALVATOR; a celebrated painter, distinguished likewise as a musician and a poet. He was the son of an architect and surveyor, and was born at the village of Renella, in the kingdom of Naples, in 1615. He was intended for the church; but leaving, of his own accord, the seminary in which he had been placed for education, at the age of sixteen, he devoted himself to the study of music, and with such success that he became a skilful composer. His eldest sister having married Francesco Francanzani, a painter of considerable talent, Salvator, from frequenting his work-room, acquired a predilection for the art, in which he afterwards excelled. He at first amused himself with copying whatever pleased his fancy in the paintings of his brother-in-law; and his latent genius being thus awakened, his sketches were so much admired, that he was easily persuaded to adopt painting as a profession. But his taste was formed more from the study of nature among the wilds of the Appennines than from the lessons of other artists; and he delighted in delineating scenes of gloomy grandeur and terrible magnificence, to which the boldness of his conception, and the fidelity of his representations, communicate a peculiar degree of interest. He worked for some time at Naples in obscurity, till, one of his pictures being observed by the famous painter Lanfranco, he generously recommended Salvator to notice, and procured him effectual patronage and support. He removed to Rome, where he established his reputation, and raised himself to celebrity and independence. He afterwards went to Florence, where he was patronised and employed by the grand-duke and other members of the family of Medici. At length returning to Rome, he painted many pictures for the churches in that city, where he died in 1673. His satires and other poetical productions have been often printed, under the title of *Rime di Salvatore Rosa, Pittore e Poeta Napolitano*. On account of his caustic wit, he was excluded from the Roman academy. Some time after, the academy having refused admission to another artist, who practised surgery as well as painting, Salvator Rosa observed, that it was very injudicious in them, as the academy greatly needed a surgeon to replace the legs and arms that the members daily dislocated.

ROSARY, among the Catholics, consists of a string with a number of small beads of different sizes, which they use in saying over their prayers. It was introduced, according to some, by Dominicus de Guzman, the founder of the Dominican friars, in the first half of the thirteenth century. There are always in the rosary five or fifteen divisions, each containing ten small beads and one large one; for each of the smaller beads an Ave Maria, and for each of the larger a Paternoster (q. v.) is repeated. The Benedictine monks, however, as early as the sixth century, are said to have repeated their prayers, while at their work, according to a series of small beads, which were fastened upon a string. In honour

of the victory obtained over the Turks at Lepanto (Oct. 7, 1571), pope Gregory XIII., in 1573, instituted the festival of the rosary, which is annually solemnized on the first Sunday of October. Pope Clement XI. extended this festival through all the Catholic part of Western Europe, in honour of the victory gained over the Turks at Peterwardein, Aug. 5, 1716. The Asiatic worshippers of the Grand Lama, and the Mohammedans, make use of a similar string, provided with beads, for saying their prayers. The string of the Mohammedans has ninety-nine small beads, which they, in their prayers, drop through their fingers, one after the other, while they recount the ninety-nine qualities of the Deity mentioned in the first part of the Koran. Their beads are generally made of holy earth, from Mecca or Medina.

ROSCELLINUS. See *Nominalists*.

ROSCOE, WILLIAM, the well-known author of the Lives of Lorenzo de' Medici, and Leo the Tenth, born in 1752. His parents were in an humble sphere of life, and could only afford him a common school education; and even this was interrupted. At an early age he was articled to an attorney in Liverpool, and this obliged him to study the Latin language; but he did not confine himself to what was necessary to his profession; by dint of hard study, he read and made himself master of the most distinguished Latin classics. In this he was assisted by a friend. He next studied the Italian and French languages, and in the former he became uncommonly proficient. He still found time to attend to his business, and to peruse the English poets. At the age of sixteen, he commenced poet, and composed Mount Pleasant, a descriptive poem. Having finished his clerkship, he was taken into partnership, by Mr Aspinall, an attorney of considerable practice; and he carried on the whole of the business, to which he paid a strict attention. During this period he contracted a friendship with Doctor Enfield and Doctor Aikin. Painting and statuary were also objects of his attention, and in 1773, he read, at the society in Liverpool, an ode on those subjects, and also sometimes read lectures there. When the question of the slave trade was brought before the public, Mr Roscoe took a warm part in favour of the abolition, and most cordially joined Mr Clarkson in his endeavours. He also wrote a reply to a Spanish Jesuit on that subject. His Scriptural Refutation of a Pamphlet on the Licitness of the Slave Trade, and his Wrongs of Africa, appeared in 1788; and, in 1795, he brought out the work which has gained him so much celebrity—the Life of Lorenzo de' Medici (2 vols. 4to, 1795). About the year 1797, Mr Roscoe retired from the practice of an attorney, and entered himself as a student of Gray's Inn, with a view to the bar. During this period he had leisure for other studies, and published the Nurse, a poem, from the Italian, and wrote the Life and Pontificate of Leo X. (4 vols. 1805.) Though the Life of Leo is not equal to his Lorenzo, it is a composition which displays talent and extensive research. Mr Roscoe being attached to the whig party, they supported him as a candidate to represent Liverpool, and he was successful, but at the next election was thrown out. He had some time before, entered into business at Liverpool as a banker, but was unsuccessful. He died in June, 1831. Mr Roscoe was the author of several political pamphlets, and the great mover and supporter of several public works in Liverpool. To the botanic garden and to the Athenæum he lent much effective assistance. His Life and Correspondence were published (1833, 2 vols. 8vo.) by his son, Henry Roscoe, a barrister-at-law, who himself died in 1836, in his thirty-seventh year. Mr Henry Roscoe was the author of several important professional works, particularly a Treatise on Real Property, and, like his father, possessed an extensive acquaintance with polite literature, and was favourably known as an elegant and accomplished writer.

ROSCOMMON; an inland county of Ireland, in the province of Connaught, about sixty miles in length from north to south, and thirty-seven broad from east to west. Its surface is in general flat, except at the northern extremity, and is varied with extensive bogs, rocky tracts, and intermediate pastures. The hills on the north are called the Carlow Mountains. The Shannon is navigable in its passage by Roscommon. The Suck, its tributary, flows between this county and Galway. Lough Key is the principal lake. Agriculture constitutes the chief occupation of the inhabitants; and the fertile limestone soil of the district seconds the industrious exertions of the husbandman. Wheat, barley, oats, rye, of prime quality, are grown here; and no county in Connaught exceeds this in sweetness of pasture. There is an excellent breed of horses here, adapted to the saddle or to draught. To this county also belongs a portion of the valuable coal-field, underlying the western counties, and usually termed the Connaught coal district. The manufactures here are not extensive; they consist of linen and coarse woollens, the latter principally for home consumption. The baronies are Athlone, Ballymore, Ilan, Boyle, Ballintobber, and Moycarne. The principal towns are Athlone, a borough, part of which is situated in the county of Westmeath; Roscommon, the capital of the shire; Elphin, an ancient city; Boyle, Stokestown and Athleague. Population of the county in 1831, 239,903.

ROSCOMMON, WENTWORTH DILLON, earl of, was born in Ireland, in 1633, and was educated at Caen, in Normandy. Returning to England on the restoration, he plunged into the dissipation of the dissolute court, ruined his estate by gaming, became involved in quarrels, and found it necessary to go to Ireland. Here he pursued nearly the same course, and soon after returned to England. From this time he began to act with more discretion, and became distinguished among the wits of the day. On the accession of James II. he went to Italy, and died at Rome in 1684. His principal production is the poetical Essay on Translated Verse. Johnson calls him the most correct writer of English verse before Dryden.

ROSE. The rose has always been the favourite flower among civilized nations. The beauty of its foliage, the elegance of its form, the large size and agreeable tints of the flowers, together with their delicious fragrance, have all conspired to acquire for it the distinction of the queen of flowers. The species of rose are numerous, and are extremely difficult to distinguish. All seem to be exclusively confined to the temperate and cold parts of the northern hemisphere. They are spiny shrubs, with pinnated leaves, provided with stipules at their base, the flowers are very large, and are disposed, in a greater or less number, at the summit of the branches, or upon lateral branchlets; the calyx is enlarged below, and contracted at its orifice, where it divides into five lanceolate segments; the corolla consists of five heart-shaped petals, and the stamens are numerous; the seeds are very numerous,

covered with a sort of down, and are attached to the interior of the tube of the calyx, which, after flowering, takes the form of a fleshy globular, or ovoid berry. The rose has given its name to a distinct family of plants, the *rosaceæ*, comprehending the apple, peach, cherry, raspberry, strawberry, &c. Roses in general are not delicate with respect to the nature of the soil, but flourish in almost every kind. Their easy culture has distributed them into almost every garden. The colour is, in different species and varieties, red, white, yellow, purple, or striped, either simple or in almost numberless shades and mixtures; the flowers are single, semidouble, and double. Many hundred varieties are enumerated in the catalogues, and new ones are produced annually: some of them are quite black. New varieties are obtained from seed, but the usual mode of propagation is by layers. All will grow by cuttings, and some freely, but this mode is seldom resorted to. For preserving delicate varieties, the best mode seems decidedly that of budding on hardier sorts. To produce strong flowers, requires some attention in pruning: old wood should be yearly cut out, and the young shoots thinned and shortened according to their strength, and whether number or magnitude of flowers be desired. Where very large roses are wanted, all the buds, except that on the extreme point of each shoot should be pinched off as soon as they make their appearance, and the plant liberally supplied with water. Some roses are cultivated on a large scale for commercial purposes, for distilling rose water, and for making ottar or essential oil of roses. Six pounds of rose petals will impregnate, by distillation, a gallon of water strongly with their odour; but a hundred pounds scarcely affords half an ounce of ottar. (See *Ottar of Roses*.) Perfumers, distillers, and confectioners make great use of the perfume of the rose. A conserve and a sirup, which are used in medicine, are also prepared from their petals: these last, if bruised and reduced to a paste, moulded and dried, will preserve their fragrance for many years. In the north of Europe, the berries of the rose with the addition of sugar, are sometimes employed in the preparation of domestic wines; and the pulp, in a dried state, affords a grateful ingredient in sauces. The leaves of every kind of rose have been recommended as a substitute for tea, and are employed in currying the finer kinds of leather.

ROSE ACACIA (*robinia hispida*); a highly ornamental, flowering shrub, inhabiting the southern parts of the Alleghany mountains, and now frequently seen in gardens, in Europe. It is a species of locust, and the flowers resemble those of the common locust, but are very large and rose-coloured. Their beauty is enhanced by the brown, bristly covering of the stalks and calyx; they somewhat resemble the moss rose, in this respect. The stem is very hispid. See *Locust*.

ROSE FEAST. At Salency (a village near Noyon, in the ci-devant Picardy, now department of the Oise), a festival, of a peculiar kind, is celebrated June 8. A girl is selected (formerly by the seigneur, at present probably by the justice of the peace), from three most distinguished for female virtues. Her name is even pronounced from the pulpit, that objections may be made to her. She is afterwards conducted in procession to the church, where she hears the vesper service, kneeling in a place of honour. After this she used to open a ball in the evening with the seigneur. She receives a present. The girl is called *la rosière*, because she is adorned with roses. The feast was imitated in several other places, (e. g. at Surenne, near Paris.) Though the effect has been good, it is undoubtedly exaggerated by some travellers. The 8th of June is the day of St Medard, bishop of Noyon, (475 to 545,) and tradition says he established the festival, but the Bollandists (q. v.) mention nothing of this fact. It is more probable that its foundation dates from the time of Louis XIII. From him comes the silver clasp which holds the wreath of roses together; and to his time probably belongs the picture of the first rose feast in the church of Salency.

ROSE OF JERICHO (*anastatica hierichuntia*): a cruciferous plant, growing in the arid wastes of Arabia and Palestine, which possesses the curious property of recovering its original form, however dry it may be, upon immersion in water. The generic name has been applied to it from this circumstance, and, in the Greek, signifies *resurrection*. It is a small, annual, herbaceous plant, three or four inches high, with minute white flowers, which are succeeded by a little pod, divided into two cells, each containing one or two seeds. When the seeds are ripe, the leaves fall off, the branches curl inwards, and interlace, forming a rounded pellet about as large as the fist, which is torn up and rolled over the sands by the autumnal winds. In this state, if moistened, it gradually unrolls its branches, and contracts again into a ball as it becomes dry. This circumstance has often been taken advantage of to impose on credulous persons.

ROSE-WOOD (*amyris balsamifera*); a small West Indian tree, the wood of which forms an important article of commerce, and is much used by cabinet-makers for the covering or veneering of tables and other furniture. Its grain is of a dark colour, and very beautiful. The tree yields an odoriferous balsam, much esteemed as a medicine in various diseases, and as an external application. A species of amyris grows wild in East Florida; but it is little known.

ROSEMARY (*rosemarinus officinalis*); a shrubby, aromatic plant, growing wild in the southern parts of Europe. It belongs to the *labiatæ*, and has but two stamens. The stem is three or four feet high, bearing opposite linear and sessile leaves which are smooth and shining above, and whitish and cottony on their inferior surface; the flowers are pale-blue, or almost ash-coloured, and disposed in little racemes, which arise from the axils of the leaves towards the extremities of the branches: they expand in April and May. All parts of the plant have a strong and penetrating odour. The leaves are used in Italy for seasoning certain dishes. Rosemary is tonic and stimulant, and formerly enjoyed considerable repute as a medicine, but is now rarely employed. It yields, by distillation, a light, pale, essential oil, of great fragrance. It is less used in medicine than as an aromatic, and is the principal ingredient in Hungary water.—A second species of rosemary is found towards the southern extreme of South America.

ROSENMULLER, John George, a celebrated German theologian (born in 1736, died in 1815), was professor of theology at Erlangen and Leipsic, and distinguished himself as a preacher, and by his activity in the cause of education. Of his numerous works, we shall mention only his *Scholia in N. Testament.*, and his *Hist. Interpretationis Librorum Sacrorum* (5 vols., 1795—1814).—His son *Ernest Frederic Charles*, a distinguished Orientalist, born in 1768, was educated at Leipsic, where he heard

the lectures of Morus, Platner, Beck, &c. In 1795, he was extraordinary professor of Arabic, and, in 1813, ordinary professor of Oriental literature. Among his works are his valuable *Scholia in Vet. Testamentum; Scholia in Nov. Testamentum;* the East, in Ancient and Modern Times (6 vols., 1818—20); Manual of Biblical Antiquities, and Manual of Biblical Criticism and Exegesis (4 vols., in German). These works contain a great mass of valuable matter, critical, exegetical, geographical, and historical. Rosenmuller has also rendered important services to Oriental literature by his *Institutiones Linguæ Arabicæ* (1818); *Arabum Adagia; Analecta Arabica* (1826, 2 vols.), &c.—A second son, *John Christopher* (born 1771, died 1820), was an eminent anatomist, and (1802) professor of anatomy and surgery at Leipsic. Besides some writings on subjects of natural history, he was the author of Anatomico-Surgical Delineations (German and Latin, 1804—12, 3 parts), Manual of Anatomy, and of several articles in Pierer's Medical Dictionary, and other periodicals, and of various other literary works.

ROSES, WAR OF THE, from the reign of Henry VI. (1452) to that of Henry VII. (1486). See *Britain* and *England:* also *Edward IV.* and *V.*, *Richard III.*, and *Henry VI.* and *VII.*

ROSETTA; a city of Egypt, near the mouth of that branch of the Nile anciently called the *Bolbitic*, now commonly called the *canal of Rosetta* (see *Nile*); lat. 31° 24′ N.; lon. 30° 28′ E.; population, 13,500, principally Copts. Rosetta is thought to have been built by the caliphs, in the ninth century. It is important as a depot of goods brought down the river, and forms the medium of communication between Alexandria and Cairo. The city is more neatly built than the other Egyptian cities, and is particularly distinguished for the beauty and luxuriant vegetation of its environs. The streets are not, however, broad; and, as the houses are of several stories, each projecting over that beneath, they nearly meet at the top, which promotes coolness, but gives a gloomy appearance to the place. The celebrated Rosetta stone was found here during the French campaign in Egypt. See *Hieroglyphics.*

ROSETTA STONE.—See *Hieroglyphics;* also the work of the marquis Spineto on Hieroglyphics, mentioned in that article. In his work, a full account is given of the discovery of the art of deciphering the hieroglyphics, for which this stone furnished the first means. There is also a translation of the curious decree, which is partly reprinted in Stuart's Translation of Greppo's Essay on the Hieroglyphic System.

ROSICRUCIANS; members of a society the existence of which became known, unexpectedly, at the beginning of the seventeenth century. Its object was, ostensibly, the reformation of state, church, and individuals; but closer examination showed that the discovery of the philosopher's stone was the true object of the fully initiated. A certain Christian Rosenkreuz, who was said to have lived long among the Bramins, in Egypt, &c., was pretended to have founded the order, in the fourteenth century; but the real founder is believed to have been Andrea, a German scholar, of the beginning of the sixteenth century, whose object, as is thought, was to purify religion, which had been degraded by scholastic philosophy. Others think that he only gave a new character to a society founded before him, by Agrippa von Nettesheim. Krause (mentioned in the article *Masonry, Free*) says that Andrea occupied himself from early youth with the plan of a secret society for the improvement of mankind. In 1614, he published his famous Reformation of the whole wide World, and *Fama Fraternitatis.* Christian enthusiasts and alchemists considered the society poetically described in those books as one really existing; and thus Andrea became the author of the later Rosicrucian fraternities, which extended over Europe, and were even brought into connexion with free-masonry. After a number of books had been written on the Rosicrucian system, and the whole exploded, the interest in the Rosicrucians was revived, in the latter half of the eighteenth century, in consequence of the abolition of the order of Jesuits, and the stories of their secret machinations, as well as of the frauds of Cagliostro and other notorious impostors.

ROSIERE, LA. See *Rose Feasts.*

ROSIN. See *Resin.*

ROSKOLNICIANS, also RASKOLNICIANS; schismatics of the Russian Greek church. They call themselves *Starowerzi* (i. e. following the old faith), or *Isbraniki* (i. e. elected). They suffered much persecution under Peter the Great. Catharine II. gave them religious liberty. Many tribes of Cossacks and a great part of the inhabitants of Siberia belong to this sect.

ROSLIN; a small village, in the county of Mid Lothian, parish of Lasswade, distant from Edinburgh, seven miles south-west. The village is inhabited only by families engaged in agricultural pursuits. It was formerly a place of some importance, made a burgh of barony by James II. (of Scotland), and privileged with the right of holding markets and fairs, but is now chiefly remarkable on account of its ruined castle and collegiate chapel. Roslin Castle is of uncertain origin, but it was the ancient seat of the St Clairs or Sinclairs, who lived here in great splendour in the fifteenth century. It is situated on a detached rock, in a deep glen, on the north side of the river North Esk; but the station, though highly pleasant and romantic, seems by no means adapted for a fortress, as it is commanded by hills on both sides of the river. The access to it is by a bridge over a deep gulley, and through a gate, originally of great strength. In 1554, it was burned by the forces of Henry VIII., and the present buildings were chiefly erected since that period. Roslin Chapel was founded in 1446 by William St Clair, prince of Orkney and duke of Odenborough, for a provost, six prebendaries, and two singing boys; and dedicated to St Matthew the Evangelist. This structure is incomplete, consisting only of the chancel, and part of the transept. It is in the Gothic style, richly ornamented. The interior, sixty-nine feet in length and thirty-four in breadth, is divided into a centre and aisles by two ranges of clustered pillars, adorned with sculptured foliage, and figures of exquisite workmanship. Roslin was created a British earldom in 1801.

ROSOGLIO, OR ROSOLI; originally sometimes used as a generic term for the creams, or superfine liqueurs (see *Liqueurs*), but is more generally applied to a certain species of these.

ROSS, MAN OF. (See *Kyrel.*) The village of Ross is in Herefordshire, twelve miles south-east of Hereford, and a hundred and fifteen north-west of London.

ROSS, ALEXANDER; a very voluminous writer, on political, religious, and philosophical subjects, was born in Aberdeen in 1590, and died in 1654.

He was master of the grammar-school of Southampton, and chaplain to Charles I. The titles of his numerous works, which are now entirely forgotten, it is needless to enumerate. He is now chiefly remembered from the celebrated couplet in Hudibras:

> "There was an ancient sage philosopher,
> Who had read Alexander Ross over."

ROSS, ALEXANDER, the author of the "Fortunate Shepherdess," a Scottish poem of considerable merit, was born in Aberdeenshire, in 1699. His father was a farmer in easy circumstances, and he received a good education in the Mareschal college, Aberdeen. After acting as tutor for some time, he was, in 1732, appointed schoolmaster of Lochlee, a wild parish, in Angus-shire; and the rest of his life was spent in discharging the duties of this humble office. It was not till he was nearly seventy years of age that he first appeared as an author. In 1768, was published, at Aberdeen, with the patronage of Dr Beattie, "Helenore, or the Fortunate Shepherdess," a poem which has gone through numerous editions, and which in the north of Scotland disputes popularity with Ramsay and Burns. Its chief merit consists in descriptions of scenery and of the habits of a rude and pastoral life. Many of Ross's songs are still favourites with his countrymen. We may mention 'The Rock and the Wee Pickle Tow,' 'To the Begging we will go,' and 'Woo'd and Married and a'.' Ross died in 1784, leaving a vast number of pieces in manuscript, which, however, have never been published.

ROSS-SHIRE; an extensive maritime county in the north of Scotland, bounded on the north and north-east by Sutherland, and on the south by Inverness-shire. It has the main part of Cromarty-shire on the east, and is throughout interspersed with minute portions of that county. On the west coast it comprehends the island of Lewis, and some smaller islands. On the east coast, the county terminates in an obtuse point, but on the western shores, which are much indented by arms of the sea, the land extends sixty miles from north to south. The most northerly point of the county in the mainland is in lat. 58° 30′ north, and the most southerly 57°. The shire contains a superficies of 2427½ square geographical miles, of which the interspersed parts of Cromarty-shire form 260. Lewis contains 431 square miles. The number of acres in the mainland is about 2,071,466, and in Lewis 359,093. Of the first number, 220,466 belong to Cromarty-shire, and 5973 to the district of Ferintosh, which is part of the county of Nairn. The whole of this extensive territory, except a portion on the east side, called Easter Ross, is mountainous, wild, and pastoral. The mountains are for the most part in groups. Ben Wyvis is esteemed the highest, and rises about 3720 feet above the level of the sea. Almost the whole of the west coast abounds in magnificent mountain scenery, and the interior is in general picturesque. The eastern part of the county is pleasing in its aspect, and possesses all the attributes of a rich champaign country. The chief rivers on the east side of Ross-shire are the Conan, which flows into the Cromarty Firth, and the Oikel and the Carron, flowing into the Dornoch firth. The largest river on the west coast is the Ewe, which has a short course from Loch Maree. The Conan, and its principal branch the Ramey or Black-Water, form some falls of considerable height and beauty. The indentations of the sea on the west coast, or salt water lakes, proceeding from north to south, are Loch Enard, Loch Broom, Little Loch Broom, Loch Greinord, Loch Ewe, Gairloch, Loch Torridon, Loch Keeshorn, Loch Carron, and Loch Alsh, with its inner southerly arm, Loch Duich. The county has a great number of lakes of fresh water in the interior, the most important of which is Loch Maree.

As regards agriculture this county may be considered as consisting of three districts; namely, the East coast, where the land is suited for the culture of grain, and where farming has been brought to a high state of perfection; the Central Highlands, partly adapted for grain, and partly for pasture; and the west coast, which is fitted only for pasturage, being rugged and mountainous. Great numbers of horses, cattle, goats, and especially sheep, are fed on the hills, which likewise abound with game; and the sea, lochs, and rivers are much frequented by water-fowl. Limestone and free-stone approaching to the nature of marble, are found here; ironstone is abundant; and a rich vein of silver and lead ore has been discovered in the parish of Alness. The three royal burghs in this county are Tain, Dingwall, and Fortrose. The principal Highland clans here are the Mackenzies, the Rosses, the Frasers, the Mackays, the Macraes, and the Munroes. Rossshire with Cromarty, contains thirty-one complete parishes, and part of two other parochial divisions.—In 1801, the population of Ross and Cromarty shires was 53,525; in 1811 it was 60,853; in 1821 it was 68,828; and in 1831, it was 74,820.

ROSSBACH; a village, in the Prussian province of Saxony, between Naumburg and Merseburg, famous for the decisive victory which Frederic the Great obtained there over the imperial and French troops under marshal Soubise, November 5, 1757.

ROSSBERG; a mountain in Switzerland, near the east bank of lake Zug, and not far from Righi. In 1806, in consequence of a long continuance of heavy rain, a large mass detached itself, and covered with desolation the valley of Goldau. Part of it reached lake Lowerz, which rose above its banks. Above a hundred lives were lost by this disaster.

ROSSTRAPPE *(horse's hoof-mark)*; one of the finest spots in the Hartz mountains, near the village Thale, on the river Bode, above which the rocks rise 830 feet. One of these, a rugged and precipitous peak, has on its top an indentation like the print of the hoof of a gigantic horse, which gives its name to the neighbouring district.

ROSTOCK; a seaport of the Baltic, in Mecklenburgh-Schwerin, with 19,024 inhabitants, among whom no Jew is suffered. It was a member of the Hansa (q. v.) from the earliest time of this league to 1630, when the greater league was dissolved. Its former importance was great. Its university was founded in 1419; it has twenty-three *professores ordinarii*, but is one of the less important universities of Germany. No subject of Mecklenburg-Schwerin can have an appointment in that country under the government, without having studied for some time in Rostock. There are generally but about a hundred and fifty students there. The library has about 80,000 vols. Lat. N. 54° 0′ 1″; lon. E. 12° 12′ 16″. It is the largest city of the grand-duchy. In 1824, four hundred and eighty-six vessels entered this port, and five hundred and seventeen cleared out.

ROSTOPSCHIN, FEODOR, count, was born in 1760, of an ancient Russian family. He entered the imperial guards as a lieutenant, and afterwards

travelled into foreign countries. He was afterwards highly promoted under Paul I., and loaded with orders, but afterwards dismissed in disgrace. Under Alexander, he obtained the important post of governor of Moscow, and exercised an important influence over the campaign of 1812, even if the assertion of the French, that the burning of the city was his work, should be untrue. He himself decidedly denied this charge in his *Vérité sur l'Incendie de Moscow* (Paris, 1824). It is certain, however, that he caused his villa near Moscow to be burnt, and took measures for the destruction of the magazines in that city. Buturlin calls him the author of the conflagration, and the public voice in Russia coincides with this opinion. In 1814, he accompanied the emperor Alexander to the congress at Vienna. He afterwards travelled, and spent several years in Paris, where he became acquainted with some of the most distinguished families, and united his daughter in marriage to a grandson of the celebrated count Ségur (French ambassador to the court of Catharine II.). He returned to Russia, and died in Moscow, at the commencement of the year 1826.

ROSTRA (incorrectly *rostrum*); a tribunal (*suggestus*) in the forum in Rome, whence the orators used to harangue the people, so called from the beaks (*rostra*) of the ships taken from the Antiates, with which it was adorned.

ROT, DRY. See *Dry Rot*.

ROTA or RUOTA ROMANA; the highest papal court of appeal, whose jurisdiction extends over all Catholic Christendom, and which decides not only spiritual controversies, but all questions concerning ecclesiastical benefices of a value above five hundred *scudi*; and the decisions thereof have the highest authority, derived from the doctrine of the pope's infallibility. The *rota Romana* has a collegiate constitution, and consists of twelve prelates, of whom three must be Romans, one a German, one a Frenchman, and one a Spaniard. They collectively bear the title of *auditori della rota*, or auditors of the holy apostolical palace, because their sessions are held semi-weekly in the palace of the pope. The name of this court is derived, perhaps, from the circumstance that the floor of their hall is overlaid with marble slabs in the form of wheels (*rotæ*): according to some, it is so named because, in ancient Rome, a round public building stood upon the place where this tribunal was first established. Other supreme courts, as, for example, at Genoa, have borne the same name. This court ceased with the papal government, but is now re-established. See *Curia, Papal*.

ROTATION. The motion of the different parts of a solid body about an axis is called *rotation*, being thus distinguished from the progressive motion of a body about some distant point or centre; thus the diurnal motion of the earth is a motion of rotation, but its annual motion one of revolution.

ROTATION OF CROPS. Some sorts of crops exhaust the soils on which they grow, much less than others, as is the case with many of what are called *green* crops, when compared with the white or corn kind; so that it is highly advantageous to alternate them. Moreover, certain sorts of green crops are well suited, by the shade of their leaves and the kind of culture which they require while growing, for keeping the ground clean from weeds, and in a mellow and suitable state for the reception of the more valuable sorts of grain crops. All the culmiferous plants injure the ground in a high degree, which probably depends upon their having but few, and those small, leaves, so that they are obliged to draw their nourishment chiefly from the soil; also from their seeds ripening all at the same time, and the plants ceasing to grow when they begin to ripen, so that the roots cease to penetrate into the ground, and, of course, to move or loosen it. The green crops, and those of the root kind, being opposite to the white in each of the respects just mentioned, serve, generally speaking, when alternated with them, to counteract their injurious effects. The alternation of crops is a matter of vast importance in agriculture, and one in which great improvements have been made within the last century.

ROTH; German for *red*, and found in many geographical names, as *Rothweil* (red village).

ROTHERHITHE; a parish and village on the south bank of the Thames, now connected with Southwark. Here are several dock-yards for building East Indiamen and vessels for the merchant service, wharfs for boat-building, anchor-wharfs, ship-breakers' wharfs, timber wharfs, deal-yards, and a multitude of warehouses for articles necessary for naval purposes. The Commercial-dock at this place is sufficiently capacious to receive two hundred vessels of burden; and near it is the East Country Dock. Population of parish in 1831, 12,875. See *London*.

ROTHESAY; a royal burgh of Scotland, is situated on a beautiful bay on the north-east side of the island of Bute, at the distance of fifty-two miles from Glasgow, and is the capital of the county of Bute. The town owes its origin to the castle of Rothesay, the ruins of which still remain. This castle is of great antiquity, and is supposed to have been erected during the warlike expeditions of the Norwegians against Scotland. In Haco's first expedition, it was attacked by the Norwegians, with eighty ships, when it was taken, by a sap and assault, with the loss of 300 men. It was retaken by the Scots, soon after the battle of Largs. It was taken possession of by the English, during the reign of John Baliol; but, in 1311, it was surrendered to Robert Bruce. In 1334, Edward Baliol took the castle and fortified it; but it was again, shortly afterwards, taken by Bruce, the steward of Scotland. King Robert II. visited this castle in 1376, and again in 1381. Robert III. acceded to the throne in 1390, and, in 1398, his eldest son, David, earl of Carrick, prince and steward of Scotland, was created duke of Rothesay, in a solemn council held at Scone, being the first introduction of the ducal dignity into Scotland. It still gives the title of duke to the heir-apparent of the British crown. In 1685, the castle was seized by the marquis of Argyle, and burnt and destroyed.

The town of Rothesay was erected into a royal burgh in 1401, by king Robert III., who endowed it with a considerable landed territory. Its privileges were confirmed and extended by James VI., in 1585. About the year 1700, the family of Argyle offered great inducements for people to settle at Campbeltown, and many of the traders of Rothesay availed themselves of these offers. The town from that date fell greatly into decay, and continued in a languishing state till about 1765, when a custom-house was erected, and the inhabitants engaged in the herring fishery, in which they were very successful. About the year 1778, a considerable cotton factory was established here; and there is now also a manufactory for weaving by power

looms. The cotton mills of Rothesay are moved by water collected in reservoirs, from the rains falling in the adjacent country, applied in a most ingenious manner by Mr Thom, engineer. Sixty years since the town possessed no more than one or two half-decked vessels of fifteen tons burden, and some open boats; but so much had the traffic of the port increased in 1791, that there were then, in addition to boats, from eighty to a hundred vessels between fifteen and a hundred tons burden belonging to it. Since that period there has been a proportionate increase. The prosperity of the town has been facilitated by the erection of piers, with an excellent harbour, which opens on a safe and extensive bay; and from this circumstance alone, Rothesay may be expected to rise still more in the scale of commercial importance. The distillation of spirits, a tan-work, net-making, buss and boat-building, in addition to fishing and fish-curing, give employment to a considerable number of hands. As a bathing place, or resort during the summer months, Rothesay possesses many charms, and is deservedly popular. Being sheltered by rising grounds, forming behind it a screen from south-western storms and winds, the climate is considered mild and pleasing, while the air is of a salubrious character from sweeping over the sea. The old part of the town is situated at the inner part of the bay; it has extended itself on both sides, near its head, by the addition of villas and lodging houses, which command a remarkably fine view of the entrance from the Clyde.

The parish of Rothesay is about ten miles in length, and from three to four in breadth; and on the coast are four bays, which afford safe anchorage. The surface is in general hilly, but there are some small valleys, which are very fruitful.

Population of the landward part of the parish in 1821, 1602; of the burgh, 4107; in 1831, population of the parish, 1267; of the burgh, 4817.

ROTHSCHILD. This celebrated European house has raised itself from an humble sphere to an unexampled degree of wealth and importance by judicious enterprise, a sagacious and systematic series of operations, which thousands of others had the same opportunities to take advantage of, a reputation for fair dealing, and a correct estimate of men and events. The father of the five brothers, Mayer Anselm, was born at Frankfort on the Maine, in 1743, and died in 1812. His parents died when he was but eleven years old, and he was, as is common with poor Jews in Germany, educated for a teacher. This occupation not suiting his taste, Rothschild engaged in trading, in a small way, and was not long after employed in a banking house in Hanover; and in a few years his industry and frugality made him master of a small capital. Returning to Frankfort, he married, and established the banking house, which is still in existence. His activity, intelligence, and integrity in a short time procured him a continually increasing credit, particularly after his nomination as agent to the landgrave of Hesse, in 1801. In 1802, 1803 and 1804, his affairs continued to prosper so much, that at this period he was able to contract for a Danish loan of four million dollars. The house, up to the recent death of Nathan Rothschild, consisted of his five sons; Anselm, born in 1773, the head of the house, resides at Frankfort; Solomon, born in 1774, resides alternately at Berlin and Vienna, principally at the latter place; Nathan, born in 1777, lived in London since 1798, where he died in 1837; Charles, born in 1788, is at Naples; and James, born in 1792, at Paris. In 1813, occurred those political events which raised the house of Rothschild to the position it has since occupied in the commercial and financial concerns of the world. In a period of twelve years, about 500 million dollars were raised by the house for different powers, by way of loan or subsidy, which were distributed in nearly the following proportion: for England two hundred millions, for Austria fifty millions, for Prussia forty millions, for France eighty millions, for Naples fifty millions, for Russia twenty-five millions, for several German courts four millions, for Brazil twelve millions, exclusive of various other large sums. The remarkable success of the Rothschilds, setting aside the great opportunities which they have enjoyed from favourable circumstances, may be attributed to their strict adherence to two fundamental maxims. The first of these, in compliance with the dying injunctions of their father, is their conducting all their operations entirely in common. Every proposition of magnitude made to one of them is submitted to the deliberations of all; no project is adopted until thus fully discussed, and it is then executed by united efforts. A second principle is, not to aim at exorbitant profits, to set definite limits to every operation, and, so far as human prudence and oversight can do, to render it independent of accidental influences: in this maxim lies one of the main secrets of their strength. The reasonableness of their terms, the punctuality with which they execute their contracts, the simplicity and clearness of their plans, and their judicious manner of carrying them into effect, fortify their credit. A constant exchange of couriers is kept up between them, who are frequently in advance of those of the government. Several princes have publicly acknowledged their obligations by conferring nobility and other honours upon the different members of the family. In the latter part of 1831, the Rothschilds contracted for a loan of fifteen million francs for the court of Rome, which may be increased to twenty-five millions.

ROTROU, JEAN, a French tragic poet, born at Dreux, in 1609, was the most distinguished dramatic writer among the predecessors of Corneille. Of his thirty-six tragedies, tragi-comedies, and comedies, only one—the tragedy of Venceslas (as revised by Marmontel)—keeps the stage; the plot of this piece is borrowed from the Spanish of Roxas. Rotrou endeavoured to elevate the tone of the drama by giving it a moral purpose, and his heroes and heroines are made to utter Christian sentiments. Richelieu, who granted him a pension, could not prevail upon him to assist in decrying the *Cid* of Corneille. In 1650, Rotrou fell a victim to a pestilential disease, to which he nobly exposed himself in the discharge of his official duties, as one of the principal magistrates of his native place. His *Œuvres* appeared at Paris in 1820, in 5 vols. See *France, Literature of*, division *Dramatic Poetry*.

ROTTERDAM; a city, and seaport town of Holland, on the right bank of the Meuse, which is here above a mile in width, twenty miles from its mouth; lat. 51° 55′ N.; lon. 4° 28′ E.; twelve miles south-east of the Hague, thirty-three south-west of Amsterdam. Rotterdam is the second city in the Dutch provinces, for commerce and wealth, and contains 63,093 inhabitants. The form of Rotterdam is triangular, its longest side (above a mile and a half in extent) stretching along the bank

of the Meuse. The town is surrounded by a moat, and entered by six gates towards the land, and four towards the water. It is traversed by the Rotte, a broad canal, which here joins the Meuse. Rotterdam is intersected, even more than other towns in Holland, by canals, which divide the half of the town, near the river, into several insulated spots, connected by drawbridges. These canals are almost all bordered with trees. The row called the Boomtjes is the finest in the city, as well in regard to buildings as for its pleasant prospect across the Meuse. Next to the Boomtjes comes the Haring-vliet. The other streets are, in general, long, but narrow. The houses of Rotterdam are rather convenient than elegant: their height is of four, five, or six stories. Of the public buildings of Rotterdam, the principal are the exchange, finished in 1736, the great church of St Laurence, from the top of which there is a most extensive prospect. After these come several other churches, the whole number of which is fifteen, the town-house (an old edifice), the admiralty, the academy, the theatre, the extensive buildings of the East India company, a number of large warehouses, and a few manufactories. Rotterdam has an active transit trade; the manufactures are not extensive; sugar refineries and distilleries furnish the chief articles of industry. There are several learned societies. It is the birth-place of the celebrated Erasmus. Rotterdam received the title and privileges of a city in 1270. Its commerce suffered severely from the French revolution; and, in 1825, an inundation of the Meuse did great damage to the city. See *Netherlands*.

ROTUNDA (*rotonda*); every building round within and without, as the Pantheon, in Rome.

ROUBILLIAC, Louis Francis, a sculptor, was a native of Lyons, in France, who settled in England, in the reign of George I.; and, in the absolute dearth of native talent which prevailed at that period, he long stood at the head of his profession. He executed a statue of Handel for Vauxhall gardens, and another of Sir Isaac Newton, erected at Trinity college, Cambridge; but was chiefly employed on sepulchral monuments. He wrote satires in his native language. He died, in London, in 1762.

ROUBLE; a Russian coin. (For the silver rouble, see *Coin*, division *Russian*; for the paper rouble, see *Assignation*.) By the official valuation of the paper rouble, in the payment of taxes, a few years since, one silver rouble was equal to three roubles sixty copecks paper.

ROUCOU. See *Annotto*.

ROUE. This term is applied to a person, in the fashionable world, who is devoted to a life of pleasure and sensuality, and regardless of the restraints of moral principle. Philip, duke of Orleans, who, during the minority of Louis XV. was regent of France, and had a low opinion of men in general, and his friends in particular, applied the name of *roués* to his favourites and boon companions, to signify that they were fit to be broken on the wheel.

ROUEN (Rothomagus); a city of France, formerly capital of the province of Normandy, at present of the department of the Lower Seine, on the right bank of the river Seine, eighty-six miles north-west of Paris, forty-five south-east of Havre. The population, by the official enumeration of 1827, was 90,000; it is now estimated to exceed 100,000. Rouen is an archiepiscopal see, and the seat of various judicial and administrative authorities, and is one of the richest commercial cities of France. The Seine is crossed by a bridge of boats, which is paved, and rises and falls with the tide, and a new stone bridge, recently erected. The city is not prettily built, the streets being mostly narrow and dark, and the houses chiefly of wood. The quays along the river are handsome. The principal public buildings are the great cathedral, the church of the ancient abbey of St Ouen, remarkable for its lofty tower, the *palais de justice*, and the theatre. In the market-place *aux veaux* is a statue of the maid of Orleans, who was burnt here by the English, in 1430. Rouen has several literary and scientific institutions and societies, and seminaries of education, a public library, a mint, fourteen churches, several hospitals, &c. The transit trade of Rouen is considerable. The city is seventy miles from the sea, including the windings of the river, and, with the aid of the tide, vessels of 150 or 200 tons come up to the quays. It is more important as a manufacturing place, having manufactures of cotton, linen, woollen, iron ware, paper, hats, pottery, sugar refineries, &c. Dyeing is also extensively carried on.

ROUGET DE L'ISLE. See *Marseillaise Hymn*.

ROUM (i. e. the *kingdom of the Romans*); a name given to Natolia by Solyman, sultan of the Turks, when he invaded and became master of it, in the eleventh century. It is now chiefly applied to a part of Asiatic Turkey, extending from the Mediterranean to the Black sea, east of Caramania and Natolia, and west of Armenia and the government of Diarbekir, including the governments of Sivas, Adana and Marasch. See *Turkey in Asia*.

ROUMELIA. See *Romania*.

ROUND ROBIN (corruption of *ruban rond*, a round ribbon) was used, originally, by the French officers when signing a remonstrance. They wrote their names in a circular form, so that no one should be obliged to head the list.

ROUND TABLE. If we may believe tradition, towards the end of the fifth century, there reigned in Britain a Christian king, the British Uther-Pendragon, who had a most powerful and not less wise and benevolent enchanter, Merlin, for a counsellor. Merlin advised him to assemble all his knights, who were distinguished for piety, courage, and fidelity towards him, at feasts about a round table. It was calculated to receive fifty knights, and was to be occupied, for the present, only by forty-nine, one place remaining empty for an occupant yet unborn. This was Arthur, or Artus, son of the king by Igerna, whom the king, by the magic power of Merlin, was permitted to enjoy under the form of her husband. Merlin had exacted a promise that the education of the prince should be intrusted to him; and he accordingly instructed him in every thing becoming a brave, virtuous and accomplished knight. Arthur, therefore, at a later period, occupied the empty seat at the round table, which, under him, became the resort of all valiant, pious and noble knights. (See *Merlin*, and *Arthur*.) This table, admission to which became the reward of the greatest virtues and feats of arms, afforded materials for the romantic poets of the Anglo-Normans, forming a distinct cycle of characters and adventures. (See *Romance*, and *Chivalry*.) According to another account, Arthur himself established the round table at York. Von Hammer thinks the fiction is of Eastern origin. The adventures of the knights of the round table are founded on the legend of the

Sangreal, or Sangraal, which is probably a corruption of the Latin *sanguis realis*, or the French *saing real* (true blood). According to this legend, Joseph of Arimathea received into the cup from which Jesus drank at the last supper the blood which flowed from his side on the cross. By means of this cup, called *graal*, Joseph performed the most astonishing miracles, in different countries, particularly in Britain—a power which was also possessed by his descendants, who inherited the cup. In the course of time, however, it was lost; and, for the purpose of recovering it, Pendragon, father of Arthur, founded the order of the round table, the knights of which bound themselves to wander over the whole world in search of the sangraal. This legend was probably blended with the British traditions of king Arthur by the Trouvéres, or Anglo-Norman poets. Among the romances of the round table, are Tristan de Leonnois, Lancelot du Lac (see *Lancelot*), Perceforest, Sangraal, &c.

ROUSSEAU, JEAN BAPTISTE, an eminent French lyric poet, born at Paris, in 1671, was the son of a shoemaker, but received a good education, and, at an early period, displayed a strong taste for poetry. In 1688, he obtained a situation in the service of the French ambassador at Copenhagen, and subsequently accompanied marshal Taliard to England, as his secretary. He wrote several pieces for the theatre, on the success of one of which, having, according to the Parisian custom, appeared on the stage to receive the congratulations of the audience, he is said to have had the ingratitude to disown his father, when the old man, rejoicing at his son's triumph, came forward to speak to him, before the friends who surrounded him. In 1701, he was admitted into the academy of inscriptions and belles-lettres, and his lyric compositions procured him high reputation among the French literati; but his turn for satire, and his quarrelsome temper, at length involved him in disgrace. Some abusive and indecent verses were circulated at Paris, which Rousseau was accused of having written, but which he disclaimed, and professed to have discovered the author in the person of his enemy, Saurin. To relieve himself from the obloquy under which he laboured, he commenced a prosecution of that academician, for composing the defamatory couplets in question, and having failed in substantiating the allegation, he was exiled from France in 1712. He went to Switzerland, and afterwards resided at Vienna, under the patronage of prince Eugene. The latter part of his life was spent in the Netherlands, where he obtained a pension from the duke of Aremberg, which he resigned on having forfeited the favour of that nobleman. His death took place at Brussels, in 1741. An edition of his works was published under his own inspection, by Tonson (London, 1723, 2 vols., 4to.); and since his death they have been often printed, in various forms. The best edition is that of Amar, with a commentary and life of the author (5 vols. Paris, 1820). The same editor has also published his *Œuvres poétiques*, with a commentary (2 vols., 1824). Rousseau's works are—1. Four books of Odes, the first book containing odes from the Psalms: purity and elegance of expression are here combined with beauty and dignity of versification; but the lyric enthusiasm is often wanting; 2. cantatas, of which he was the creator, and in which he is very distinguished; 3. epistles in verse, the least pleasing of his works, but highly popular in their day, on account of their satirical allusions; 4. allegories, forced and monotonous; 5. epigrams, which, next to his odes and cantatas, are the best of his works, and, with some exceptions, are witty, finely turned, and well expressed; 6. four comedies in verse, and two in prose; 7. his operas have no merit.

ROUSSEAU, JEAN JACQUES, one of the most celebrated writers of the last century, whose works had a great influence on the moral and political feelings of the age, was the son of a watchmaker in Geneva, where he was born in 1712. His mother died in bringing him into the world, and he therefore calls his birth his first misfortune. In his Confessions, he tells us that at the age of seven he was very devout; that at this time he was a great reader of romances; and at the age of eight knew Plutarch's Lives by heart. He also became acquainted with Tacitus and Grotius, which lay about in his father's shop, while quite a boy, and his musical taste was displayed at the same early age. In his tenth year, he was placed with a clergyman in the country, and in his fourteenth was articled to an engraver, whose severity disgusted him with his situation. He therefore ran away from his master, and, after wandering about for some time in Savoy, became a convert to the Catholic religion, to save himself from starvation. Being placed in a monastery to receive the necessary instructions, the young convert soon made his escape, and, after a series of adventures, was recommended by a clergyman, to the notice of Madame de Warens, in Annecy, who caused him to be instructed in science and music, and treated him with the greatest affection. At the age of twenty, Rousseau went to France, with the expectation of being able to maintain himself by giving lessons in music. In Besançon, he sang at some concerts with success, and received the promise of a place; but after teaching music some time at Chamberry, he went, on account of ill health, to Montpellier. Here finding the sea air not to agree with him, he returned to his benefactress, and remained with her until 1742, when he received the place of secretary to the French ambassador in Venice. After remaining there a year and a half, he went to Paris, and received his living by copying music, employing his leisure hours in the study of natural science. In 1750, he gained the prize offered by the academy of Dijon, on the question, whether the revival of learning has contributed to the improvement of morals, taking the negative side of the question, it is said, at the suggestion of Diderot. He soon after brought out his *Divin du Village*, a comic opera, of which he had himself composed the music. This piece was received with general favour, and the author was almost worshipped by the French; but the appearance of his celebrated Letter on French Music (1753), in which he pointed out its defects, excited a general storm. Singers and connoisseurs who could not wield the pen, contributed to spread calumnies, pasquinades and caricatures, against the author, who retired to Geneva. By his change of religion, he had lost the rights of a citizen. He now again embraced protestantism, and was formally reinstated in the privileges of a free citizen of Geneva. From Geneva Rousseau went to Chamberry, where he wrote his essay *Sur l'Inégalité parmi les Hommes*. This work excited still more sensation than his prize essay. In it he compares the wild and civilized man, represents the former as the state of nature and innocence, and treats the idea of property, and the wealth and inequality of condition to which it gives rise, as the source of misery and corruption among men. He now returned to Paris,

and, fixing himself at Montmorency (q. v.), wrote his Social Compact, his New Eloisa, and his Emilius. His political treatises, particularly the essays on the social compact, and the inequality of conditions, were the sources of many of the speculative errors of the French revolution. His New Eloisa produced a very different, but equally strong sensation in France, where love merely fluttered around the toilet, and in those countries where female virtue was looked upon with respect. His celebrated work on education, *Emile ou de l'Education* (1762) was originally written for the use of a mother. It was condemned by parliament to be burned, on account of its religious views, and he himself was sentenced to imprisonment. He wished to retire to Geneva, but he was also threatened with imprisonment there, and his book was burned by the common hangman. He therefore took refuge in Moitiers-Travers, a small village of Neufchâtel, where he again found himself among Protestants, the simplicity of whose worship was agreeable to him. The Geneva clergy assailed him from their pulpits, he wrote his celebrated Letters from the Mountains, in reply to their calumnies. This work, with his Letter to the Archbishop of Paris, and his *Dictionnaire Physique Portatif*, were publicly burned in Paris, in 1765. New troubles drove him from Moitiers, and he resided two months on Peter's island, in the lake of Bienne. His residence here produced his *Botaniste sans Maître*. Neither was he long tolerated here; but the canton of Berne ordered him to quit the country without delay in the severest season of the year. On reaching Paris, he became the object of ridicule to the philosophers, but was kindly received by Hume, whom he accompanied to England; but, yielding to his unfounded suspicions of his friends in England, towards whom he conducted himself with the most perverse ingratitude, he left the country, and returned to Paris in 1767. (See Hume's *Private Correspondence*, London, 1820.) In 1768 he published his Musical Dictionary, and soon after appeared his melo drama of Pygmalion. As he grew older, his dislike of society increased, and he retired in May, 1778, to Ermenonville, near Paris, where he died of apoplexy, July 2, of the same year, at the age of sixty-six years. He was buried in the isle of poplars, where a monument is erected to his memory. The principal traits of his character were an enthusiastic passion for love and freedom, a spirit of paradox, an inflexible obstinacy, and a warm zeal for the good of men, combined with a gloomy hypochondria. His works were published at Paris, 10 vols., 1764, and have often been republished. The best edition is that of 1824, seq., 20 vols., with the notes of Musset-Pathay, who is the author of an excellent work—*Histoire de la Vie et des Ouvrages de J. J. Rousseau* (1 vol., Paris, 1827). Theresa Levasseur became his companion in 1745; in 1768 Rousseau married her. His children by her had all been placed in the foundling hospital. She was faithful to him, and knew how to gratify his humours, but had no other merit. In 1791, a *fête champètre* was established at Montmorency, in honour of Rousseau, and his bones were deposited, in 1794, in the Pantheon.

ROUSSILLON; before the French revolution, a province of France, once belonged to Spain, bounded north by Languedoc, east by the Mediterranean, south by Catalonia, and west by the Pyrenees; about eighteen leagues in length, and twelve in breadth. The land is fertile in general. The principal rivers are the Tet and Tech. Perpignan is the capital. It now forms the department of the eastern Pyrenees. The counts of Roussillon governed this district for a long time. The last count bequeathed it to Alphonso of Arragon, in 1178. In 1462, it was ceded to Louis the XI. of France; but in 1493, it was restored to the kings of Arragon, and in 1659 was finally annexed to France by the treaty of the Pyrenees. See *Pyrenees, Peace of.*

ROUSSILLON WINES; in general, the wines of the province of this name. The best for export are those of Baix, Tormilla, Salces, Rivesaltes, Spira, Collioure, Bagnols, Parcous, and St André. The red sorts are thick, of a beautiful colour, and used chiefly to improve other wines. A particular sort is called Grenache, and is, at first, similar to the Alicant wine, dark red, but grows paler with age, and in the sixth or seventh year is similar to the famous Cape wine. Of the white Roussillon wines, the Maccabeo is the most costly.

ROVEREDO (in German, *Rovereith*); a well built town in Tyrol, in the valley of the Adige, on the road from Trent to Peschiera, with about 12,000 inhabitants who chiefly live by spinning, dyeing, and selling silk, particularly sewing silk; lat. 45° 55′ 36″ N.; lon. 11° 0′ 43″ E. The place is of military importance, as is proved by several battles which have been fought there. Masséna obtained a victory at this place over a part of the army of Wurmser, September 3 and 4, 1796. The loss of the Austrians was estimated at 5000 men and 25 cannons.

ROVIGO; a town on a branch of the Adige, in the Lombardo-Venetian kingdom, with 1000 inhabitants, from which Napoleon gave the title of duke to his minister of police, Savary.

ROWE, Elizabeth, a lady distinguished for her piety and literary talents, was the daughter of Mr Singer, a dissenting minister of Ilchester, where she was born in 1674. She became accomplished in music and painting at a tender age, and even attempted versification in her twelfth year. In 1696 she published a volume of Poems on several occasions, by Philomela. The charms of her person and conversation procured her many admirers, among whom she chose Mr Rowe, the son of a dissenting minister, whom she lost a few years after marriage, by a consumption, at the early age of twenty-eight. On this event she retired to Frome, where she produced the greatest part of her works, the most popular of which was her Friendship in Death, or Twenty Letters from the Dead to the Living—a work of a lively imagination, strongly imbued with devotional feeling. This production, which was was published in 1728, was followed in 1729 and 1731, by Letters, moral and entertaining, in Prose and Verse. In 1736, she published a History of Joseph, a poem, which she had composed in early life. After her death (1736), Dr Isaac Watts published her Devout Exercises of the Heart; and in 1739 her Miscellaneous works in Prose and Verse, appeared in 2 vols. 8vo, with an account of her life and writings prefixed.

ROWE, Nicholas, an English dramatic poet, born in 1673, at Little Berkford, Bedfordshire, was the son of John Rowe, a serjeant-at-law. He studied at Westminster, as king's scholar, under the celebrated Dr Busby, and at the age of sixteen was entered a student at the Middle Temple; but on the death of his father, he gave up the law, and turned his chief attention to polite literature. At the age of twenty-four, he produced his tragedy of the Ambitious Stepmother; Tamerlane followed,

which was intended as a compliment to King William, who was figured under the conquering Tartar, whilst Louis XIV., with almost equal want of verisimilitude, ranked as the Turkish Bajazet. It was however, a successful piece; and indeed, with little nature, contains many elevated and manly sentiments. His next dramatic performance was the Fair Penitent, remodelled from the Fatal Dowry of Massinger. In 1706, he wrote the Biter, a comedy, which being altogether a failure, he was prudent enough to keep to his own line, and from that time to 1715, produced his Ulysses, Royal Convert, Jane Shore, and Lady Jane Grey. When the duke of Queensbury was made secretary of state, he appointed Mr Rowe his under-secretary. This post he lost by the death of his patron; and, on the accession of George I., he was made poet-laureate, and also obtained several posts, the emoluments of which aided by his paternal fortune, enabled him to live respectably. He died in 1718, in his forty-fifth year, and was buried in Westminster abbey, where his widow erected a monument to his memory. Rowe was respectable, and possessed agreeable talents for society. His dramatic fables are generally interesting, and the situations striking; his style singularly sweet and poetical; his pieces forcibly arrest attention, although they but slightly affect the heart. As an original poet, Rowe appears to advantage in a few tender and pathetic ballads; but as a translator he assumes a higher character, as in his version of Lucan's Pharsalia, published after his death, which, although too diffuse, was highly praised by Johnson. The poetical works of Rowe were published collectively, in 3 vols. 12mo, 1719.

ROXANA. See *Alexander*.

ROXBURGH; a parish and village of Scotland, in Roxburghshire, the former about eight miles long and four broad, comprising an area of 7000 acres. The surface of the land is inclined but level, and the soil is chiefly a rich loam. It is watered by the rivers Tweed and Teviot, on the banks of which are beautiful plantations. Population in 1831, 962. The ancient town and castle of Roxburgh are now extinct. *Old Roxburgh* was situated over against Kelso, on a rising ground at the west end of a fertile plain, which was formed into a peninsula, by the confluence of the rivers Tweed and Teviot. The new town was built a little to the eastward of the old, and hence in history is called the Easter Roxburgh. In the time of David I. (1124-53), the town was fortified by a wall and ditch, and was even then famous for its schools, which were under the superintendence of the abbot of Kelso. It was also one of the first royal burghs created by that monarch, and was governed by a provost or alderman and bailies. Here was likewise a mint; for coins are still to be seen of William the Lion, struck there; and also some of James II. Near old Roxburgh, on the Teviot side, there was a convent for monks of the Franciscan order, of which no remains are now to be seen; but on its site stands a hamlet called Friars. Roxburgh had the privilege of an annual fair, called St James' Fair, which till this day is held on the place where the town stood. The ancient castle of Roxburgh, or Rokesburgh, stood in the vicinity of the town on an eminence near the termination of the peninsula, and rising in an oblong figure to the height of forty feet. At the south base of the eminence flows the Teviot, which by a bend joins the Tweed, a short way below. A few fragments of the wall, which seem to have formed the exterior defence, are all that remains of this celebrated fortress. Roxburgh gives the title of duke to the family of the Kers of Cessford. John, the third duke of Roxburgh, was a celebrated bibliomanist. His library of 9353 works, which was particularly rich in old romances of chivalry and early English poetry, was sold by public auction in London, in 1812. The catalogue was made out by G. and W. Nicol. The prices paid for some works were enormous. A copy of the first edition of Boccaccio (Venice, in 1471, folio) was bought by the marquis of Blandford (duke of Marlborough) for £2260 sterling; a copy of the first work printed by Caxton, with a date, Recuyell of the Historyes of Troye (1471, folio), was sold for 1000 guineas; and a copy of the first edition of Shakspeare (1623, folio) for 100 guineas. The Roxburgh Club, formed in commemoration of this triumph of bibliomany, celebrates its anniversary (June 17), on that of the sale of the Boccaccio. Every year, one of the members is required to be at the expense of an impression of some rare book, of which only copies enough for the club are struck off.

ROXBURGHSHIRE; a county in the south of Scotland, bordering on England for many miles; is bounded on the north by Berwickshire, on the east and south-east by Northumberland and Cumberland, on the south-west by Dumfriesshire, and on the west by Selkirkshire. It extends from south-west to north-east thirty-eight miles, and from south-east to north-west, twenty-seven. The county is divided by its waters into several districts, the chief of which is Teviotdale, being that division drained by the river Teviot and its tributary streams. Teviotdale comprehends 521 square miles. Liddisdale, which forms the south-west corner of the county, on the borders of Northumberland and Cumberland, comprehends the Alpine territory, which is drained by the Liddel, and its tributaries, and contains 120 square miles. The third division is that portion between the Gala and Leader, measuring twenty-eight square miles. And the fourth district is that part of the shire lying north of the Tweed, included in the Merse, which comprehends twenty-seven miles. Towards the north and west the county is mountainous, but on the south and east level and fertile. The scenery in general is highly romantic, displaying hills, mosses, and mountains, intermixed in beautiful variety with narrow valleys, through which flow numerous streams, many of them famed in pastoral song. Besides the Tweed, the Teviot, and the Liddel, may be mentioned the Ale, the Jed, the Slittrick, the Rule, and the Kail, which fall into the Teviot, and the Hermitage, the Tweeden, the Tinnis, the Kershope, and the Blackburn, which join the Liddel; in Roxburghshire also rise the Tyne and the Coquet, but they soon leave this county and pass the English border. The principal mountains are the Cheviot and the Cockraw, to which may be added the Wish, the Dunian, and Ruberslaw. Sheep here form the chief stock of the farmer; and the manufacture of woollens affords employment to many of the inhabitants. An ancient road, called the rugged causeway, supposed to have been constructed by the Romans, may be traced the whole distance from Hounam to the Tweed. In this county are many border towers and castles, and before the union between England and Scotland they must have been very numerous on the southern frontier, which formed a part of the Debateable land, inhabited by freebooters and marauders almost incessantly engaged in predatory warfare. Roxburghshire contains twenty-nine com-

plete parishes, and a part of four others. The county possesses only one royal burgh, namely, Jedburgh; and two other towns, Kelso and Hawick; besides some villages, as Melrose, Castletown, &c. The principal proprietors are the dukes of Roxburgh and Buccleugh, the marquises of Lothian and Tweeddale, lord Minto, and the families of Scot, Ker, Elliot, Douglas, Pringle, Rutherford, Don, &c. The county contains many excellent mansions, the principal of which are Fleurs, the seat of the duke of Roxburgh; Mount-Teviot, the seat of the marquis of Lothian; Minto House, the seat of the earl of Minto; the Pavilion, the seat of lord Somerville; Springwood Park, the seat of Sir John Scott Douglas; Ancrum, the seat of Sir William Scott; Makerston, the seat of Sir Thomas Brisbane Macdougal; Abbotsford, the seat of Sir Walter Scott; Stitchel, the seat of Sir John Pringle; Stobs and Wells, the seats of Sir William F. Elliot; Edgerston, the seat of Mr Rutherford; Drygrange, the seat of Mr Tod; Chesters, the seat of Mr Ogilvie; Eildon Hall, the seat of Mr Henderson; and Riddel House, the seat of Mr Sprott. The most interesting of these mansions is Abbotsford, the residence of Scotland's great poet and novelist. (See the article *Abbotsford.*) Roxburghshire has given birth to three poets of distinction—Thomson, the author of the Seasons, Dr John Armstrong, and Dr John Leyden. Population of Roxburghshire in 1831, 43,663.

ROXOLANA. See *Solyman II.*

ROY, RAMMOHUN. See *Rammohun Roy.*

ROY, ROB. See *Rob-Roy.*

ROYALISTS. In France, after the revolution of 1792, this name was given to the adherents of the Bourbons; and from the restoration, in 1814, down to the revolution of 1830, it served to designate those who were in favour of the old system of things, and opposed to liberal principles. Those of the former royalists who continue to adhere to, and in fact are often active for the elder line of the Bourbons, are now generally called *Carlists* (from Charles X). Those royalists who carried farthest the doctrine of legitimacy (q. v.), the touchstone of this party, are called *ultras*, without addition, though this term might be, and in some cases actually is, applied to the ultra-liberals.

ROZIER, PILATRE DE. See *Aëronautics.*

RUBBLE WALLS. See *Architecture.*

RUBENS, PETER PAUL, the most eminent painter of the Flemish school, was the son of a doctor of laws and a sheriff of Antwerp, who, during the troubles of the Low Countries, retired to Cologne, where his celebrated son was born in 1577. The family subsequently returned to Antwerp, where the subject of this article received a literary education, and early displayed a talent for design, which induced his mother, then a widow, to place him with the painter Van Oort, whom he left for the school of Otto Venius. His talent having made him known to the archduke Albert, governor of the Netherlands, that prince employed him on several pictures, and recommended him to the duke of Mantua, at whose court he remained six years, studying the works of Giulio Romano, and other great artists, and paying particular attention to the colouring of the Venetian school. In the interval he also visited Madrid, on a commission for the duke, where he saw some of the finest works of Titian and other masters. On leaving Mantua, he visited Rome and other cities of Italy, copying some of the best pictures, and perfecting himself in every branch of his profession. After a residence of seven years in Italy, he returned to Antwerp, being recalled by the illness of his mother, who died before his arrival. This event induced him to retire to the abbey of St Michael, where he gave himself up for a time to solitary study. His reputation now stood so high, that he was called to the court of the archduke, and pensioned; soon after which, he married his first wife, and lived in a style of great magnificence, which excited much envy among inferior artists, who sought to lower his reputation by attributing the best parts of his pictures to his numerous pupils. These calumnies he treated with disregard, and, aware of the source of much of the ill-will, relieved the necessities of some of his principal decriers. For the cathedral at Antwerp he painted that great masterpiece, the Descent from the Cross; for the Jacobites, the Four Evangelists; and he continued to execute many great works with surprising facility, until, in 1620, he was employed by Mary de' Medici to adorn the gallery of the Luxembourg, for which he painted a well-known series of magnificent pictures, allegorically exhibiting the principal events in the life of that princess. Such was the opinion of his general talents, that he was chosen, at the recommendation of the archduchess Isabella, to be the private negotiator of a peace between Spain and England; for which purpose he visited Madrid in 1628, where he was treated with great distinction. He painted for Philip IV., and his minister Olivarez, twelve or fourteen of his most celebrated pictures, in the short space of nine months; and, in 1629, he returned to Flanders with a secret commission, and proceeded to England. Although not received openly as a minister, Charles I., who was both a patron and judge of the fine arts, was much gratified by his visit; and during his stay in England, where he succeeded in his negotiation, he was engaged to paint the ceiling of the banqueting-house at Whitehall. He also executed several other pictures for the English nobility, some of which are to be found at Blenheim, Wilton, Easton, &c. He remained in England about a year, during which time he received the honour of knighthood, and then returned to Flanders, where he married the beautiful Helen Formann, his second wife, and was nominated secretary to the council for the Low Countries. He maintained a highly dignified station through the rest of his life, which was one of continued prosperity, until his death at Antwerp, in 1640, in the sixty-third year of his age.

Rubens, beyond all comparison, was the most rapid of the great masters; and so many pictures bear his name, it is impossible not to credit a part of what was asserted in his own days, that the greater portion of many of them was performed by his pupils. His great characteristics are freedom, animation, and striking brilliancy and disposition of colouring, the favourite tone of which is that of a gay magnificence, from which, whatever the subject, he never deviated. Besides the excellence of his general powers, he saw all the objects of nature with a painter's eye, and instantly caught the predominating feature by which the object is known and distinguished; and, as soon as seen, he executed it with a facility that was astonishing. According to Sir Joshua Reynolds, he was the greatest master of the mechanical part of his art that ever existed. His chief defects consisted in inelegance and incorrectness of form, a want of grace in his female figures, and in the representation of youth in

general, and an almost total absence of sublime or poetical conception of character. The works of Rubens are found in churches, palaces, and galleries throughout Europe; for every branch of the art was cultivated by him,—history, landscape, portrait, and even common life. His celebrated Rape of the Sabines is in the national gallery of Great Britain. The number of engravings from the designs of Rubens exceed three hundred. This great painter, who was no mean scholar, wrote some treatises on his art in very good Latin. See Sir J. Reynolds's *Works;* Walpole's *Anec.;* Fuseli's *Lectures.*

RUBEZAHL. See *Ruebezahl.*

RUBICON; a river of Italy, anciently forming the boundary between Gaul and Italy. Cæsar, by passing this river with his troops, and thus leaving the province assigned him, made war on the republic. See *Cæsar.*

RUBRIC; in the canon law, signifies a title or article in certain ancient law books; thus called because written, as the titles of the chapters of our ancient Bibles are, in red letters.

Rubrics also denote the rules and directions given at the beginning and in the course of the liturgy, for the order and manner in which the several parts of the office are to be performed. There are general rubrics, special rubrics, a rubric for the communion, &c. In the Romish missal and breviary are rubrics for matins, for lauds, for translations, for beatifications, &c.

RUBY, ORIENTAL. See *Corundum.*

RUDDER. See *Helm.*

RUDDIMAN, Thomas, a celebrated philologist and Latin grammarian, was the son of a respectable farmer, and born in the parish of Boyndie, county of Banff, in 1674. After passing through the usual course of education at the parish school, he set out, in his sixteenth year, for Aberdeen, where he was a successful competitor for a vacant bursary at King's college. When only twenty-one, he was appointed parish schoolmaster at Laurencekirk; and in that situation became acquainted with the celebrated Dr Pitcairne, by whom he was invited to Edinburgh. He repaired to the metropolis in the beginning of the year 1700, and on his arrival, Dr Pitcairne procured him employment in the Advocates's library as a sort of assistant librarian, though for upwards of a year he had no regular or formal engagement in that capacity. During this interval he employed himself in arranging books, copying papers, and making extracts from interesting works. In 1701, he married the daughter of a gentleman of small estate in Orkney, and in the year following, he was formally admitted, on the 2nd of May, assistant librarian, with the salary of only £8, 6s. 8d. sterling per annum. He now set himself to the task of improving his circumstances by literary industry and diligence, and the situation he was in eminently favoured such a design. He copied chronicles and chartularies for the Glasgow university, which gave him constant and regular employment in this way. He formed connexions with booksellers, and revised, corrected, and added to the works which they were publishing, particularly those of a learned character. The first work to which he is known to have lent his assistance was Sir Robert Sibbald's "Introductio ad Historiam rerum a Romanis gestarum in ea Boreali Britanniæ parte quæ ultra Murum Picticum est." He was next employed to revise "The Practiques of the Laws of Scotland," by Sir Robert Spottiswood. In 1707, he published an edition of Wilson's "Animi Tranquillitate Dialogus." To this work he added a new preface, and subjoined a sketch of the life of Wilson. In 1709, he published a new edition, with notes, of "Johnstoni Cantici Solomonis Paraphrasis Poetica," which he dedicated, in a copy of verses, to his patron Dr Pitcairne. He afterwards edited an edition of Virgil's Æneid, as translated into Scottish verse by the celebrated Gawin Douglas. To this work, besides superintending and correcting the press, he contributed a Glossary, explaining difficult and obsolete words; a performance which bespeaks great depth of research and soundness of judgment. In 1711, he assisted in preparing a new edition of the works of Drummond of Hawthornden, and immediately after lent his aid to Abercromby, to publish his "Martial Achievements of the Scots Nation." He next devoted himself to philological pursuits; and in 1713, published a new edition of the Latin Vocabulary of John Forrest, with improvements. In the year following, he published that work which filled up the measure of his fame. This was his "Rudiments of the Latin Tongue;" a work which he lived to see go through no less than fifteen editions. It is almost unnecessary to add, that it immediately supplanted all those of a similar kind which had been previously in use, every one of which were singularly defective; and that it has remained in extensive use throughout the grammar schools of Scotland ever since. Shortly after this, he was employed to edit "Buchanani Opera Omnia," now collected for the first time. To this work, which was published in 1715, in two vols. folio, he contributed large annotations, in which he treated freely both the character and political principles of the author; a proceeding which raised him a host of enemies, and involved him in a litigated and annoying controversy. In 1715, he added to his other avocations that of printer, admitting a younger brother of his own, who had been bred to the business, as a partner of the concern. The first production of his press, was the second volume of Abercromby's Martial Achievements. Amongst the learned works of note, which he printed subsequently, were, the first volume of "Epistolæ Regum Scotorum," 1722, for which he wrote a preface; "Ovidii Excerpta ex Metamorphoseon Libris," containing English Notes, by Willymot and himself, 1723; Herodian, 1724; Pars Prima of his own Grammaticæ Latinæ Institutiones, 1725, which brought him a great accession of fame and profit; and Pars Secunda of the same work. He also printed, in 1733, "A Dissertation upon the Way of Teaching the Latin Tongue." In 1728, he was nominated, conjunctly with James Davidson, printer to the college university. Previously to this viz., in 1724, he began to print the continuation of the Caledonian Mercury for Rolland, who was then its proprietor; but in 1729, he acquired the whole interest in that paper, which was transferred to him in March of the year just named, and continued in his family till 1772, when it was sold by the trustees of his grandchildren. Amongst the last of his literary labours was an elaborate preface, or rather introduction, to Anderson's "Selectus Diplomatum et Numismatum Scotiæ Thesaurus;" an able and learned disquisition on various subjects of antiquity. Being now in the sixty-fifth year of his age, he ceased, after the completion of the work just spoken of, from every kind of literary employment; and, nearly at the same period, resigned his half of the printing concern to

his son, allowing, however, his name to remain in the firm. He died at Edinburgh on the 19th January, 1757, aged eighty-three.

RUDESHEIMER. See *Rhenish Wines*.

RUE (*ruta graveolens*); a strong scented plant, cultivated in gardens. The root is perennial, woody; the stems, branching almost from the base, about two feet high, bearing alternate petiolate, and very much divided leaves; the flowers are yellow, and disposed in corymbs at the summit of the branches; the calyx is persistent, and divided into four or five segments; the corolla consists of as many oval petals, and is longer than the calyx; the stamens are eight or ten, and the style single. The odour of rue is very strong and disagreeable, and the taste acrid and bitter. It has been celebrated as a medicinal plant from high antiquity, and a great variety of virtues have been attributed to it, but is now comparatively little used, being chiefly employed in cases of hysteria and flatulent colic. Notwithstanding its disagreeable taste and odour, the leaves were employed for culinary purposes by the ancient Romans, and even now enter into the composition of certain dishes, and especially of salads, in some parts of Italy and Germany. About twenty species of rue are known.

RUEBEZAHL; the name of a mountain spirit, sometimes friendly, sometimes mischievous, dwelling in the Riesengebirge, in Silesia. Ruebezahl corresponds to our Robin-Goodfellow. He has become, of late, the hero of some operas. See *Brownie* and *Elf*.

RUFF (*machetes pugnax*). A species of the shore birds, alike curious in the disposition of its plumage and for its pugnacious character. It is about a foot in length, with a bill an inch long. The plumage varies so much in colour, in different individuals, that many imaginary species have been formed. It derives its common name from the disposition of the long feathers of the neck, which stand out like the ruff formerly worn; it is, however, only the male that is furnished with this appendage, which he does not gain till the second year, before which period he closely resembles the female. They are birds of passage, appearing at certain seasons of the year, in great numbers, in the north of Europe. They are generally taken in large nets. When fattened, they are dressed like the woodcock, without withdrawing their intestines or their contents, which are considered by the connoisseurs as affording the most delicate kind of seasoning for these birds. The males are much more numerous than the females, and during the pairing season have numerous and severe conflicts for the possession of their mates. These combats are thus described by Pennant and other writers:—The male chooses a stand on some dry bank near the water, round which he runs so often as to make a bare circular path; the moment a female appears in sight, all the males within a certain distance commence a general fight, placing their bills to the ground, spreading their ruff, and using the same action as the common cock. This pugnacious disposition is so strong, that when they are kept for the purpose of fattening, their place of confinement is obliged to be dark, as, the moment any light is admitted, they attack each other with such fury, and fight with so much inveteracy, as to occasion a great slaughter. The female lays four eggs, forming her nest in a tuft of grass, and incubates about a month.

RUGEN; the largest island in the Baltic, belonging to Germany, about a mile from the continent, containing 360 square miles, and 28,000 inhabitants. It belongs to the government of Stralsund, in the Prussian province of Pomerania. Its northern coast consists chiefly of precipitous chalk rocks, and the whole island is rich in romantic scenery, for which reason it is much resorted to by travellers. The capital is Bergen, with 2200 inhabitants. The Stubbenkammer, the north-eastern promontory, rises 543 feet above the sea. Not far from it is the Stubbenitz, a beautiful beech wood, probably the place where, according to Tacitus, the ancient Rugians worshipped the goddess Hertha. Arcona (lat. N. 54° 38′ 46″; lon. E. 13° 25′ 35″) is the most northern point of Germany proper. Rugen came under the Prussian government in 1815, with the rest of Swedish Pomerania. The Rugians are a hardy race of fishers and husbandmen. The inhabitants of the peninsula of Mönkguth are very tall. See J. J. Grümbke's account of the island (in German; Berlin, 1819, 2 vols.)

RUGENDAS, GEORGE PHILIP, one of the most famous battle painters, was born at Augsburg, in 1666. After six year's study, his right hand became disabled by a fistula. He continued to work with the left. He painted and engraved much. His pictures are full of spirit and ease; there is an endless variety in the attitudes of his horses. Among his engravings, all laboured with uncommon care, are distinguished six large ones, representing the siege of Augsburg, of which he was a witness. He died at that city, in 1742. His sons George Philip (died 1774) and Christian (died in 1781) are also known as engravers.

RUHE, the German for *rest*, used as an affix to several geographical names; for instance, *Carlsruhe* (rest of Charles; place of repose for Charles).

RUHNKENIUS, DAVID (properly *Ruhnken*), professor of history and eloquence in the university of Leyden, one of the most celebrated classical scholars of his time, and especially distinguished for his simple, beautiful, classic Latin style, was born in 1723, at Stolpe, in Hither Pomerania. His opulent parents designed him for study, and sent him at first to Königsberg, where he made himself acquainted with classic authors of antiquity, and also practised music and other of the fine arts. In his eighteenth year, he went to Wittenberg, and studied with eagerness the philosophy of Wolf. Two years after, he went to Leyden, to enjoy the instructions of the celebrated Hemsterhuys in the Greek language. There he spent six years, and devoted himself to the whole circle of the humane studies, under the guidance of his great teacher. The first fruits of his application were two *Epistolæ criticæ* (1749 and 1751); the subject of the first of which was the hymns of Homer, Hesiod, and the Greek anthology; of the second, Callimachus, Apollonius, and Orpheus. It was now his wish to obtain a philosophical professorship in some Dutch university; but, having no prospect of such an appointment, he resumed, at Hemsterhuys' advice, the study of the Roman law, which he had begun in Wittenberg. But without being diverted from Greek literature, he undertook an edition of Plato. For this end, he procured from the library of Sangermann, at Paris, a transcript of the only existing copy of Timæus's Lexicon of Plato, and published it, with a commentary (Leyden, 1756 and 1789). So much critical and grammatical erudition can rarely be found condensed into

so narrow a space. This work was sufficient to give Ruhnken a rank among the first philologists of his times. As he had become fond of his easy life in Holland, he declined several honourable offers of professorships in foreign countries, and devoted his leisure to a literary tour, with the intention of consulting the principal libraries of Europe. For a year, he laboured amid the treasures of the royal library of Paris, where, with unwearied industry, he transcribed and collated manuscripts, and made excerpts from them. Hemsterhuys had, meanwhile, found opportunity, as he was now oppressed with age and sickness, to get Ruhnken appointed assistant lecturer on the Greek language; and, on the death of Ouderdorp, he was appointed professor of history and eloquence. Of his numerous works, among which are his Memoir of Hemsterhuys, his edition of Muretus, the most distinguished is his *Velleius Paterculus* (Leyden, 1779)—a true model for the treatment of Latin classics. In 1780, he published a hymn of Homer to Ceres, which Mathäi had discovered in Moscow, and communicated to him in a letter. In his intended edition of Plato he had only finished the *scholia*, when death put an end to his activity, in 1798. His life has been written in a masterly manner by his scholar Daniel Wyttenbach.

RULE OF THREE, in arithmetic, called by some authors the *golden rule*, is an application of the doctrine of proportion to arithmetical purposes, and is divided into two cases, *simple* and *compound;* now frequently termed *simple* and *compound proportion.—Simple rule of three*, or *simple proportion*, is when, from three given quantities, a fourth is required to be found, that shall have the same proportion to the given quantity of the same name, as one of the other quantities has to that of the same name with itself. This rule is, by some authors, divided into two cases; viz. the *rule of three direct*, and the *rule of three inverse;* but this distinction is unnecessary, and the two cases are now generally given under one head by the best modern authors; but as they are still retained by others, it will not be amiss to point out the distinction. The *rule of three direct*, is when more requires more, or less requires less, as in this example: "If three men will perform a piece of work, as, for instance, dig a trench forty-eight yards long, in a certain time, how many yards will twelve men dig in the same time?" where it is obvious, that the more men there are employed, the more work will they perform, and therefore, in this instance, more requires more. Again, "If six men dig forty-eight yards in a given time, how much will three men dig in the same time?" Here less requires less, for the less men there are employed, the less will be the work that is performed by them; and all questions that are in this class are said to be in the rule of three direct. —The *rule of three inverse*, is when more requires less, or less requires more; as in this case—"If six men dig a certain quantity of trench in fourteen hours, how many hours will it require for twelve men to dig the same quantity?" or thus, "If six men perform a piece of work in seven hours, how long will three men be in performing the same work?" These cases are both in the inverse rule; for in the first more requires less, that is, twelve men being more than six, they will require less time to perform the same work; and in the latter, the number of men being less, they will require a longer time. All questions of this class are said to belong to the rule of three inverse. These two cases however, as we before observed, may be brought under one general rule, as follows:—*Rule.* Of the three given terms, set down that which is of the same kind with the answer towards the right hand; and then consider, from the nature of the question, whether the answer will be more or less than this term. Then, if the answer is to be greater, place the less of the other two terms on the left, and the remaining term in the middle; but if it is to be less, place the greater of these two terms on the left, and the less in the middle; and in both cases, multiply the second and third terms together, and divide the product by the first term for the answer, which will always be of the same denomination as the third term.—*Note* 1. If the first and second terms consist of different denominations, reduce them both to the same; and if the third term be a compound number, it is generally more convenient to reduce it to the lowest denomination contained in it.—*Note* 2. The same rule is applicable whether the given quantities be integral, fractional or decimal.

RULES OF LEGISLATIVE BODIES. For those of England, see the article *Parliament;* also the *Precedents of Proceedings in the House of Commons*, 4th ed., 1818, 4 vols., 4to, by Hatsel.) The French chamber of deputies, June 23, 1814, received a full system of rules of ninety-four articles. But there is hardly a session in which the course of the deliberations is not interrupted by violent exclamations, and the hubbub of the majority. In their leading features, the French rules are the same with the British and American. Some of the principal peculiarities are, that, for preliminary investigations, the whole chamber is divided, by lot, into nine committees (*bureaux*), of which the chairmen, or *reporters*, as they are called, in every case form a committee of nine members, which appoints one of their number to report to the chamber. Private petitions are either wholly rejected (*la chambre passe à l'ordre du jour*), or delivered to the ministers for consideration. It may, however, happen that they give rise to serious discussions in the chamber. Motions must be put in writing, read, and a day fixed for their discussion. Such a motion, moreover, must, as in other parliamentary bodies, be seconded; and its discussion may be prevented by a call for the previous question. If the further discussion is resolved on, all who wish to speak give in their names to the clerk, and, after the report of the committee, the speakers are heard, in turn, from the tribune. The members do not speak in their places, but from a sort of pulpit. No deputy can speak twice on the same subject. Most of the speeches are still read, and few of the members are able to speak without preparation. The chamber commonly votes by the members on one side of a question rising, and the others remaining seated, and the secretary decides on which side is the majority. But on the passage of laws, the main vote is always taken by balls (*scrutin secret*), in which all the members are called by name (*appel nominal*), every one receives a black and a white ball, and votes by casting one of them in an urn. The chamber of peers, on the contrary, votes by written yeas and nays. Propositions from the king may be submitted to the chambers by the ministers (who, by virtue of their office, have a seat and voice in both chambers), or by special commissioners.

RUM; the distilled liquor obtained from the fermented juice of the sugar cane or molasses. The following is the process employed in Jamaica:—The materials for fermentation are molasses, scummings

of the hot cane-juice, or sometimes raw cane-liquor, lees or *dunder* (as it is called), and water. The dunder answers the purpose of yeast, and is usually prepared by a separate fermentation of cane, sweets, and water. The materials being mixed in due proportions (which are about equal parts of scummings, dunder, and water), the fermentation (q. v.) soon begins, and in twenty-four hours the liquor is fit for the first charge of molasses, which is added in the proportion of three gallons for every hundred gallons of the liquor. Another charge is added in a day or two, or afterwards. The heat in fermentation should not exceed 90° or 94°. The fermentation falls in six or eight days, and the liquor grows fine and fit for distillation. In about two hours after lighting the fire, the spirit begins to run, (in a still of 1200 gallons;) and it is collected as long as it is inflammable. The first spirit is called in the country *low wines*; and it is rectified in a smaller still, to the Jamaica proof, which is that in which olive oil will sink. The spirit called *New England rum* is prepared from molasses, and largely exported.

RUM, Island of. See *Hebrides*.

RUMELIA, or RUM-ILI. See *Romania*.

RUMFORD, Count, so called from the title conferred on him by the elector of Bavaria, was born in Woburn, New England, in 1752. His name was Benjamin Thompson. He acquired, when young, a knowledge of natural philosophy, by the aid of the professor of that science in the college of Cambridge. He then employed himself as a teacher, till he was raised to independence by an advantageous marriage, when he became a major in the militia of his native province; and when the war took place between Great Britain and her colonies, his local knowledge enabled him to render services of importance to the English commanders. He went to England, and, as a reward of his services, obtained a situation in the foreign office, under Lord George Germaine. Towards the close of the war, he was sent to New York, where he raised a regiment of dragoons, of which he was appointed colonel, and thus became entitled to half pay. Returning to England in 1784, he received the honour of knighthood, and was for some time one of the under secretaries of state. Soon after, he went to the continent, and, through the recommendation of the prince of Deux Ponts (afterwards king of Bavaria), entered into the service of the reigning elector-palatine and duke of Bavaria, when he effected many important and useful reforms in both the civil and military departments of the state. Among these was a scheme for the suppression of mendicity, which he carried into execution at Munich and other parts of the Bavarian territories, providing labour for able-bodied paupers, and exciting a spirit of industry among the lower orders of the people in general. As the reward of his success in this and other undertakings, he received from the sovereign of Bavaria, various orders of knighthood, was made a lieutenant general, and created Count Rumford. He left Bavaria in 1799, and returned to England, where he employed himself in making experiments on the nature and application of heat, and on other subjects of economical and philosophical research. He likewise suggested the plan, and assisted in the foundation of the royal institution, which led to other establishments of a similar description. In 1802, he removed to Paris, where he took up his residence; and, his wife being dead, he married the widow of the celebrated Lavoisier; but the union proved unfortunate, and a separation ere long took place. Count Rumford then retired to a country house at Auteuil, about four miles from Paris, and there devoted his time to the embellishment of his domain, and to the cultivation of chemistry and experimental philosophy. Though he disliked both the character and politics of the French, he preferred the climate of their country to every other; and he therefore procured permission from the king of Bavaria, to continue in France, and retain the pension of £1200 a year, granted him by that prince. He died in August, 1814, leaving by his first wife a daughter, who resided at Boston, in the United States. Count Rumford was by no means a man of learning, his literary acquirements being confined to the English, French, and German languages; but he was familiar with the discoveries and improvements of modern science, and the industry and perseverance with which he pursued his inquiries enabled him to make some considerable additions to our knowledge of chemistry and practical philosophy. Besides a great number of papers in various scientific Journals, he published four volumes of Essays, experimental, political, economical, and philosophical.

RUMINANT, in natural history, is applied to an animal that chews over again what it has eaten before. This is popularly called *chewing the cud*.

RUMJANZOFF, Nicholas Petrowitsch, count, chancellor of the Russian empire, was the son of the field-marshal Peter Rumjanzoff, or Romanzoff, distinguished in the reign of Catharine by his victories over the Turks. He began his career about 1785, as Russian ambassador at Frankfort on the Maine. He was afterwards minister of commerce, and did much to promote the internal and foreign trade of Russia. In 1807, he became minister of foreign affairs, and soon after, chancellor of the empire. He accompanied the emperor, in 1808, to Erfurt; and, in 1809, concluded peace with Sweden. During the campaign of 1813—14, he remained in Petersburg, at the head of the department of foreign affairs, which, however, were directed, in the imperial camp, by the emperor himself. After the return of the emperor, he resigned the port-folio to count Nesselrode. From this time count Rumjanzoff, who had almost totally lost his hearing, lived retired from public affairs, and devoted his riches to patriotic and scientific undertakings. He promoted greatly the introduction of the system of mutual instruction. Kotzebue's voyage round the world was executed, and the description of it printed, at his expense. The Russian *codex diplomaticus* has been printed, at his expense, at Moscow, since 1813. For professor Hase of Paris, he defrayed the expenses of an edition of Leo Diaconus, and to the imperial academy of science, he gave 25,000 rubles, to be spent in printing old Russian annals and chronicles. He also caused a monument of much importance, as connected with the history of art in the middle ages, the Chersonese gates of the cathedral at Novgorod (containing forty-six biblical and historical scenes), to be described by Adelung, and the work to be printed at his expense. In 1820, he established on his domains (containing one town, ninety villages, and 30,000 souls), at Homel (in the government of Mohilew), a charitable school. He collected from sixty to two hundred of the vagrant and mendicant children of bond-peasants in a wing of his castle, where they were clothed, fed, and taught on the system of mutual instruction and exercised in some trade. To Rumjanzoff, also, we are indebted for the first edition, in the Tartar language, of

Abulgasi's History of the Mongols and Tartars (Kasan, 1825). The count died at St Petersburg, in January, 1826, in the seventy-third year of his age, without children. Among other things, he left a valuable collection of Oriental coins.

RUNCIMAN, ALEXANDER, a painter of considerable note, was the son of a builder in Edinburgh, where he was born in the year 1736. Having shown in his earliest years a decided inclination for drawing, he was placed at fourteen under the care of Messrs John and Robert Norrie, house-painters; the former of whom used to adorn the mantle-pieces of the houses which he was employed to paint, with landscapes of his own, which were then deemed respectable productions, and of which many a specimen is still preserved in the houses of the old town of Edinburgh. The youth devoted himself entirely to his art; and when the academy for rearing young artists was commenced at Glasgow by the brothers Foulis, he became one of its pupils. He soon acquired considerable local fame for his landscapes, but failed entirely to make a living by them. Despairing of success in this branch of art, he commenced history-painting; and in 1766, visited Italy, where he met Fuseli, whose wild and distempered character matched aptly with his own. He spent five years in Rome, assiduously studying and copying the Italian masters; and in 1771, returned to his native country, with powers considerably increased, while his taste, formerly over-luxuriant and wild, had experienced a corresponding improvement. Just at that time a vacancy had occurred in the mastership of a public institution, called the Trustees' academy; and the place, to which was attached a salary of £120, was offered to and accepted by Runciman. Being thus secured in the means of subsistence, he applied his vacant time to historical painting, and produced a considerable number of specimens, which were regarded with much favour, not only in his native country, but also in England, where several of them were exhibited. Among his productions may be mentioned, Macbeth and Banquo, in a landscape; a Friar, in a landscape; Job in Distress; Samson strangling the Lion; Figure of Hope; St Margaret landing in Scotland, and her Marriage to Malcolm Canmore, in Dunfermline abbey; Christ talking to the Woman of Samaria; Agrippina landing with the Ashes of Germanicus; the Princess Nausica surprised by Ulysses; Andromeda; Sigismunda weeping over the Heart of Tancred; the Ascension (in the Cowgate episcopal chapel, Edinburgh): the Prodigal Son (for which Ferguson the poet was the study); and the paintings in Ossian's Hall at Pennycuik. The work last mentioned was the *chef d' œuvre* of Runciman. The principal paintings are twelve in number, referring to the most striking passages in Ossian's Poems. The task was one of no small magnitude, but the painter dreamt of rivalling the famed Sistine Chapel, and laboured at his work with only too much enthusiasm. In consequence of having to paint so much in a recumbent posture, and perhaps denying himself that exercise which the physical powers demand, he contracted a malady which carried him slowly to the grave. He died, October 21, 1785, dropping down suddenly on the street, when about to enter his lodgings. Runciman was remarkable for candour and simplicity of manners, and possessed a happy talent for conversation.

RUNIC ALPHABET AND WANDS. This alphabet, peculiar to the ancient northern tribes of Europe (Germans and Scandinavians), is considered, by some scholars, to have existed before the Christian era; by others, to have originated later. The similarity of a few Runic characters to corresponding Roman ones, proves nothing, as it prevails with but a few of them; moreover, the Runic alphabet has but sixteen characters: this limited number is hardly reconcileable with the idea of the Scandinavians having borrowed it from the Romans. Rude nations want many, rather than few, characters for their undefined sounds. Yet could the northern tribes, immersed as they were in ignorance, have invented their own alphabet? Frederic von Schlegel advances the hypothesis, that the Phœnicians, navigating in early antiquity to the coasts of the Baltic, might have carried the art of writing to those northern regions, and that the Runic grew out of the Phœnician characters, and was preserved by the priests, together with several magic arts. The similarity of a few of the Runic signs to those of the Romans, might be explained by the fact, that the Romans themselves received their characters from an Eastern source. The fact, that in Spain and other countries in the south-west of Europe, remains of the Runic and Runic stones (tomb-stones, land-marks, &c.,) are met with, is to be explained from the influx of the tribes of ancient Germany and Scandinavia into those countries at the time of the general migration of nations. W. C. Grimm, in his *Ueber Deutsche Runen* (Göttingen, 1821), endeavours to show that the Germans had, probably, in ante-historic times, characters of more than accidental similarity to those of the Greek and other alphabets, and that the German Runic, properly so called (that of the Saxons of the northern Elbe), is between the ancient northern (Scandinavian) Runic and the Anglo-Saxon; so that the German Runic originated from the former, and produced the latter. The word *rune* he derives, as Mone does, from *runen* (i. e. to make a slight incision or scratch): others derive it from the German *raunen* (i. e. whisper); hence *runic*, as designating a secret, mysterious writing, belonging to the priests. According to Dahlmann and Kopp, the northern Runes are of later origin than is generally supposed. The Runic *codices* are proved to be of less antiquity than some written in common characters. Langebeck found, in 1753, that none of the numerous Runic writings in Gothland reached back farther than the year 1200 of our era; the latest were of the year 1449. (See Brynjulf's work on the Runes, and Rasmus Nyerup's works.

Runic wands were willow wands, inscribed with mysterious characters, and used by the heathen tribes of the north of Europe, in the performance of magic ceremonies. Such wands were also employed by the ancient inhabitants of Sweden and Norway, to note the succession of time. To this day, the peasants of those countries use similar wands instead of an almanac; and in Germany sticks are used in keeping the ordinary accounts between families and the persons from whom they receive their daily supplies; for instance, the family and the baker each have a stick, and the two are put together, and a notch made in them with a file, when bread is delivered; thus each has a check on the other.

RUNNYMEDE, in England; the celebrated meadow where the conference was held, June 15, 1215, between John and the English barons, in which the former was compelled to sign *Magna Charta* and

the *Charta de Foresta*. (See *John*.) It is five miles east of Windsor, in Surrey, and is now divided into several enclosures.

RUPERT OR ROBERT OF BAVARIA, prince, the third son of Frederic V., elector palatine and titular king of Bohemia, by the princess Elizabeth of England, daughter of James I., was born in 1619, and, becoming an exile through the misfortunes of his father, at the commencement of the civil war in England, he offered his services to his uncle, Charles I., and had the command of a corps of cavalry, at the head of which he distinguished himself at the battle of Edgehill, in 1642, and at Chalgrave Field, in 1643. Soon after, he took Bristol, and obliged the enemy to raise the sieges of Newark and of York. He displayed his courage at Marston Moor and at Naseby; but his impetuosity and imprudence contributed to the disastrous result of those engagements. He afterwards shut himself up in Bristol; but, having surrendered that place, after a short siege, to Fairfax, his conduct so much displeased the king, that he dismissed the prince from his service. He then went abroad, and, after the death of Charles I., he was made commander of that part of the fleet which adhered to Charles II., in 1648. Prince Rupert for some time carried on a predatory warfare against the English, and at length sailed to France, and joined Charles II. at the court of Versailles. His time was chiefly devoted to scientific studies, till the restoration, when he returned to England. In 1666, he was appointed, in conjunction with Monk, to the command of a fleet against the Dutch; and, in the next war with Holland, in 1673, was made admiral of the fleet. In 1679, he was nominated a member of the new privy council; but from that period he interfered but little in public affairs, leading a retired life, and spent much of his time at Windsor castle, of which he was governor. Many useful inventions resulted from his studies, among which are the invention of prince's metal, and the discovery of the method of engraving in mezzo-tinto. The prince died in London, 1682.

RUPERT'S DROPS, OR GLASS TEARS. See *Annealing*.

RUPTURE. See *Hernia*.

RURAL WAR. See *Peasants' War*.

RUSCSUCK, ALSO RUSTSCHUK, in Bulgaria, in the sangiacat of Nicopolis, is situated on the right bank of the Danube, at the confluence of the Lom, and almost opposite Giorgiev. The city, formerly an important fortress, has extensive works and a castle. It is the see of an archbishop, and has 30,000 inhabitants; partly Turks, partly Greeks, Armenians, Gypsies and Jews; and carries on an active trade, manufactures silk, wool, cotton, leather, tobacco, &c. Ruscsuck is of the highest importance in a military point of view, as the wars between Russia and the Porte, in 1809, 1810, and 1811, have proved.

RUSH. This term is, strictly speaking, applied to the different species of *juncus*, sedge-like plants, chiefly growing in marshes, with inconspicuous greenish flowers, though belonging to the class *hexandria* of Linnæus. The *J. effusus*, or soft rush, is a common plant, in low grounds, in the more northern parts of the eastern and western continents, and is rendered conspicuous by its tufts of long awl-shaped leaves and stems, somewhat resembling the spines of a porcupine. The flowers are in loose, lateral panicles. The leaves and stems are used for making mats, baskets, and children's ornaments, and their pith is used for wicks to burn in lamps. The species of *juncus* are herbaceous plants, inhabiting the northern hemisphere, with fibrous and usually perennial roots; their leaves are cylindrical or a little compressed, often containing transverse internal partitions, which give them a jointed appearance; their flowers are small, greenish or brownish, terminal or lateral, and generally disposed in panicles or corymbs. The different species of *scirpus*, or club-rush, are common in marshes. They are distinguished by having their flowers disposed in little solid oval spikelets; in some species, terminal and solitary; in others, forming wide-spreading panicles. The bull-rush (*S. lacustris*) is aquatic, growing in deep water throughout the northern hemisphere. It is used for the bottoms of chairs, and, for the finer sort, is cut when a year old. Cottages are sometimes thatched, and pack-saddles stuffed with it. The Chinese cultivate the *S. tuberosus*, or water chestnut, in tanks, the bottoms of which are manured and exposed for a time to dry in the sun. The tubers of the roots are eaten either boiled or raw, and are esteemed both as food and medicine. This plant has not yet been introduced into Europe.

RUSH, BENJAMIN, M. D., was born on the 24th December, 1745 (old style), near Philadelphia, and, in 1759, entered the college of Princeton, where he graduated, in 1760, before he had completed his fifteenth year. The next six years of his life were devoted to the study of medicine. During his novitiate, he translated the aphorisms of Hippocrates into English, and also began to keep a note-book of remarkable occurrences, which he continued through life. From a part of this record, written in the seventeenth year of the author's age, we derive the only account of the yellow fever of 1762, in Philadelphia. In 1766, he went to Edinburgh to study at the university in that city, and took his degree of M. D. there in 1768. The next winter he spent in London; in the spring, he went to France; in the autumn, he returned to Philadelphia, and commenced the practice of his profession. In 1769, he was elected professor of chemistry in the college of Philadelphia, and when, in 1791, the college was merged in the university of Pennsylvania, he was appointed professor of the institutes and practice of medicine, and of clinical practice. In the previous year, he had begun to publish his new principles of medicine, depending chiefly for the cure of diseases upon bleeding and cathartics; and these were more or less developed by him in his successive annual courses of lectures, for the subsequent twenty-three years of his life. In the year 1793, when Philadelphia was desolated by the yellow fever to an extent almost equal to that of the ravages of the plague in the old world, the theories and the active strength of doctor Rush's genius were put to the test. All the physicians, for some time after the commencement of this disease, were unsuccessful in its treatment. Doctor Rush adopted a new mode of treatment, to which he was led by a manuscript of doctor Mitchell of Virginia, respecting the yellow fever which prevailed there in 1741. His success was great, and naturally brought him a great increase of practice. He had scarcely a moment of repose. Whilst at his meals, his house was filled with persons, chiefly the poor, waiting for his advice; every day he was obliged to refuse numerous applications, and in riding through the streets, he was often forced to tear himself away from persons who attempted to stop him, and to drive his chair as

speedily as possible out of the reach of their cries. His incessant labours of body and mind, by night and day, nearly cost him his life; but by timely and proper treatment, he was rescued from the grave. This was the most eventful year of his life, and in it he laid the foundation of a reputation inferior to few in the annals of medicine. Doctor Rush did not confine his attention exclusively to the practice of his profession, but took an active and zealous part in political affairs. He was an ardent friend of liberty, and was one of the signers of the Declaration of Independence. In 1777, he was appointed physician-general of the military hospital in the middle department; some time after which, he published his observations on hospitals, army diseases, and the effects of the revolution on the army and people. In 1787, he was a member of the convention of Pennsylvania for the adoption of the federal constitution, which received his warmest approbation. During the last fourteen years of his life, he was treasurer of the United States' mint. Doctor Rush took a deep interest also in the many private associations for the advancement of human happiness with which Pennsylvania abounds. He was an honorary member of many of the literary institutions, both of his own country and of Europe. He died April 19, 1813, in the sixty-eighth year of his age. Notwithstanding his great labours as a lecturer and practitioner, he was a voluminous writer, having, during forty-nine years, from the nineteenth year of his age to within a short period of his death, been constant in the employment of the pen. His printed works consist of seven volumes, six of which treat of medical subjects, and the other is a collection of essays—literary, moral and philosophical. He also wrote various political essays, which were published in the papers of the time.

RUSHWORTH, JOHN, an industrious collector of historical matter, born in 1607, was, for some time, a student at Oxford, which he quitted for Lincoln's-inn, where he remained until he was called to the bar. He was, however, more attached to politics than to law, and made it his business to attend parliament, the star-chamber, and other courts, when important business was transacting, in order to take notes of what he saw and heard. In 1640, he was assistant clerk of the house of commons; and when Sir Thomas Fairfax became general of the parliamentary forces, he was appointed his secretary. He was a member of parliament in 1658, and, in 1660, he was re-elected for Berwick in the healing parliament. In 1667, he was made secretary to Sir Orlando Bridges, keeper of the great seal, but, after the decease of that lawyer, was arrested for debt, and committed to the king's bench prison, where he died in 1690. His Historical Collection of private Passages in State, weighty Matters in Law, and remarkable Proceedings in Parliament, was published at different times, in folio, until it amounted to eight volumes, including the trial of the earl of Strafford, published in 1680. The first seven volumes of these were reprinted uniformly in 1721.

RUSSELL, LORD WILLIAM, third son of the first duke of Bedford, and a distinguished supporter of liberty, was born about 1641. He was educated in the principles of constitutional freedom espoused by his father, and yielded to the vortex of dissipation introduced by the restoration, until his marriage with Rachel, second daughter and co-heiress of the earl of Southampton (then widow of lord Vaughan), which wholly reclaimed him. He represented the county of Bedford in four parliaments, and, being highly esteemed for patriotism and independence, was regarded as one of the heads of the whig party. When Charles II., exasperated at the court of France for withdrawing his pension, appeared desirous of joining the continental confederacy against Louis XIV., a French war being generally popular in England, the parliament voted a large supply of men and money. The whigs, aware of the king's character, dreading to give him an army, which might as probably be employed against liberty at home as against France, opposed the measure. This movement being acceptable to the French king, an intrigue commenced between the leading whigs and Barillon, the French ambassador, the consequence of which was the receipt, on the part of some of them, of pecuniary assistance, in order to thwart the intended war. From that minister's private despatches, Sir John Dalrymple, in his Memoirs of Great Britain, has published a list of those persons; but lords Russell and Holland are specified as refusing to receive money on this account. (See *Sidney, Algernon.*) In 1679, when Charles II. found it necessary to ingratiate himself with the whigs, lord Russell was appointed one of the members of the privy council. He soon, however, found that his party was not in the king's confidence, and the recall of the duke of York, without their concurrence, induced him to resign. Although his temper was mild and moderate, his fear of a Catholic succession induced him to take decisive steps in the promotion of the exclusion of the duke of York. In June, 1680, he went publicly to Westminster-hall, and, at the court of king's bench, presented the duke as a recusant; and, on the November following, carried up the exclusion bill to the house of lords, at the head of two hundred members of parliament. The king dissolved the parliament, and resolved thenceforward to govern without one; and arbitrary principles were openly avowed by the partisans of the court. Alarmed at the state of things, many of the whig leaders favoured strong expedients, in the way of counteraction, and a plan of insurrection was formed for a simultaneous rising in England and Scotland. Among these leaders, including the dukes of Monmouth and Argyle, the lords Russell, Essex and Howard, Algernon Sidney and Hampden, different views prevailed; but lord Russell looked only to the exclusion of the duke of York. While these plans were ripening, a subaltern plot was laid by some inferior conspirators, for assassinating the king on his return from Newmarket, at a farm called the *Ryehouse*, which gave a name to the conspiracy. Although this plan was not connected with the scheme of the insurrection, the detection of the one led to that of the other, and lord Russell was, in consequence, committed to the Tower. After some of the Ryehouse conspirators had been executed, advantage was taken of the national feeling, to bring him to trial, in July, 1683; and pains being taken to pack a jury of partisans, he was, after very little deliberation, brought in guilty of high treason. "It was proved," says Hume, "that the insurrection had been deliberated on by the prisoner; the surprisal of the guards deliberated, but not fully resolved upon; and that an assassination of the king had not been once mentioned or imagined by him." The law was, on this occasion, stretched to the prisoner's destruction, and his condemnation was deemed illegal by judge Atkins and many other authorities, not to dwell on the act which on this

ground reversed his attainder. Once condemned, such a victim was too agreeable to the court, and to the vindictive feelings of the duke of York, to meet with mercy; and the offer of a large sum of money from his father, whose only son he had now become, to the duchess of Portsmouth, and the pathetic solicitations of his wife, proved in vain, and he obtained remission only of the more ignominious parts of his sentence. He was too firm to be induced by the divines, who attended him, to subscribe to the doctrine of non-resistance, then the favourite court tenet of the day; and it is to be regretted that he was induced to write a petitionary letter to the duke of York, promising to forbear all future opposition, and to live abroad, should his life be spared. It is presumed that this letter was written in compliance with the solicitations of his friends, for he nobly refused the generous offer of lord Cavendish to favour his escape by exchanging clothes; and, with equal generosity, declined the proposal of the duke of Monmouth to deliver himself up, if he thought the step would be serviceable to him. Conjugal affection was the feeling that clung closest to his heart; and when he had taken the last farewell of his wife, he exclaimed, that the bitterness of death was past. He was beheaded in Lincoln's-inn fields, July 21, 1683, in the forty-second year of his age. To the character of this regretted nobleman for probity, sincerity, and private worth, even the enemies to his public principles have borne ample testimony. Of his talents, Burnet observes, that he was of a slow but sound understanding. Lord John Russell has written a life of lord William Russell.

Lady *Rachel Russell*, his wife, by the affectionate zeal with which she assisted her husband, and the magnanimity with which she bore his loss, obtained the respect and admiration of the world. Upon his trial, she accompanied him into court; and when he was refused counsel, and allowed only an amanuensis, she stood forth as that assistant, and excited the respect and sympathy of all who beheld her. After his death, she wrote a touching letter to the king, in which she asserted that the paper delivered by him to the sheriff, declaratory of his innocence, was his own composition, and not, as charged by the court, dictated by any other person. She spent the remainder of her life in the exercise of pious and social duties. A collection of her letters was published in 1775 (4to.). This exemplary woman died in 1723, aged eighty-seven.

RUSSIA. The Russian empire stretches over half Europe, and the whole of Northern Asia, from the Baltic to the Pacific, and includes vast territories on the north-western coast of North America. It lies between lat. 38° and 79° N., and lon. 19° E. and 130° W., extending through 211 degrees of longitude. It is bounded N. by the Northern or Icy ocean; W. by Norway, Sweden, the Baltic sea, Austria and Prussia; S. by Turkey, the Black sea, Persia, the Caspian sea, Independent Tartary, China, and the United States of North America; and E. by the British possessions in North America. The total superficial area is estimated at 8,000,000 square miles, of which about 1,500,000 are situated in Europe, and 5,600,000 in Asia. The southern boundary of the American possessions of Russia was fixed by the convention of 1824, between Russia and the United States, at 54° 40′ N. lat. The Russian dominions compose about one seventh of the habitable globe. European Russia is for the most part level, but in the southern parts the face of the country is somewhat uneven. Between the Black and Caspian seas is the Caucasus; in the south-west are branches of the Carpathian mountains, and in the north-west the elevated plain of the Wolchonski forest. In the east is the Ural chain, dividing Europe from Asia, and terminating at the Frozen ocean. Several branches of this chain shoot off into Asiatic Russia, among which are the Schooget, with its salt mines, the Sok mountains, the Little Altai, the Baikal mountains, the Apple and Stanwowoi mountains, which form the Chinese and Russian boundary, and extend to the Tchutschian peninsula. The south-western part of Russia consists of steppes, which are either uninhabited, or furnish pasture-grounds to nomadic tribes. The climate is various. In the south, the winters are short and mild, the spring early, the summers long and hot, with little rain, and a late autumn. In central Russia, the winters are longer and more severe, particularly in the eastern parts, and the summers shorter; in the north, quicksilver freezes so as to be malleable even in a warm room, and the waters are frozen from October to the end of May. In central Russia corn is raised in considerable quantities, but in the northern parts the crops are small and uncertain. Washed by the Frozen ocean, which forms the White sea and the basins of the Obi, Yenissey and Lena, on the north; by the Pacific ocean, with Beering's and Cook's straits, and the gulfs or bays of Anadyr and Kamtschatka or Okotsk, on the east; by the Black sea on the south; and by the Baltic, with the gulfs of Bothnia, Finland and Riga on the west,—Russia has two great declivities, the one towards the north-east and north-west, and the other towards the south. Down these flow the Dwina, with the Jug and the Suchowna, the Petchora, the Obi, the Yenissey and the Lena, in the north; the Duna, the Niemen, and the Neva, in the north-west; and the Don, the Dnieper, the Cuban, the Volga and the Ural, in the south. Besides numerous salt springs and small lakes, Russia contains fourteen large bodies of water, among which are the Caspian sea, lakes Ladoga, Onega and Peipus, lake Sak, in the Crimea, and lakes Baikal, Aral and Altin. Artificial water communications are constantly increasing on a systematic plan. The canals of Vishney-Volotchok, connecting Petersburg with Astrachan, the Novgorod canal, the Beresina canal, connecting the Baltic and Black seas, and the Ladoga canal, by which the navigation of the tempestuous Ladoga is avoided, are among the most important. A system of water communication extends through Siberia, from the Chinese wall to Petersburg, Archangel and Riga, so that European wares can be procured at moderate prices in Kolyvan, Tomsk and Irkutsk.

Russia raises much more corn than it consumes. Fruits and wine are produced in abundance. The forest also yields important articles of export, besides supplying the consumption: mulberry trees have been planted to a great extent. The raising of cattle, horses and sheep, the keeping of bees (600,000 pounds of wax and honey can be annually exported), and silk-worms (furnishing 16,000 pounds of silk yearly), are profitable occupations. Camels, buffaloes, and wild animals of all sorts, are also numerous. The annual product of the fisheries is reckoned at 15,000,000 roubles. Gold (from the Beresov mines), silver (from the Kolyvan and Nertchinski mines), platina, copper, iron, zinc, quicksilver, alum and salt (to the yearly amount of

500,000,000 pounds), are among the mineral productions. The total value of the natural productions of the empire is estimated to exceed 40,000,000 roubles.

The population of Russia, including Poland and Finland, is 57,000,000, of nine different races:—1. Sclavonians, 44,000,000, including the Russians (42,000,000 among whom are the Cossacks, about 600,000 capable of bearing arms) and the Poles; 2. Finns, who are scattered over the country, from Tornea and the Niemen to the Obi (3,000,000); 3. Tartars from the Dniester to the Caucasus (2,000,000), mostly under their own government, without agriculture or fire-arms; 4. Georgians and Circassians (2,000,000); 5. Samoiedes; 6. Mantchoos; 7. Mongols, to whom belong the Calmucks; 8. eastern tribes (including Tchutsches, Kuriles and Aleutians); 9. Jews, particularly in the Polish provinces. Besides these races, there are natives of almost all countries of Europe and Asia, as Greeks, Arabs, Hindoos, Gypsies, French, British and Danes. There are among these Russian subjects eighty tribes, differing in language, religion and manners, from the rudest state of barbarism to the highest degree of European civilization. The population is divided into four classes, the nobility, clergy, common people or freemen, and peasants or serfs. In 1811, the number of persons subject to do military duty was as follows: 643,135 persons engaged in trade; 6,389,279 crown peasants; 10,113,177 peasants belonging to individuals; 1,077,636 appanage peasants; 112,453 freemen; in all, 18,335,730 men.

We find manufactures of leather, tallow, candles, soap, felt, coarse linen, mats of the bark of the linden tree, hardware, and the art of dyeing, among the Russians before the time of Peter the Great; but since his reign these have been carried to much greater perfection, and many new manufactures have been introduced. In 1815, Russia contained 3253 manufacturing establishments; twenty-three of these deliver to the government annually cloth of 700,000 roubles in value, and there are, besides, 181 private establishments. Drugs are prepared in forty-five laboratories; and there are distilleries of brandy, of which 120,000,000 gallons are consumed in the country. Ship building is carried on in the large villages on the Wolga and in the seaports. On the Wolga, boats are built without iron, which are eventually used in Petersburg, Astrachan and other cities for fuel. The fabrication of fire-arms is the most important branch of metallic manufactures; in Tula alone 17,000 muskets, 6500 pair of pistols, and 16,000 side-arms, are made by about 6000 workmen. The board of manufactures, in Moscow and Petersburg, has the superintendence over all the branches of manufacturing industry. The commerce is carried on partly by land and partly by sea. The inland commerce is neither impeded by tolls nor staples, but is facilitated by navigable rivers, lakes, canals, the snow in winter, and the great fairs, especially at Novgorod. Goods may be exported from any port or frontier place, but can be imported only into Petersburg, Riga and Odessa. The foreign land trade in Asia is with China, Persia, Bucharia, and the Caucasian countries, and in Europe with Turkey, Galicia, Prussia, Silesia and Saxony. This branch of trade is chiefly in the hands of Armenians, Bucharians and Jews, while the maritime is chiefly carried on by the British. Since 1815, the yearly value of the imports by sea has amounted to 28,000,000 roubles, and that of the exports to 45,000,000. The board of commerce in Petersburg is the supreme tribunal in all commercial matters. In 1770, a bank was established, whose paper is at par, and has afforded great facilities to the inland trade.

The government is an unlimited monarchy; the emperor is autocrat of all the Russians; the state is indivisible; the ruler cannot be, at the same time, ruler of any other country (since 1815, however, he has been king of Poland), and must be of the Greek religion. In 1797, the succession was settled in the male line, by the rules of primogeniture, and, in failure of males, in the female line. All the princes of the blood are called grand-princes. By the ukase of March 20, 1820, it was declared that only the children of a marriage acknowledged by the emperor are capable of succeeding to the throne. The highest councils are, 1. the imperial council, under the presidency of the emperor, erected Jan. 1, 1810, with four departments—that of legislation (the supreme tribunal in civil and ecclesiastical suits), that of war, that of civil and ecclesiastical affairs, and that of finance; 2. the senate, for home affairs (a deliberative body, consisting of eight departments, three of which have their seat in Moscow); 3. the holy synod; 4. the ministry of state. The ministers have a seat and voice in the imperial council and in the senate. The ministry is divided into three sections—that of foreign affairs, war, the marine, the home department, ecclesiastical affairs, education and finance; that of the imperial treasury; and that of the public accounts, roads and canals, and justice. The whole state is divided into fifty-one governments and several provinces; of these, forty are in Europe, exclusive of the Cossacks of the Don, the Cossacks of the Black sea, and the kingdom of Poland. The revenue, including that of Poland, amounted, before the recent disturbances, to £12,375,000; the public debt, in 1824, was £38,250,000. The bank paper, which, since 1817, has been in a course of redemption, was about £33,750,000.

The army, in 1822, consisted of more than 1,000,000 men, among whom 613,000 were infantry, 118,000 cavalry, 47,000 artillery, 105,000 irregular cavalry, 77,000 in garrison, 27,000 supernumeraries, and 50,000 forming the Polish army. In 1827, the number of troops was 649,300, exclusive of 20,000 officers, which, in 1828, was increased, on account of the Turkish war, to 870,000. (See *Military Colonies.*) The navy has its principal station on the Baltic; it consists, according to the most probable accounts, of thirty-two ships of the line, twenty-five frigates, twenty corvettes and brigs, eighty-seven smaller vessels, twenty-five floating batteries, and 121 gun-boats, with 6000 cannon and 33,000 men. The principal naval station, on the Baltic sea, is Cronstadt, and, on the Black sea, Sebastopol. There are some ships on the Caspian. No country in Europe supports its military forces so cheaply as Russia.

The prevailing religion is that of the Greek church, with a full toleration of all religions; all Christian sects enjoy equal privileges. The supreme direction of the affairs of the Greek church is intrusted to the holy synod at Petersburg; subordinate to this are twenty arch-priests, with the same number of consistories, and 68,000 secular clergy; there are 480 male and eighty female convents, with 7300 monks and 1300 nuns, all of the rule of St Basil. (See *Greek Church.*) Those who adhere to the old Greek church are called *Roskolnicians.* There

are about 40,350,000 members of the Greek church (including 570,000 Roskolnicians); 6,000,000 Catholics and united Greeks; 2,400,000 Lutherans; 83,000 Calvinists; 9200 Herrnhutters; 6000 Mennonites; 100,000 Armenians; 3,100,000 Mahometans; 500,000 Jews; 300,000 worshippers of the grand lama; and 600,000 fetichists.

For all branches of education, Russia has numerous and excellent institutions, among which are the eight universities of Moscow, Helsingfors, Wilna, Dorpat, Petersburg, Charkow, Kazan and Warsaw. In 1829, the number of students was 3647. There are, also, a number of primary and intermediate schools; in 1824, the whole number was 1411, with 69,269 scholars, besides 344 schools maintained by the Greek clergy for the lower classes, with 45,851 pupils. The Petersburg Bible society, instituted by the emperor Alexander, had, in 1818, 128 branches, and has printed the Bible in twenty-nine languages. One hundred and fifty years ago, there were only two printing establishments in Russia; there are now sixty-one.

The population of Russia is composed of four different classes, as has already been mentioned. The boors or peasants are the property of the crown or of individuals; they amount to about 35,000,000, and are in a state of great poverty. The following cut represents their usual costume:—

They are sometimes emancipated by their owners, and are sometimes permitted to purchase their freedom. The noble families are about 150,000, comprising 750,000 individuals, and enjoy some privileges and exemptions. The freemen, not nobles nor clergymen, are divided into six classes—the inhabitants of cities, the three guilds (capitalists, according to their income tax), the trades, foreigners or strangers, the notable citizens (*savans*, artists, bankers), and the colonists. In regard to rank, these classes form fourteen gradations; and all who can claim either of the eight highest are considered as noble. Russia has six orders, of all of which the emperor is grand-master. The order of St Andrew, the oldest and most distinguished, was founded by Peter I., November 30, 1698, as a military order of merit, for those generals who had distinguished themselves in the Turkish war. The female order of St Catharine was founded by Peter I., November 24, 1714, in honour of his wife, Catharine, who had rescued him from his difficult situation on the Pruth. The Alexander Newsky order was instituted by Peter I.; but the arrangements were completed by Catharine I., August 30, 1725. The military order of St George was revived by Alexander in 1801. The order of St Wladimir, for civil and military merit, instituted by Catharine II., (1782), was revived by Alexander, (1801). The order of St Anne is an order of merit for all ranks, and even foreigners. The spiritual order of St John, instituted by Paul in 1797, has a Greek priory, with 128,000 roubles income, and a Catholic priory, with 84,000 roubles income.

The present reigning house of Holstein-Gottorp was preceded by that of Romanoff, the first prince of which, Michael Feodorowitsch, ascended the throne in 1613, and died in 1645. His successors were Alexis Michailowitsch, died 1676; Feodor Alexiewitsch, died 1682; Ivan Alexiewitsch, and Peter I., Alexiewitsch, the former till 1688; the latter assumed the title of emperor in 1721, died 1725; Catharine, empress, died 1727; Peter II., died 1730; Anna, died 1741; Ivan III., deposed 1740; Elizabeth, died 1762:—House of Holstein-Gottorp: Peter III., deposed 1762; Catharine II., the Great, died 1795; Paul I., died 1801; Alexander, died 1825. Nicholas I., Paulowitsch, born July 7, 1796, married, July 13, 1817, the Prussian princess Charlotte, (born July 13, 1798), succeeded his brother Alexander, after the renunciation of the throne by his elder brother Constantine Cæsarowitsch, in December, 1825. The heir apparent is Alexander Nicholaiewitsch, born April 29, 1818; the other children of the emperor are, Maria, born 1819; Olga, born 1822; Alexandra, born 1825; Constantine Nicolaiewitsch, born 1827. The emperor has one brother, Michael, born 1798, and two sisters, Maria, wife of the duke of Saxe-Weimar, and Anna, (born 1795), wife of the prince of Orange. The sons and daughters of the imperial house have the title of grand-princes, and grand-princesses of Russia, with the style of imperial highness. (See *Statistique de la Russie*, by Schnitzler, Paris, 1829.)

After these statistical sketches, let us now throw a glance at what has been effected by the government, for the most important public interests, during the last twenty years. Civilization has made rapid progress during this period; the peasants, in general, have acquired some legal protections against the caprice of their masters, and the great work of emancipation has been effected in the Baltic provinces. In 1818, the nobility of Courland abolished villenage, and in 1819 the Livonian nobles made a provision for its gradual extinction, by which all peasants born after that year were declared to be born free, and all bondage was to cease after 1826. In 1823, the emperor directed the imperial council to take measures for preventing the sale of the peasants, independently of that of the land to which they are attached. In the military colonies, there are no serfs. The settlement of foreign colonists in Russia has been encouraged, and the German and Swiss have emigrated in great numbers to the southern parts of Russia. The government has also made grants of wild lands, in the southern districts, to military veterans, and, by a ukase of 1822, the crown peasants of the provinces, in which the land is poor, are permitted to settle on the fertile lands in Siberia. Some of the nomadic tribes have begun to practise agriculture, and receive assistance from the government, which requires them, however, to embrace Christianity. The Jews have been encouraged to turn their attention to agricultural and mechanical industry; and agricultural societies and schools have been

established. In 1820, the number of sheep in Russia was estimated at more than sixty millions; and the wool exported from Odessa was considered equal to the best Spanish. The army is clothed in domestic woollens. The discovery of gold and platina in the Ural mountains (see *Ural*), in 1821 and 1823, is of the highest importance, and government has done much to promote the science of mining, and the establishment of salt works. The cultivation of the grape has been introduced, with the happiest results, in Siberia. The subject of education has also received the attention of government: the management of this department belongs to the ministry for ecclesiastical affairs. In 1823, besides the seven universities, there were eighteen institutions for the promotion of science and the arts, and in 1824, observatories were erected at Nicolaieff, on the Black sea, and at Moscow. There are also gymnasia, provincial schools, and schools for the instruction of the lower classes on the Lancasterian plan. The different religious denominations have good theological institutions, and the Bible has been widely disseminated, in different languages, among the people. Some distinguished patrons of science, as well as the government itself, have caused scientific voyages and journeys to be prosecuted at their own expense. (See *Kotzebue*, *Krusenstern*, *Romanzoff*, and *North Polar Expedition*.) The legislative committee, by order of the emperor, published the Institutions and Pandects of the Russian law, in 1819—23, in twenty-two volumes. A complete collection of the Russian laws and legal decisions has been published since 1821, and there is also a collection of the criminal laws, in sixteen volumes (1753—1826), and a collection of the laws relating to the taxes, the public accounts, the investigation of the condition of the population, &c., (21st vol., 1827). Among the particular laws, the ukase of 1822, abolishing the practice of branding, after the punishment of the knout, deserves mention.

Russia, History of.—1. *Early History.* A number of nomadic tribes, reaching to the confines of the Roman Empire, were comprehended under the name of Scythians and Sarmatians. They inhabited the countries between the Don and Dnieper, described by Herodotus. Strabo and Tacitus mention, also, the Roxolani as a Sarmatian tribe. In the second century of the vulgar era, the Goths came from the north into the countries between the Don and the Danube. From the fifth century, the Alans, Huns, Avars and Bulgarians followed each other in this region. The Slavi, a Sarmatian tribe, retired more to the west and north; the Chazars, pressed by the Avars, entered, in the sixth century, into the countries between the Wolga and the Don, pressed forwards by degrees to the Danube, conquered the Crimea, and thus came into close contact with the Byzantines. (The empress Irene was a Chazarian princess.) The Petchenegues, who were of a kindred stock with the Chazars, and dwelt along the Caspian sea, moved towards the west, and pressed the Hungarians to Pannonia, whilst they occupied the countries between the Don and the Aluta. In the north of Russia dwelt the Tschuds (Finns and Esthonians), Finnish tribes. All these tribes were wandering herdsmen and hunters. At a later period only, a part of them acquired some degree of civilization by entering the provinces of the Roman empire, coming into contact with the Byzantines, and embracing Christianity. The Sclavonic tribes showed earliest the germs of civilization. They passed, in the fifth and sixth centuries, from the northern part of the Danube down the Vistula, and up the Dnieper. They built the two cities Novgorod (*novus hortus**) and Kiev, which at a later period, became powerful by means of their commerce, but, at the beginning, suffered greatly from the Chazars. Novgorod also suffered from the Varagians, a piratic tribe on the Baltic, and therefore sent to beg their protection, offering to submit to their sovereignty in return. Induced by this offer, many of this tribe went, in the year 862 (according to Nestor, from the other side of the sea†), under the conduct of the brothers Ruric, Sineus and Truwor, their chieftains, and founded three principalities in the neighbourhood of the city of Novgorod. After the death of his brothers, Ruric ruled alone, and united his countrymen and the Slavi into one people—the Russians. The new state, with a military organization, embraced Northern Russia, and was known under the name of Holmgard, Gardarike, and Ostrogard. Ruric died in 879. His son Ighor, under his guardian Oleg (Olaf), conquered Kiev, and made it his capital. Ighor's widow and successor embraced Christianity in 955, in Constantinople. Hence the introduction of the Greek ritual into Russia. The grandson of Ighor, Wladimir I. of Novgorod, the Saint, or the Great, united the whole of Ighor's dominions in 980. He made extensive conquests, married the Greek princess Anna, was baptized, at Cherson, in 987, and died in 1015, having endeavoured to give his people a higher degree of civilization. He divided his dominions among his twelve sons: according to the Slavonic custom, the various territories inherited by his sons were to remain under the grand principality of Kiev; but bloody family wars ensued for the dignity of grand-prince. Wladimir II., remotely connected with this line, was elected grand-prince by the people of Kiev, in 1114. Alexius Comnenus, the Byzantine emperor, acknowledged him as czar. His son George built Moscow in 1147. The surrounding nations took advantage of the internal dissensions of the country to invade it. The most dangerous of these neighbours were the Mongols (from 1223). After a devastating war of fifteen years, and when the grand-prince George II. had fallen in battle at Sita, in 1238, against the khan Batu, the Mongols occupied all Russia, Novgorod only being excepted by treaty. In respect to civilization, the Russians were then in a low condition, owing to the variety of tribes of which they were composed, and their military organization. Commerce was chiefly in the hands of German merchants, who, since 1200, had entered the country with the missionaries from the Dwina. Novgorod and Kiev were the chief com-

* The Russian language uses, as is known, *g* instead of *h* (hospodar, gospodar).

† The ancient inhabitants of Scandinavia received different names in the different countries in which they settled. In England, they were called *Danes;* in France, *Normans;* in Russia, *Waragians*, or *Varagians* (translated *wandering hunters*, adventurers). The Tschuds, in the Finnish dialect, called them *Ruotsi*, *Rutsi* (i. e. foreigners, adventurers); hence *Rohs*, and now *Russians*. This appellation was used, even before the time of Ruric, by the Byzantines, though not before the beginning of the ninth century. According to Nestor, the term *Russians* became general only after the Varjagi had made themselves, through Ruric, the ruling caste among the Slavi. Nestor calls Ruric and his brothers *Njemtsi* (i. e. Germans); Thunmann and Schlozer consider them to be Scandinavians (Normans); Ewers calls them, without ground, *Chazars*. Ruric and his followers probably came from Vagria from the then known port Aldeigaborg, now Aldenburg, or Oldenburg. They were, perhaps, Frisians, or Jutes. The first place which Ruric founded near Novgorod, and fortified, was called by him *Aldeigaborg*, from which, to this day, lake Ladoga (formerly Aldoga) has its name.

mercial cities. Events were recorded in monkish chronicles (yet in the language of the country), of which, since Nestor (who died about 1113), a long series is extant. Whilst the Mongols oppressed the Russians, the Livonians, Teutonic knights, and Swedes, attacked them on the other side. An annual tribute was paid to the Mongols, and nothing was to be undertaken which should appear dangerous to the latter; yet, even in this condition, the Russian princes carried on some successful wars. Alexander defeated the Swedes, in 1241, on the Neva, and received the surname of Newsky. (See *Alexander Newsky.*) His youngest son, Daniel, came to the throne fourteen years after Alexander's death, lived in Moscow, and, in 1296, first assumed the title of grand-prince of Moscow. The Russians struggled against the Tartars, and even defeated them, in 1360, but were obliged, nevertheless, to return to the condition of tributaries.

II. *Middle Period.* Iwan I. (Wasiliewitsch the Great, who reigned from 1462 to 1505) succeeded, after a struggle which continued from 1477 to 1481, in freeing Russia from the Tartars. The conquests of Timour, and partitions of the Tartar territory, had weakened the power of the Mongols. In this period, the Cossacks arose. The Poles and Lithuanians had conquered the whole of Western Russia to Kiev, and subjected the vanquished people to religious persecution, as well as political oppression. On the east, the Tartars of the Crimea bore hard upon Russia. The discontented therefore retired into the fertile but uninhabited Ukraine, and adopted a military organization, under the control of atamans (hetmans). The wife of Iwan I. (Zoë, a Greek princess, through whom the double-headed eagle came into the Russian arms) did much good in Russia. Iwan made the indivisibility of the realm a fundamental law; he introduced fire-arms into Russia, and made Kasan dependent upon her. His son Wasilei had many conflicts with the Poles. The German emperor Maximilian endeavoured to make peace between them, in order to institute a sacred league of Christian princes against the Turks, and sent baron von Heberstein to the czar. Pope Clement VII. strove to win the czar over to the Roman Catholic church, and offered him the royal title; but Poland did not enter into the pope's plan. In the promotion of civilization, Iwan Wasiliewitsch II. surpassed all his predecessors. German artists and learned men went, by the way of Lubeck, to Russia; printing-offices were established; commerce was promoted by a treaty with Elizabeth of England, in 1553, as the English had just found the way by sea to Archangel. Iwan established a standing army, the Strjelzi, or Strelitzes (shooters); conquered Kasan in 1552, the kingdom of Astrachan in 1554, and strove to drive the Teutonic knights from Livonia; but Denmark, Poland and Sweden attacked him, and a conspiracy in the interior broke out. In this embarrassment, he implored the emperor Rodolph II. and pope Gregory XIII. to interfere; and the nuncio of the latter brought about the peace of Zapolia between Iwan II. and Stephen Bathory, king of Poland, in 1582, by which Livonia was ceded to Poland. Towards the end of Iwan's reign, the Cossack Yermak discovered Siberia (about 1578). Iwan died in 1584. Feodor, his successor, conquered Siberia entirely in 1587, and surrendered Esthonia to Sweden in 1595. Feodor, the last of Ruric's descendants, died in 1598; and Russia was shaken by internal convulsions and external wars, which greatly retarded her progress in civilization. The war of the Polish party with the party of the pseudo-Demetrius* was not ended until Michael Fedorowitsch ascended the throne in 1613; after which a treaty of peace was concluded at Stolbowa, with Sweden, in 1617, and at Divelina, with Poland, in 1618.

III. *Modern History.* The Russians elected Michael, a son of Philaret, metropolitan of Rostoff, and, at a later period, patriarch (Philaret's original name was Feodor Nikitowitsch Romanoff), in 1613, czar, with unlimited and hereditary power. After having overcome many obstacles, he reigned in comparative tranquillity, till 1645. Under his son Alexei, the last pseudo-Demetrius was beheaded, in 1653. In this period, also, begin the wars with the Turks (neighbours of the Russians since 1472), on account of the Ukraine, in 1671. Alexei (died in 1676), and his son, Feodor III. (died in 1682), did much for the industry, commerce, internal organization, legislation, &c. of the empire. The former established the first posts in Russia, and humbled the patriarchs; whilst the latter put an end to the claims of the nobility to the higher offices, by burning their pedigrees. He appointed his half-brother, Peter, his successor, passing over the weak Iwan. After 1689, Peter ruled alone, having put Sophia, sister to Feodor, in a convent, and having received from Iwan a surrender of his claims to the government. Russia now extended from Archangel to Azoph; but was as yet separated from the Baltic. The inhabitants of this vast territory formed one nation, united by the ties of language and religion. Peter made the Russians Europeans, as Philip had made the Macedonians Greeks. (See the article *Peter I.*) By the acquisition of the coasts of the Baltic, Russia entered into the series of European powers. At Pultawa, July 8, 1709, the supremacy of Sweden in the north was destroyed; and, in 1721, Sweden, exhausted by a struggle of twenty years, concluded the peace of Nystadt, under hard conditions. (See *Northern War.*) Peter's views respecting Persia, the Porte, and Poland, were realized by his successors.

His wife, Catharine I., reigned from 1725 to 1727, under Menschikoff's influence, only occupied with the concerns of the interior. Under Peter II., her successor, who died in 1730, the Dolgorucky, who had overthrown Menschikoff, found so much to occupy them in the domestic affairs of the country, that they did not pay much attention to the foreign relations.

When Anna, niece of Peter I., and, from 1711, widow of Frederic, duke of Courland, ascended the throne, the nobles endeavoured to limit the power of the sovereign; but their plans were frustrated, and a cabinet composed of foreigners was the consequence. Münnich and Ostermann, of Peter's school, turned their thoughts to foreign aggrandizement. Russia established her influence over Poland, by putting Augustus III. on the throne. Münnich took Azoph and Oczakow by storm; the victory of Stewutschan, in 1739, threw Choczim and Moldavia into the Russian power—advantages, however, which were lost, in consequence of the unfortunate campaign of the Austrians, and the peace of Belgrade, in 1739. Russia, nevertheless, had acquired, by these conquests, much influence among

* The genuine Demetrius, younger son of Iwan II., and brother to Feodor, is said to have been murdered by the usurper Boris; but modern inquiries have thrown much doubt on this subject. The murdered Demetrius is a saint in Russia.

the powers of Europe; and her armies were vastly improved.

Anna died in 1740, and Iwan III., two months old, was placed on the throne, under Biron's guardianship: but, December 6, 1741, the princess Elizabeth, youngest daughter of Peter the Great, ascended the throne, and imprisoned Iwan III. (grandson of the sister of Anna). Elizabeth, who was notorious for gross and open licentiousness, sent the chancellor Ostermann and field-marshal Münnich to Siberia. The German language had, till then, prevailed at court and in the chief schools; but the French now gradually gained the ascendancy. France had instigated Sweden to a war with Russia, during the Austrian war of succession, in order to prevent Russia from affording aid to Maria Theresa of Austria; but the conquest of Finland caused the peace of Abo, August 17, 1743. The act of succession of prince Adolphus Frederic of Holstein-Gottorp confirmed the influence of Russia over Sweden. In favour of this prince, his cousin Charles Peter Ulrich, of Holstein-Gottorp, resigned his claims upon the Swedish throne, and was declared by his aunt, the empress Elizabeth, in 1743, her successor in that of Russia. Lestocq was banished, and Bestucheff, taking charge of the foreign relations, changed the foreign policy of the country, so that, in 1747, Elizabeth renewed her alliance with Austria and England, and sent an army to Germany against France, by which means she contributed to bring about the peace of Aix-la-Chapelle. In 1754, Russia assisted Austria against Prussia, in the seven years' war. Elizabeth died January 5, 1762, and her successor, Peter III., the admirer and friend of Frederic the Great, immediately concluded a peace and alliance with him. But Catharine II. deprived her husband of his throne and life, July 9, 1762, and confirmed only the peace with Frederic, and not the alliance.

With the reign of this able, artful, and licentious woman begins a new era in Russian history. (For an account of her life, see *Catharine II.*) As soon as she had relieved the country from an exhausting war, she invited all kinds of colonists into it, and collected around her distinguished foreigners to assist her plans; schools, laws, commerce, industry,—every thing received a new impulse. The revenue rose from thirty millions of roubles to sixty millions; the army was increased to 450,000 men; the navy to forty-five vessels of the line. She caused, in 1764, Stanislaus Poniatowski, who had been one of her lovers, to be elected king of Poland; and foreign laws were forced upon the people; but their despair produced, on a sudden, the general confederacy at Bar, and Poland resisted Catharine for six years. She was victorious by land and sea against the Porte (1770), and would have been able to humble Poland, had not the breaking out of the plague in Moscow, the insurrection of a common Cossack, Pugatscheff, and the revolutions in Sweden, given so much employment to her forces. At length, the partition of Poland took place (August 5, 1772), and Russia received that part of Poland which lies between the Duna, the Dnieper, and Drutsch. (See *Poland.*) Besides this, the influence of Russia upon that unhappy country was confirmed by the establishment of a permanent council, the guarantee of an elective kingdom, and the *liberum veto*. July 22, 1774, she concluded peace with the Turks, by which she acquired Kinburn, Azoph, part of the Crimea, and Kabarda: all the other conquests were restored. In 1776, she divided the empire into governments. In 1780, she instituted the alliance, called the *armed neutrality*, between Russia, the German emperor, Prussia, and Portugal, against the naval power of the British. In 1778, she had taken a new lover, Potemkin, who directed the Russian policy until 1791, when he died. With him she planned the expulsion of the Turks from Europe, and the re-establishment of the Byzantine empire; but political considerations prevented the execution of this idea at the time it was projected; and when it was resumed, ten years later, it succeeded but very partially. In 1783, Russia took possession of Little Tartary; thus she held the key to the Ottoman empire. The favour of Prussia had been won by the first partition of Poland, that of Austria by the project of an exchange of Bavaria. Austria, in fact, was even connected with Russia by an alliance against Turkey, so that the idea of expelling the Turks was not a mere chimera. The war with the Porte began. The attempt of the Turks to reconquer the Crimea was frustrated; their fleet was defeated, in 1788, at the mouths of the Dnieper. Oczakow was taken by a bloody assault; but again the Austrians were unsuccessful. Joseph II. lost, at Lugos, September 20, 1788, his health and military reputation. Yet the Austrian and Russian armies were subsequently victorious; but, in 1790, Austria retired from the theatre of war, after the convention of Reichenbach; and when Gustavus III. of Sweden had invaded Finland, Catharine became inclined to peace. The Turks did not take advantage of the propitious moment. The peace of Werela, in 1790, put an end to the war with Sweden, after several naval battles, advantageous to the latter. Austria concluded peace with Turkey at Sistova, in 1791; Russia at Jassy, January 9, 1792, by which only Oczacow, with its territory, was taken from the Porte, and the Dniester became the frontier of Russia towards Moldavia and Bessarabia. During this war, Prussia had prevented Poland from joining Russia against the Turks; and the Prussian party in Poland, with Ignatius Potocki at their head, gave a new constitution to the country, May 3, 1791. Felix Potocki, at the head of the Russian party, formed, in 1792, the confederation of Targowitz, for the support of the old constitution. But Prussia, at war with France, feared a war with Russia, and, breaking her word given to the Poles, marched an army into Poland. The second partition of this ill-fated country took place at Grodno, August 17, 1793 (see *Poland*), by which Russia acquired 13,609 square miles (the greater part of Lithuania, with Wilna, of Volhynia, and the rest of Podolia). The wreck of the republic was annexed to Russia by the act of union. In 1794, Kosciusko (q. v.) and Madalinski rose for the deliverance of their country. In the same year, the republic was entirely dissolved. In this last partition, Austria also took a share. October 24, 1795, the boundary treaty between Russia and Prussia was concluded, and finally settled January 26, 1797. Courland was taken by Russia as a Polish fief.

Catharine died November 17, 1796, having added to the empire of Russia 210,000 square miles of fertile land. She had not taken an active part against the French revolution, though she had concluded an alliance with Britain and Austria; but her only son, Paul I., united with Naples, Turkey, Austria, and Britain, whilst Bonaparte

was in Egypt. Suwaroff, commander of the united Austrians and Russians in Italy, was victorious at Cassano, April 27, 1799, on the Trebia, July 17, and at Novi, August 15; but political considerations obliged him to march back, and Masséna having been victorious over Korsakoff in Switzerland, he was compelled to retire to Upper Germany. The alliance between Russia and Austria was broken, as was also that of Russia with Britain. Paul was embittered against Britain for occupying Malta; yet the naval war was continued jointly. The Russians and Turks occupied Corfu. In 1800, the republic of the Seven Islands was established under the guarantee of the Porte and Russia, and was occupied by troops of the latter until 1807—a circumstance which very much increased the Russian influence in the Mediterranean. Paul renewed the plan of an armed neutrality in the north, in consequence of which the battle of Copenhagen took place, April 2, 1801; but the emperor had died nine days previous, and his successor declared himself for peace and for Britain.

Under Alexander's mediation, the peace of Luneville was concluded. He then devoted himself to the internal improvement, appointed a committee, under prince Lapuchin, for the revision of the laws, constituted the senate as a kind of intermediate body between the monarch and the people, and gradually mitigated the rigour of bondage, especially in the crown-villages and the German provinces. The police, especially that of the health department, was greatly improved; about 2000 physicians were paid by government; vaccination was introduced. Agriculture was much improved under him, and some nomadic tribes, as well as the Nogay Tartars, devoted themselves to husbandry. Science was fostered. Krusenstern circumnavigated the world. In Charkow and Kasan, universities and schools were established. But Alexander soon became engaged in the desolating conflicts of Europe with France; at first in 1805, in favour of Austria, until the unfortunate battle of Austerlitz; in the next year in connexion with Prussia. Again unsuccessful, Russia concluded peace with France at Tilsit, in 1807; received a part of Poland (Bialystock), and ceded Jever; evacuated Cattaro and Corfu; broke off all connexion with Britain; and declared war against Sweden, the only ally of Britain. In the same year (1809), the peace of Fredricshamm made Finland and east Bothnia, with Tornea and the Aland islands, a Russian province. In the war between Austria and France, in 1809, Russia took but little share, but continued with vigour the war with the Porte and with Persia. By the peace of Vienna she received a part of East Galicia, which, however, was restored at the congress of Vienna. When, at length, Russia objected to the extension of France to the river Trave, on account of the emperor's connexion with the duke of Oldenburg, and could not, in her commercial system, accede to the views of Napoleon, the war of 1812 began, which, in the sequel, involved all the powers of Europe, and caused the overthrow of Napoleon, in 1815. (See *Russian-German War.*) Russia, it is true, had suffered immensely by this devastating war; but it emerged as a power of pre-eminent importance, and strengthened by the addition of Poland to its immense territory. This influence seemed, during the reign of Alexander, continually to increase by means of the holy alliance, founded and supported by him. At Vienna, in 1815, at Aix-la-Chapelle, in 1818, at Troppau, Laybach, Verona (see *Congress,*) this influence was manifested, and the French cabinet was for a considerable time divided into a British and a Russian party. During the struggle with Napoleon, Russia discontinued its hostilities with Persia and the Porte. The peace of Bucharest, May 28, 1812, with the latter, gave her Moldavia as far as the Pruth, Bessarabia, and the chief mouths of the Danube: the peace of Tiflis in 1813, with the former, gained her all the territory west of the Caspian sea, between the Kur and the Araxes, Georgia having been united before with Russia, in 1801; and, on the east coast, as far as the gulf of Balkan, with the exclusive navigation of the Caspian sea. Particularly since the congress of Aix-la-Chapelle, Russia may be considered as having found that her influence over Europe would be best promoted by the continuance of peace, which would enable her to develope those resources which make a country formidable in war. Alexander laboured with great sagacity to develope the military power as well as the productive capacity of his empire, and at the same time interfered in the affairs of Italy and Spain, and exerted a great control over France and Germany, the less supportable as it was founded on the predominance of force over intelligence. He reorganized almost the whole interior of the empire. (See *Alexander I.*)

After the death of this emperor, December 1, 1825, his brother Nicholas ascended the throne, Constantine Cæsarowitsch having renounced his right. A conspiracy, mentioned already in the article *Alexander*, broke out December 26, 1825, when the regiments of the guard, who had taken the oath to Constantine immediately after Alexander's death, were to take the oath to Nicholas. Two companies refused, and a tumult ensued, which continued for one day, and was suppressed at last by the mingled firmness and moderation of Nicholas. The investigation of this matter brought to light a conspiracy which had existed already for years, founded, as it would appear, partly on crude political ideas, partly on the offended pride of the old Russian nobility. The committee of investigation published a report May 30 (June 11,) 1826. The most guilty, some high officers, were hanged, others sent to Siberia, and others pardoned. The foreign relations of Russia with China have remained unaltered since the treaty of eternal amity between the two countries, concluded in 1727. This treaty provides for the residence of a Russian mission (a mission of young men who study Chinese) in Pekin, by means of which the Russians always maintain a communication with the capital of China. According to the peace of Gulistan, October 12, 1813, ratified at Tiflis, September 15, 1814, Russia received, besides the territory along the Caspian and the exclusive navigation of that sea with ships of war, the right of trade in Persia, in consideration of paying a duty of five per cent., and engaged to support that prince, whom the reigning sovereign should designate for his successor, and not to suffer any interference of a foreign power in the internal affairs of Persia. General Jermoloff at the same time made war upon the mountaineers of the Caucasus, who make a business of robbery. Most of them had submitted in 1823, and, in the same year, seven khans of the Kirguises and Calmucks had passed from the Chinese sovereignty voluntarily under the Russian. About this time the Persian shah had appointed his son Abbas-Mirza

his successor, when the settling of the new boundaries caused disputes, which were not settled at the time of Alexander's death. Nicholas sent prince Menschikoff to the court of Teheran, to propose an exchange of the province in question; but the warlike Abbas-Mirza thought the moment propitious for attacking Russia, and marched, August, 1826, over the frontier, called the Mussulman subjects of Russia to arms, and advanced as far as Elizabethpol; but, September 14, the Persian army was defeated, and September 25, general Paskewitsch overcame the Persian crown-prince at Elizabethpol, and freed the Russian territory. September 23, Russia declared war against Persia. Paskewitsch, being appointed commander-in-chief, passed the Araxes, took, April 27, the celebrated Armenian monastery, Etschmiasin, October 3, the fortress Sardor Adad, and October 19, the fortress of Erivan, the bulwark of Persia against Russia. The Russians now entered ancient Media without opposition, and forced the Shah to sue for peace. November 5, 1827, the preliminaries were signed, according to which Persia ceded the khanships of Erivan, on both sides of the Araxes, and the khanship of Nakitschevan, paid the expenses of the war, and the losses caused by the invasion. In the article *Ottoman Empire* we have touched upon the relations between the Porte and Russia, during the years 1826 and 1827. (For the part of Russia, in the mediation between Turkey and the Greek insurgents, and in the battle at Navarino, see the end of our article *Greece, Revolution of Modern.*)

The patience of Russia was now exhausted by the conduct of the Porte. February 27, 1828, the Russian minister Nesselrode declared to France and Great Britain, that his sovereign must have satisfaction for the violation of the treaty of Ackermann, and for the hatti sheriff of December 20, 1827, which the Porte had addressed to all the pachas, and which contained many offensive charges against Russia. March 14, the emperor Nicholas issued a declaration of war against the Porte. The Russian forces passed the Pruth, May 7, to the number of 115,000 men, including persons of all descriptions, attached to the camp. Count Diebitsch, to whom the plan of the campaign was ascribed, was chief of the emperor's staff, which, on May 19, arrived before Brailow. Count Wittgenstein was commander-in-chief. Jassy was occupied May 7, Bucharest May 12, and Brailow invested on the 11th. June 11, the third division of the Russian army, in which was the emperor's head-quarters, crossed the Danube. June 15, an attempt was made to carry Brailow by storm, but without success; it capitulated, however, on the 19th. The Russians had now the lower Danube in their power, which secured the connexion of the army with Russia. The divisions advanced singly. After the battles of the 7th and 20th of July, the Turks retired into the fortified mountain position of Choumla, which was the centre of their operations. The Turkish army, under Hussein Pacha, here consisted of more than 40,000 men. Varna, fortified by nature and art, and defended by the favourite of the sultan, the capudan pacha, and the warlike Jussuf Pacha of Seres, formed the right wing of the Turkish position. Around these gates of Constantinople (as they are called), Varna and Choumla, the hottest conflict ensued. The principal army, 45,000 men strong, under field-marshal Wittgenstein, with whom the emperor had his head-quarters, approached Choumla, whilst lieutenant-general Roth besieged Silistria, and lieutenant-general count Suchtelen watched Varna. The grand vizier would not give battle at Choumla, but confined himself to the defence of the place. The Russians took possession at last of the key of the Balkan, Prawodi, from which a strong division of the army might have pressed forward to Aidos; but they did not dare to leave Choumla and Varna in their rear, and some battalions, who had proceeded too far, suffered loss near Eski Stambol, and an intrenchment was taken by the Turks. In proportion to the difficulty of carrying on the siege, in a vast and almost uninhabitable country like Bulgaria, under the fatal influence of the climate, were the efforts of the Russians to get possession at least of Varna. After this place had been invested on the land side by prince Menschikoff, and on the sea side by the fleet from the Black sea, returning from Anapa, under admiral Greig, breaches were made. Omer Vriones advanced to its relief, but was driven back by prince Eugene of Würtemberg; a body of troops forced their way into the bastion, October 7, and entered the city, which they soon left again. Terrified by this, the enemy gave up all further resistance, and Jussuf Pacha came himself to the Russian camp to negotiate. The capudan pacha retired into the citadel. The Russians took possession of all the bastions of the fortress, October 11, after two months' siege, without any conditions on the part of the inhabitants. The capudan pacha had liberty to retire with 300 men. Jussuf Pacha of Seres went over to the Russians with several Turkish troops, and repaired to Odessa. After this conquest, the Russians drew back from Choumla, October 15. The siege of Silistria did not take place till the last of September. Winter came on unusually early, and diseases became prevalent; a scarcity of food and provender existed, so that the siege was raised on November 10th. The campaign in Asia was successful; prince Menschikoff, on the 22d of June, had taken the fortress of Anapa, on the Black sea, which was dangerous for the provinces of Russia beyond the Caucasus, in consequence of which the predatory population of the neighbouring mountains submitted to the Russians. The Russian army under count Paskewitsch forced their way from Caucasus and Ararat into Asiatic Turkey, and took by storm, July 5, the strong fortress of Kars, the central point of Turkish Armenia, together with the enemies' camp. Whilst the Russian fleet on the Black sea destroyed a Turkish flotilla, August 8, and the batteries of Iniada, on the coast, near Constantinople, and supported the attack on Varna, Paskewitsch took the fortresses of Achalkalaki, Gertwiss, and, July 26, Poti, which being situated at the mouth of the Phasis, secured the possession of Mingrelia and Imiretia. The Turks, indeed, wished to press forward from Arsrum, (Erzerum), and for this purpose placed an army of 30,000 men near Akhalzich. But Paskewitsch crossed an almost impassable mountain, and beat the enemy at Kura, and, on the 21st, the principal body of his forces, after which he took Akhalzich by storm (on the 25th). The citadel capitulated. Several strong fortresses fell into the Russian power up to the 21st of September, so that the whole pachalic of Bajasid, as far as the banks of the Euphrates, was conquered. The campaign in Europe corresponded less to the general expectation. The numbers of the army were not so complete as had been calculated, and the supplies were deficient. The loss

of the horses could not be immediately repaired. The prevalent diseases had greatly weakened the army. At last, a severe winter came on, and put an end to the campaign in both countries. Its results, however, were important. In Europe and Asia, Russia had taken possession of two Turkish principalities, and three pachalics, fourteen fortresses and three castles, besides commanding a long line of country, and four passages over the Danube. The Russian emperor had repeated, during and after the campaign, as well as before it, to the British ambassador-extraordinary, lord Heytesbury, his inclination for peace with the Porte, on the terms of indemnification for the expenses of the war, and security against future injuries and violations of treaties; but the Porte had rejected all mediation on the basis of the London treaty, and refused to send envoys to negotiate with the ambassadors, of the three powers, and the commissioners of the Greeks. On the contrary, Mahmoud had announced a new campaign, with the words, "Honour and independence are worth more than life." Hitherto the negotiations had been carried on in Constantinople, with the reis effendi, by the minister of the Netherlands. He had delivered to the reis effendi the manifesto of France, Great Britain and Russia, of August 11, 1828, which made known to the Porte the motive and object of the French expedition against the Morea. The Prussian ambassador, Canitz, likewise advised the Porte to yield, but, till January, 1829, without success. The sultan had even banished to Asia many of the friends of peace among the ulemas, on account of their sentiments. Still he showed, on several occasions, an unexpected regard for the laws of nations. He did not close the Bosphorus against the trade of neutrals with Russia until the 13th of September; the Russian prisoners were well treated; the Russians settled in Constantinople were protected, and the irritated Turks were kept in unusual restraint. On the other hand, Jussuf Pacha of Seres, for surrendering Varna, which had till then resisted all attacks, was banished, and his estates confiscated. The grand vizier, Mehmed Selim, was deposed for his delay in relieving that fortress, and banished to Gallipoli. At length a strong body of cavalry from Asia, under the command of the brave Tshapan Oglu, joined the forces, to open the campaign of 1829.

February 21, 1829, general Diebitsch* was appointed commander-in chief of the Russian forces; but even previous to that event, and in the midst of winter, the Russian forces had not been reduced entirely to inaction. The fortresses of Kale and Tourno, on the Danube, were taken at the end of January, with eighty-seven pieces of cannon, while the thermometer of Fahrenheit was at zero. February 18, a flotilla of thirty Turkish vessels, frozen up near Nicopoli, was destroyed. February 25, the fortress of Sizeboli, beyond the gulf of Bourgas, east of the Balkan, was taken by a Russian fleet. The garrison, consisting of about 16,000 Albanians, retreated, and joined the main body under Hussein Pacha. But it was in Asiatic Turkey that the serious operations of the campaign commenced. On the night of March 3d, a Turkish force of more than 20,000 men made an attack on Akhalzich. General Paskewitsch immediately sent a reinforcement to the relief of the place, and on the 16th the besieging force retreated. June 14th, a body of Turks, who had been drawn down, by the movements of the Russians, from the mountains of Adjar, were attacked in their intrenched camp by generals Mouravieff and Bourtsoff. The camp was carried by assault, and large stores of provisions and ammunitions, nearly 400 prisoners, &c., were taken. An army of 50,000 men had been collected by the seraskier of Erzerum, and divided into two corps, one commanded by the pacha of three tails, Hagki, an officer of high renown in Asiatic Turkey, who, with 20,000 men, was stationed at the passes of the mountains of Saganlon; the other, of 30,000 men, under the seraskier of Erzerum himself. These two corps, by the manœuvres of general Paskewitsch, were separated from each other, and successively totally defeated, at the beginning of July. July 3, Paskewitsch took possession of Erzerum, the centre of the Turkish power in Asia. The seraskier, commander-in-chief of the whole Turkish army, and governor of all Asiatic Turkey, was taken prisoner, together with four principal pachas, and 150 pieces of cannon. The sharpest contest of the Asiatic campaign was occasioned by the attempt of the pacha of Van to rescue from the Russians the fortress of Bajasid. The attack was made with 7000 infantry and 5000 cavalry, aided by the fire from a battery, on a range of rocks, which swept the Russian troops on the flank and rear, and the fire of musquetry from the inhabitants of the Tartar quarter of the place. After thirty-two hours of incessant fighting, the Turks retreated. The career of Paskewitsch in this campaign had been one of continual success; and such had been his preceding campaign in Persia. In the European provinces, the campaign commenced by the renewal of the siege of Silistria, under the immediate direction of Diebitsch. May 17, a detachment of the Russian army, posted near the village of Eski Arnaoutlar, was attacked by the Turkish army commanded by the grand vizier from Choumla, at three in the morning. The battle lasted till eight in the evening, when the Turks retired. June 11, the battle of Koulevtcha, or Prawodi, took place between the army of Diebitsch and that of the grand vizier. It was contested with obstinacy, and the victory displayed rather the superiority of European tactics than of courage. June 30, Silistria surrendered, and the garrison of 10,000 men became prisoners of war; 220 pieces of cannon, eighty standards, and the whole Turkish flotilla, fell into the hands of the Russians. Immediately after the surrender of Silistria, Diebitsch commenced his preparations for the passage of the river Kamtchik and the Balkan mountain. He left his camp before Choumla July 17. July 22, the Russians had made such progress, that the general head-quarters of the army were removed to Erketch, on the summit of the Balkan, after considerable opposition from the Turks, at the passage of the Kamtchik. Mezembri was occupied on the 23d, and fifteen pieces of cannon, and large quantities of warlike stores, were taken. Arriving on the shores of the Euxine, the progress of the army was aided by the co-operation of the fleet under admiral Greig, consisting of three ships of the line, three frigates, and some smaller vessels. After the successive occupation of sundry villages from day

* Diebitsch was the son of a Silesian officer in the Prussian and afterwards in the Russian service. In 1813, he was lieutenant-general and quarter-master-general, and, subsequently, adjutant-general to Alexander. In the battle of Austerlitz he was wounded in the hand: at Dresden he received a severe contusion, and had two horses shot under him; and he distinguished himself in the actions of Eylau and Friedland.

to day, the last resistance on the part of the Turks before the Russians reached Adrianople, was made at Slivno, or Selimno, said to be next in importance to Adrianople, among the cities of the Ottoman empire. The Turks abandoned the city, August 12, after a very feeble resistance. From this time the Russians encountered hardly any difficulties, before reaching Adrianople, except such as arose from the excessive heat of the weather, the rocky ground, and bad state of the roads. On the 19th, the Russians approached Adrianople, which was occupied the next day without opposition. Negotiations now commenced, and, September 14, a treaty of peace was signed, the principal points of which were the cessation of hostilities; the restoration by Russia of the principalities of Walachia and Moldavia, and of all the towns occupied by the Russians in Bulgaria and Rumelia; the settlement of the boundaries between the two powers in Europe and Asia; the provisions for the religious liberty, independent administration and free trade of the people of Moldavia and Walachia; freedom of commerce to Russian subjects throughout the Ottoman empire, as secured by former treaties; free commerce and navigation of the Black sea to all nations at peace with the Porte; the stipulation of the Porte to pay 1,500,000 ducats of Holland to Russia within eighteen months, as an indemnification for losses of Russian subjects, and a further sum, such as should be agreed on, as an indemnity for the expenses of the war; the accession of the Porte to the arrangements of Russia, Great Britain, and France, respecting Greece. By a subsequent separate act, the indemnities mentioned as stipulated were agreed to be paid by instalments, the first in four increasing payments at short intervals; the second in ten annual instalments. On the first payment of the portion of the smaller sum, the Russian forces were to retire from Adrianople; on the second, to recede beyond the Balkan; on the third, to repass the Danube; and on the fourth payment, to evacuate the Turkish territory. Thus the emperor Nicholas, according to the pledge which he had given to his allies at the commencement of the war, stopped short in the career of conquest, when he had obtained the objects for which the war was professedly undertaken.

The beginning of the insurrection in Poland has been given in the article *Poland*. The following is a short account of the struggle which ensued. When the diet of Poland met, December 18, 1830, at Warsaw, general Chlopicki resigned the dictatorship; on the 20th, indeed, he was reinstated in the office, but he finally resigned, January 19, 1831. Whilst Poland was preparing for the unequal conflict with great enthusiasm, at least among the better educated classes, the Jews not excepted, the emperor Nicholas, December 17 (24), 1830, issued a proclamation to the Poles, calling upon them to submit to their legitimate government. January 21, prince Radzivil was elected commander-in-chief of the Polish army, and on the 24th, the termination of the Russian dynasty in Poland was declared. Marshal Diebitsch, who had so successfully conducted the war with the Turks, entered Poland at the head of a large army. He advanced as far as Warsaw, and was victorious over the Poles near the walls of their capital, February 25, 1831 (the loss of the Poles is stated to have been 5500, that of their enemies 4500); but when prince Radzivil resigned the command on the 28th, and Skrzynecki, then only a colonel, was appointed in his place, the Polish cause gained strength. This brave officer, though finally unsuccessful, like the heroic Kosciusko, proved that he deserved a better fate. March 31, he was victorious over the Russians in a night attack. He advanced cautiously, and, favoured by the darkness of the night, reached their cantonments without being perceived. The advanced guard of general Geismar, consisting of 8000 or 10,000 men, was first attacked, and almost wholly destroyed; the Poles took 4000 prisoners and 1600 pieces of cannon. Immediately afterwards, he attacked general Rosen, who was posted with 20,000 men at Dembe Wielski, and obliged him to retreat with the loss of 2000 prisoners and nine pieces of cannon. Another important victory was afterwards gained near Zelechow, where 12,000 Russians were killed, wounded or taken, with twelve pieces of cannon. During this action, the Lithuanians and Volhynians, who served in the Russian army, turned their arms against the Russians, and materially contributed to the success of the Poles. The peasants in various quarters of Poland now took an active part in the war, and hastened, with whatever weapons they could obtain, to the army. Insurrections broke out in Lithuania, Volhynia, Kowno, the Ukraine, Wilna, and even in ancient Poland, as far as Smolensk. On the other hand, general Dwernicki, who had been sent to make a demonstration in the rear of the Russians, and who had been victorious over them, was at last compelled to pass into the Austrian dominions, where he surrendered to the authorities of that country, April 27, with 5000 Poles. He is said to have been treated humanely. Skrzynecki, after having had several unsuccessful encounters with the Russians, and having avoided a decisive engagement with an enemy superior in strength, at last fought the battle of Ostrolenka, May 26. The Russian army is said to have amounted to 55,000, and the Polish to 20,000. The Russians were victorious. The same day the Polish general Chlapovski was victorious over the Russians, under Sacken, at Mariampol. The ardour of the people still continued, and hopes were entertained in every country that the manly resistance of the Poles would induce the powerful cabinets to interfere; but, unfortunately, Prussia and Austria, being themselves in possession of a part of the spoils of Poland, did all in their power to prevent interference, whilst Britain and France were too much occupied at home to render essential aid. June 19, count Diebitsch suddenly died of the cholera morbus, which the Russian army had carried to Poland, at Klechewo, having been superseded, on the 16th of the same month, by general Paskewitsch, whose campaign in Asia has been already mentioned. The military operations were now prosecuted with new vigour, and the emperor, who, in a manifesto addressed to the Russians, had called them the legitimate masters of the Poles, was ready to make every sacrifice to regain the Polish throne. The Poles were successful, July 14, under general Chrzanski, five miles from Warsaw, against the Russians; but, owing to causes which have not yet been satisfactorily explained, a change of government took place in Warsaw, and general Skrzynecki was superseded by Dembinski as commander-in-chief. The behaviour of the former seems to have been throughout exemplary, and such was his deportment on his discharge from the supreme command. The skill and valour of generals Roziski and Czartoryski were no longer of any avail. A

conspiracy of the Russian prisoners in Warsaw was discovered and punished. Krukowiecki was appointed Polish dictator. Paskewitsch made preparations for the taking of the city, in which he succeeded September 7, at six o'clock, when the capital surrendered by capitulation, after a most sanguinary conflict of two days' duration, during which the Polish soldiers behaved heroically, whilst it is not yet sufficiently explained, whether the authorities did their duty. The Polish army, followed by the diet and the members of government, retired through Praga, on the night of the 7th, and, early on the 8th, the Russians entered Warsaw.* The Polish army remained for a short time at Modlin; but the country was soon obliged to submit entirely to the Russian forces, with which the grand-prince Michael, brother to the emperor Nicholas, had entered Warsaw. He organized a provisory government, of which, at first, he himself, and soon after, general Paskewitsch, was the head. This general was made prince Warszawski (the Warsovian) as a reward for his services. A sort of amnesty was proclaimed; but the corps of generals Romarino, Kamniski and Rubinski were prohibited from returning to Poland, because they continued in arms after the capitulation of Warsaw, in contempt of the orders of the Polish commander-in-chief. Many distinguished Poles were sent into the interior of Russia or to Siberia; many of all ranks emigrated, chiefly to France. They were every where, in Germany and France, enthusiastically received by the people, and in the latter country were also aided by the government. General Skrzynecki is said to live in Austria, and to be honourably treated. Though the kingdom of Poland, it seems, is not to be entirely incorporated with Russia, like those portions which were torn from it by the partitions, yet the intention of the Russian government appears to be to deprive it entirely of a general diet, and to establish provincial chambers. Thus that gigantic power, which, even under an enlightened monarch, is, from the very form of its government, hostile to the constitutional principle, developing itself so rapidly in the west of Europe, and which unites the force both of barbarism and civilization, has come close upon western Europe and exercises, at least for the present, a powerful influence upon it; as is evinced—if an example among so many were necessary—in the Belgic question. However distant the time may be, Europe will not be safe until Poland is re-established; without which, Austria and Prussia, particularly the latter, must remain bound to Russia.

Russian-German War, 1812—1815. Between France and Russia a coldness had arisen since 1809, although the meeting of the monarchs of the two countries at Erfurt, in 1808 (especially when the geographical situation of their states was considered,) seemed to give assurance of a lasting peace. The slight share which the tardy army of Russian auxiliaries took in the war against Austria, showed that its commander had received injunctions to be circumspect in his proceedings. At the same time, all the Russian harbours were opened to the British, provided they displayed the American flag, while French goods were strictly prohibited. This induced Napoleon, in order to enforce his commercial prohibitions against Britain, to make himself master of the northern sea-board of Germany, and incorporate the country of the duke of Oldenburgh, a near relation of Alexander, with France. Against this proceeding, Russia made an energetic protest; and, as early as 1811, five Russian divisions assumed a position opposite Warsaw. On the other hand, Napoleon caused the fortresses on the Vistula and Oder to be declared in a state of siege, sent thither large masses of troops, and occupied Swedish Pomerania, because Charles XIII. of Sweden declined a closer connexion with France. (The causes of the war between France and Russia are further treated of in the article *Bonaparte*.) The Russians adopted the plan of offensive operations; and it had been resolved to treat the approach of the French to the Oder as a declaration of war, to let the Russian army enter Prussia, ascertain the sentiments of this state, and commence hostilities. But political considerations, especially the situation of Prussia, urged the abandonment of this plan. On the French side, the visit of so many princes and kings, and even of the Austrian emperor, to Dresden, gave intimations of some great project, although Napoleon's departure from Paris, according to the *Moniteur*, had no object but a review of the army of the Vistula. Perhaps he might still hope to avert the gigantic struggle, without departing from his purposes; at least for this object the count de Narbonne proceeded to the camp of Alexander, at Wilna, and offers of peaceable arrangements were made. For the contest in the Peninsula, which daily became more obstinate, and consumed a large amount of men and money, might well appear to him an obstacle in the way of a struggle with Russia; but he calculated that his army, amounting nearly to one million, all of which he had rendered perfectably disposable by the institution of a new national guard of 80,000 men, would be sufficient for the conflict in both quarters; and he also relied upon a great mass of auxiliary forces, chiefly promised by the confederation of the Rhine (100,000 men,) and, finally, on the alliance with Prussia and Austria, which covered him on both flanks, secured his retreat, and both together furnished 60,000 men. When, therefore, Napoleon's ambassador, the object of his mission unattained, returned to Dresden, half a million soldiers (French, Germans, Italians, Poles, Swiss, Spaniards, and Portuguese,) with more than 1200 cannon, were put in motion, about the end of July, to attack the Russians on the other side of the Niemen and the Vistula. The Russians, in three divisions, occupied a line including Kiev and Smolensk to Riga. The first western army (127,000 men,) in Lithuania and Courland, was commanded by Barclay de Tolly, who had till then been minister of war, under whom was Wittgenstein; the other western army (48,000 strong,) between Smolensk and Kiev, was commanded by prince Bagration. General Doctoroff led a third body of forces, which served to keep up the communication between the other two. Goods and records had long before been generally conveyed into the interior. Rigi, Smolensk, &c., were fortified, and an entrenched camp established on the Dwina. Napoleon, already near the Russian fron-

* The St Petersburg papers of October in the official account of the taking of Warsaw, say that 132 pieces of cannon, 2,000,000 of cartridges, a vast quantity of military stores of every description, and immense magazines of provisions, fell into the hands of the Russians; that 3000 prisoners were taken, among whom were sixty staff and superior officers; that many more must have perished during the attack, by the burning of the buildings, and the destructive fire of the artillery, which, during the two days, expended 29,000 cartridges; that, besides the above mentioned prisoners, above 4000 soldiers of the Polish army, 1900 generals and officers, had quitted the Polish service, and joined the Russians; that the whole loss of the Russian army was 3000 killed, including sixty-three officers, and 7500 wounded, including 445 officers.

tier, made another diplomatic attempt, and sent count Lauriston, who had formerly been ambassador at Petersburgh, to the emperor Alexander; but their views were too much at variance, and Napoleon said, in his usual tone, "The conquered assume the style of the conqueror; fate overcomes them; let their destiny be fulfilled." June 24, his main forces passed the Niemen, while the rest crossed the Vistula farther down. As the passage took place near the influx of the Wilna,* and this river, which flowed on their left flank, was also crossed, the Russians were surrounded as far as the Dwina, entirely separated from the second western army, and compelled either to risk a decisive battle with divided forces, or to make a speedy retreat. They chose the latter, and sacrificed their great magazines, which were to have given subsistence to their right wing. Wilna, which had been Alexander's head-quarters, now became the head-quarters of Napoleon, who here organized (an important secondary object of this war) the restoration of Poland. Napoleon made a considerable stay in Wilna, partly for that purpose, partly for the sake of obtaining information of the operations of the right wing under Poniatowski, Schwartzenberg, and Regnier, over whom the king of Westphalia was commander-in-chief. He had received orders to keep the second western army still separate from the first, from which it had been divided by the march to Wilna, and to prevent any junction farther in the rear. These orders marshal Davoust, who joined on the left the flank of the king of Westphalia, executed so fully, that the corps of general Doctoroff was separated from the forces of Bagration, as well as from the western army of Barclay de Tolly, and almost surrounded, when a rain of thirty-six hours made the roads impassable, and the sudden change to cold from intolerable heat, killed, by thousands, the horses of the French, exhausted by wants of all kinds, so that Doctoroff escaped with moderate loss. The caution, boldness and courage of prince Bagration, with the want of military penetration on the part of the king of Westphalia, likewise frustrated the plans against him. He even succeeded in surprising, on his retreat, the Poles in Romanoff, and destroying a corps of 6000 men, and in stationing in Volhynia general Tormassoff, who not only perpetually confronted the extreme right wing of the French, but, by a bold attack on its flank, took prisoners a whole brigade of Saxons, in Kobryn, July 27. At Mohilew, he finally succeeded in throwing himself, with all his forces, on marshal Davoust, who defended himself with ability, but would not have escaped without the greatest loss, had not Bragration been every minute in fear of an attack from the king of Westphalia on his flank. When the news of these events had reached Wilna, Napoleon hastened to his troops, which already stood on the Dwina, where they were watching the Russians in their large entrenched camp, and had suffered considerable loss from their sallies. A bridge of boats gave the Russians the advantage of stationing their main forces on which ever bank of the Dwina they pleased. The camp was extremely strong, both by nature and art, since the eminences of the right bank commanded the left. Napoleon, however, ordered a detachment to go round the camp by the road to Poloczk; and as the previous consequences of his judicious division of the Russian line had not yet been repaired, that is, the two Russian western armies had not yet formed a junction, the Russians had no alternative but to let half their forces be destroyed, or to leave their camp and hasten to the Dnieper, where Bragation hoped to join them. Prince Wittgenstein alone maintained his situation, in order to cover the road to Petersburg, and to prevent the investing of Riga. The main army of the French, with the exception of three corps under Reggio, Macdonald, and St Cyr, which blockaded Riga, and endeavoured to take possession of the road to Petersburg (which gave rise to a number of bloody indecisive battles), now went, part across the Dwina, part along the river as far as the heights of Wolgonsk, in pursuit of the Russian army, whose rear-guard frequently fought considerable battles with the pursuers, and, from the 25th to the 27th July, contested every foot of ground at and behind Ostrowno. But marshal Davoust, pressing forward between the armies of Bagration and Barclay de Tolly, and thus keeping them apart, finally compelled them to quit the field and retire to Smolensk. Heat, and wants of all kinds, had meanwhile operated so detrimentally on the French army, that it was obliged to halt at this point for ten days, during which the two Russian armies finally formed a junction under the walls of Smolensk. They immediately began to act on the offensive.* With 12,000 cavalry they attacked general Sebastiani (August 8), and drove him back, with loss, a mile and a half. On the 17th, the main body put

* The first Russian western army was stationed along the Niemen as far as Grodno, and comprised six corps of infantry and two of cavalry. The second western army was in the vicinity of Slonim, consisting of four battalions of infantry and one of cavalry. The communication between them was kept up by the hetman Platoff, with 10,000 Cossacks, at Bialystock. The army of Volhynia, under Tormassoff, at Lutzk, was composed of two divisions of infantry, and one of cavalry, containing together about 20,000 men. In Courland, Riga was protected by general Essen with about 10,000 men. One reserve was formed by general Miloradowitsch in Novgorod, another by general Ertel in Smolensk. There were, moreover, 16,000 men under Steinheil, in Finland, which, subsequently, with the 25th division of infantry from Petersburg, reinforced the corps of Wittgenstein. In September, Kutusoff's army of 85,000 men, which had been till then employed against the Turks, first united itself with the forces of Tormassoff. Soon after the invasion commenced, militia companies were formed in Moscow, Petersburg, and other places, for supplying the army. Some of these companies fought at Borodino, and several divisions of them accompanied the army in Germany, in 1813. The Russian plan of the campaign was, by retreating, to avoid a decisive battle, until the enemy should be remote from all his resources, and to enfeeble by marches through a desolate region, and the Russian army should be so considerably strengthened by the accession of all the forces that might be, meanwhile, raised, as to have a decided superiority. The bodies of troops detached on the two wings, were to prevent the enemy from spreading out his forces, and to co-operate in his destruction, if he should be defeated. Calculation was also made of the possible arrival of the Moldavian army after the conclusion of peace with the Porte. Particular circumstances, however, gave rise to many errors in the execution of this plan. Napoleon's scheme, on the contrary, was, to use every effort to compel the Russians to battle, to destroy them after the defeat, and, pressing forward with haste to the capital, to proffer peace. Collateral corps were, meanwhile, to cover his line of communication with Germany, weaken the resources of the enemy, and lead them to take false steps. But the French commander, long accustomed to success, committed the mistake of attempting to carry on the war in Russia, as in Lombardy, without magazines: he overlooked the fact that he ruled the conquered country only in a comparatively small extent, and must, therefore, leave the enemy in possession of his resources: he entirely mistook the character of his enemy. He, nevertheless made good use of the chief error of the Russians—the wide interval between the two western armies—by crossing the Niemen at Kowno, and advancing with rapidity to Wilna. Murat hereupon pursued the western army, which retired to the entrenched camp at Drissa. Macdonald drove general Essen back towards Mittaw, and Oudinot Wittgenstein to Wilkomirr. Two divisions under Kamenesky were separated from the second western army, and joined the corps in Volhynia.

* According to Russian accounts, the first army alone was in the battle of Smolensk, as the second, immediately after the junction, had proceeded by rapid marches to Dogorobusch, and covered in its rear the road to Moscow. After the battle, the two armies again united, notwithstanding the exertions of the enemy.

itself in motion to encounter the French army, which had advanced, on the 10th, to compel, if possible, a general battle. When Napoleon saw his attempts to surround the right wing of the Russians defeated, he ordered his right wing, under Poniatowski, to hasten by way of Ortza, by rapid marches, to cut off the Russians from Moscow. On the other hand, Bagration hastened to defend this road, and Barclay de Tolly sought to retard the enemy as much as possible. Smolensk, an old place, formerly strongly fortified, and the whole position on the Dnieper, greatly favoured his plan; and not till the midnight of the 17th, after a loss of many thousands, did the French succeed in taking this bulwark, reduced, for the most part, to a ruin. The French army was now in possession of the road to Moscow, and formed a triangle, with the left angle before Riga, with the right on the Bug, and the foremost at Smolensk, on the Dnieper. On the left and in the rear it was tolerably based, but very badly on the right flank, where the division of Tormassoff was continually making attacks. August 19, Napoleon left Smolensk, in pursuit of the Russians, whose rear encountered at Volontina, the French van under marshal Ney. The duke of Abrantes, who had superseded the king of Westphalia, had already come up in the rear of this body, when part of the Russian main army hastened to its succour: and by this means succeeded in leaving, though with great loss, the narrow defile, thirty miles in length. The Russian army retired in haste, burning all the towns through which it passed. With equal haste the troops of Napoleon followed, suffering more and more from want and the climate. Meanwhile, Barclay de Tolly had to resign the chief command to Kutusoff, who had reaped new laurels in the Turkish war just ended. Reinforced by militia and reserves, he resolved to await the enemy seventy miles from Moscow, in a strong position which was entrenched as well as time permitted. September 5, the French encamped opposite him, and, on the evening of the same day, one of the outworks of the Russian camp was taken, after the most dreadful slaughter; and at sunset of the 7th began the most bloody battle of this war, in which the one party fought to put an end to all their privations and sufferings, and the other to defend their country and preserve its capital. (See *Moskwa, Battle of the.*) The Russians lost 25,000 men; the French themselves estimated their own loss at 10,000; the number of wounded cannot be ascertained. Although the Russians were broken in their centre by the perseverance of Ney and the viceroy, on the right and left they remained masters of the field of battle; and without any great loss of artillery, and still less of prisoners, they were able to retire to Moscow, whither Napoleon's army, after two days' repose, followed in two divisions, of which the first was designed to attack the Russians in the flank. Kutusoff did not dare to risk a battle before the gates of Moscow. He marched through, and abandoned it to the flames and the French, who, Sept. 14, entered the desolate city. Moscow (q.v.) was devoted to destruction, and all the hopes built on the possession of it disappointed. Kutusoff, by a lateral march to the south, stationed himself at Kaluga, and threatened every minute to interrupt the communication of the French with their base on the Vistula. His Cossacks pressed forward to Smolensk. Werega, situated south of Moscow, constituting, as it were, a post for the protection of the French, was surprised by him, September 29. Nothing could save the French army but a speedy retreat or peace. Of the latter Napoleon entertained the more hope, as he was too proud for the former. Every day heightened the sufferings of his army, the provisions having been wasted, and foraging becoming continually more dangerous, from the conflux of Russian peasants and Cossacks. After Kutusoff had been reinforced from all quarters, by Cossacks and by militia, the summoning of which Alexander had himself superintended in summer, and the French army had been diminished in equal proportion (their loss in Moscow, by famine, assassination, the assaults of marauders, &c., was rated at 40,000 men), he suddenly threw aside the mask of pacific negociations, and (October 8) caused a strong body, under general Bennigsen, to surprise, at Tarutino, the unexpecting French, commanded by Murat and Sebastiani, and drove them back with great loss. From necessity, Napoleon now did what he should have done four weeks before: October 19, he evacuated Moscow. By his original direction towards Kaluga, he gained, indeed, a march of Kutusoff; but, after the engagement at Malo-Yaroslawetz (October 24), after which the Russians drew back, Napoleon was either deceived respecting this circumstance, or not sufficiently informed; and his army confined to the high road to Smolensk, also drew back, which was the principal cause of its destruction. For, every moment the want of cavalry became more perceptible, while the Russians, with theirs, could multiply attack on attack. The French columns consequently, had to march continually in denser order: in addition to this, the country was a desert, and want of all kinds had already dissolved the bonds of obedience, while the severity of the winter now covered the roads with ice and snow, destroying men and horses by thousands; and the Russians attacked in continually increasing numbers. After a thousand sacrifices, Smolensk was reached (November 12). But in vain had the remnants of the army hoped to find there repose, nourishment, clothing. The peace with the Porte had permitted the Moldavian-Russian army, under admiral Tschitschakoff, to put itself in Napoleon's line of communication. Leaving some forces behind to employ the Austrians and Saxons in Volhynia, he proceeded with the rest of the army to the Beresina, where he tried to form a junction with Wittgenstein on the Dwina, in order to cut off Napoleon altogether. *

* Here the two wings of the Russians could attack with decided effect; for Wittgenstein, after being joined by the Finland corps, had defeated, on the Drissa, the troops left at Polocak by Napoleon, with such loss, Oct. 18, that they had to retire across the Dwina. They, nevertheless, succeeded in uniting their forces at Czasnicki, Oct. 30, with the ninth corps, and Oct. 15, repelling Wittgenstein's attack on Smoliani. But, instead of pursuing his foe on the march to Rataliczi, Wittgenstein now turned against Baran, by doing which he abandoned the corps of Tschitschakoff, on the Beresina, to its fate. During this contest on the Drissa, the army of Volhynia was defeated, Aug. 12, by the combined Austrian and Saxon force on the Poddobna, and driven back to Lutsk, behind the Styr. But being reinforced to double its former strength by the army of the Danube, it soon compelled that body to retreat; and its commander, admiral Tschitschakoff, leaving general Sacken with 25,000 men at Brzesc, marched thence, Oct. 27, in the direction of Minsk, in the rear of the main army of the French. The two bodies attempted to prevent him, but were themselves incessantly pursued by Sacken: and after they had beaten him at Wolkowisk on the 16th Nov., and driven him behind Brzesc, Tschitschakoff, who had already apprised Wittgenstein of his march, through colonel Czemitscheff, succeeded in entering Minsk, Nov. 16, where he rested three days, captured Borisoff on the 21st, but left it again on the 23d, and on the 26th displayed his forces opposite the enemy on the Beresina. The Russian army on this day was still on the banks of the Dnieper. Wittgenstein should now have joined Tschitschakoff, but instead of so doing, he pursued, on the 27th, the division Partonneaux of the ninth corps, and captured it; but, meanwhile, Napoleon had effected, though with great loss, a passage over the Beresina, which Tschitschakoff could oppose, but not prevent.

The French army was by this means obliged to leave Smolensk on the 13th, and with the loss of two whole battalions, under Davoust and Ney, at a temperature of 5° above Fahrenheit's zero, to 8° below it, with no food but the flesh of the horses, perishing by thousands, hastening to anticipate the enemy, who were pressing forward from the north and south. This Kutusoff might, perhaps, have frustrated; but after the battle (November 18) at Krasnoi, from causes as yet unknown, he relinquished the pursuit, and Napoleon had the good fortune to be met by fresh troops from the Dwina, who compensated, at least in some degree, for the entire loss of his cavalry; and reinforced by these, under the command of Belluno, Reggio, and Dombrowski, he succeeded in deceiving admiral Tschitschakoff respecting the true point of passage over the Beresina, at Semlin, above Borissoff. There, on the 27th and following days, the passage took place with a loss of 20,000 men and a great part of the baggage and artillery. But the road to Wilna, which was entered, was very long, and the cold, which increased every day, together with the most horrible want, carried disorder, misery, and despair to the highest pitch. December 3, Napoleon issued his twenty-ninth bulletin from Molodetschno; and, on the 4th, at Smorgonie, he entrusted the command of the army to the king of Naples, and hastened himself under the strictest incognito, by way of Warsaw and Dresden, to Paris. Marshals, officers of high and low rank, followed the example of the emperor. No company kept long together. The sole object of all was to save life, and, if possible, the booty taken from strangers or their comrades. In Wilna, the last remains were attacked by surprise, and driven to the Niemen, behind which they dispersed in all directions, carrying pestilence wherever they went. Of the whole army which crossed the Niemen in June, the Prussian almost alone returned, which had saved itself by a capitulation (at Tauroggen, December 30), and remained in arms, under York, in Prussia. The Austrians and Saxons, driven back to Warsaw, also returned to their frontiers. The capitulation of the Prussian general York, was the signal of the awakening of the Prussian people, who, for five years, had been humbled by the French. January 22, the king went from Potsdam to Breslau, and (Feb. 3, 1813) summoned all capable of bearing arms to battle for their country. He did not yet designate his object, but his people understood him, and, with unparalleled enthusiasm, thousands poured forth to the places of rendezvous, from every section of the country; thousands too old for battle contributed their savings. In vain had the French, with the aid of their last reserves, and of troops thrown together in haste, made efforts to remain on the Pregel, on the Vistula, and on the Oder. The Russians advanced slowly indeed, but every where with overwhelming power; and the viceroy of Italy, on whom Napoleon, had devolved the chief command, could do nothing but retire behind the Elbe with the least possible loss. March 8, after the last battle, he crossed the river to Magdeburg. Prussia now declared war against France, and concluded an alliance with Russia. Shortly afterwards, Kutusoff's proclamation at Kalisch announced the dissolution of the confederation of the Rhine, March 25th. Meanwhile, Napoleon had formed in France a new army, which passed the Rhine at the end of March. But Austria was neutral, the confederation of the Rhine without strength and without will, the popular insurrection almost universal in northern Germany; along the Elbe and to the Weser, time alone was needed to arm the people, who were here more enraged than in many other German countries, because they were more immediately and severely oppressed by French dominion. Napoleon appreciated the danger, and hastened to dispatch the most necessary forces to the points most threatened. Happily for him, the Russians and Prussians were not in a state to derive the full advantage from the favourable situation of things. The forces of the Russians were almost exhausted; those of the Prussians had first to be formed; the blockade of the fortresses on the Oder and Vistula occupied many troops. Kutusoff manifested little zeal for the emancipation of Germany, and wished it to be attempted, not from Saxony, but on the Lower Elbe; time was lost in negotiations with the king of Saxony, during which Kutusoff fell sick, and died, at Buntzlau, April 28. The viceroy was thus enabled to unite the remnants of the army under the walls of Magdeburg, and even advance against Berlin, by this means occasioning the indecisive engagement at Leitzkau or Möckern, April 5, while Vandamme and Davoust, between the Weser and Lower Elbe, put down the popular fermentation with iron hand, and threatened the city of Hamburg, which had most spiritedly shaken off their yoke; when the whole right bank of the Elbe was cleared of the French by the bold Rettenborn. The allied army, hardly 70,000 strong, now had in front an army of the French of almost twice their strength. Napoleon united his forces with those of the viceroy, who marched in a southerly direction along the Saale, and crossed this river at Wettin, while Napoleon passed it at Jena. May 1, he advanced upon the Elbe. The Prussians and Russians saw themselves in danger of being cut off from the river by a march from Merseburg by way of Leipsic, and resolved to give battle. The engagement was commenced at Grossgörschen, not far from Lützen (q. v.), about noon of May 2, and had no object but to surround Napoleon, who was pressing on to Leipsic, with the left wing, cut him off from the Saale, and with the right attack his flank. But this was well protected by detachments posted in the villages of Grossgörschen, Kaja, &c. Unexpected as was the attack, the French resisted it with bravery. Napoleon's main body, divided into large squares, either repelled all attacks, or soon recovered their lost advantages. The engagement in the villages thus lasted, with terrible slaughter, till dusk, when the corps of Lauriston, forming Napoleon's vanguard on the way to Leipsic, came up to attack the allies in the right flank. This compelled them to retreat to their old position, which, not being pursued by Napoleon, they left, May 3, retiring to the Upper Elbe, without loss of artillery, but with great loss in killed and wounded (about 15,000), which was, however, at least equalled by the loss of the French. Napoleon followed the allies with the infantry, but from want of cavalry, which was still behind, could do them but little damage. May 8, he was already master of Saxony and the Elbe, Dresden having been evacuated, Torgau having been opened by general Thielemann, and the siege of Wittenberg having been raised. The king of Saxony now had to return from Prague, and Napoleon proceeded to Lusatia, where the allies, reinforced by a body of 17,000 men under Barclay de Tolly, awaited him at Bautzen, behind the Spree, in a strong position.

But Napoleon had also received new forces from the confederation of the Rhine and from France; and thus began, May 19, the prelude to a second great battle, which was fought on the 20th and 21st, at and near Bautzen, and, the right wing of the allies having been surrounded, terminated to their disadvantage, so that the Prussians and Russians drew back towards Schweidnitz, in Silesia, and the French advanced to Breslau, though with several losses, especially at Görlitz, where Duroc and two other generals fell, and at Hanau. A truce, which was concluded June 4, under Austrian mediation, at the village of Pläswitz (in the circle of Strigau), allowed the French to remain masters of the Oder as far as its entrance into the Saxon territory, and of the whole Elbe to its outlet, while it also allowed the allies to procure reinforcements, to await the arrival of the crown-prince of Sweden, who took an active part against Napoleon, and to give Austria time either to complete its preparations and join the allies, or to negotiate a peace, which was to be discussed in a congress to be held at Prague. This truce was peculiarly disadvantageous to Napoleon. He derived no advantage from it, except that a number of bold partisans, who swarmed in his rear, had to retire over the Elbe till June 12, and that he could maintain Hamburg, which, supported by so many friends, —Danes, Swedes, Prussians, Russians, Englishmen,—and finally abandoned by all, had been already occupied by the French, June 2, through Danish mediation. The congress of Prague began its session at a late period, and led to nothing. Russia and Prussia made such conditions as were required by national honour and independence; the mediation of Austria, and the neutrality which she had observed, Napoleon regarded as infidelity to the alliance of the previous year. Austria evidently took part in the negotiations at Prague, without a sincere wish for peace. August 17, the war began more fearfully than ever. The participation of Austria in the war Napoleon had anticipated after the battle of Lützen, and he had, for that cause, sent the viceroy with officers and subalterns to Italy, to collect an army. For the same reason, Bavaria had to draw out its forces on the Inn. They were joined by a corp of chosen men, chiefly cavalry, which had come from Spain. But the main bodies on the side of Napoleon were stationed on the Upper and Middle Elbe and at Hamburg; those on the side of the allies, in Bohemia and Silesia, with the exception of the great corps which covered Berlin, and protected the Lower Oder against Davoust. The allies had agreed, especially since the convention at Trachenberg, on the 9th, 10th and 11th July, to surround Napoleon's flank, from Bohemia, his right in particular, and to cut him off from his base of operations. For that purpose, Blücher immediately drew back as Napoleon advanced against him, while the main army, under the command of prince Schwartzenberg, entered Saxony; and Dresden, which had been fortified at the time of the truce, had begun to cherish hopes, when Napoleon's main forces arrived from Lusatia by forced marches, and not only repulsed the assault on Dresden (q. v.), but also (August 27) inflicted on the allies a defeat, which, as they were cut off from the main roads to Bohemia, and all the by-roads were destroyed, would have caused the annihilation of the whole army, if from that moment Napoleon's star had not set for ever. The victor at Dresden, on the 26th and 27th August, where Moreau was mortally wounded, was stayed in his progress by the defeat of Vandamme, at Culm, August 30; by the simultaneous overthrow of his army in Silesia, under Macdonald; by the hard-fought battles at Gross-Beeren, August 23, at Belzig, August 27; and by the defeat which Ney suffered at Dennewitz, September 6. In addition to these misfortunes, want of all kinds prevailed in exhausted Saxony, and lamentations in the hospitals, where thousands perished of dysenteries and fevers. At last, by some rapid, well-covered marches, Blücher formed a junction on the Elbe with the crown-prince of Sweden, while he surprised a French corps under count Bertrand, watching the passage at Wartenburg, and took up a position between the Muldau and Elbe. As soon as he was advised of this, Napoleon started from Dresden, October 7, in the hopes of overpowering them both separately. But they had already crossed the Muldau to the Saale. The great Bohemian army had also advanced on his right flank. These and Blücher's flying corps met in his rear, and general Thielemann, who had exchanged the Saxon service for the Russian, took whole troops of French fugitives, and fought several battles between the Elster and the Saale, almost all of which resulted to the disadvantage of the French. On the opposite side, the bold Czernitschef pressed forward so rapidly with his Cossacks to Cassel, that he was able, October 1, to declare the kingdom of Westphalia dissolved. After some movements on the right bank of the Elbe, which seemed to threaten Berlin, Napoleon proceeded with his main army to the plains of Leipsic, at which he arrived with the guards, October 14, when Schwartzenberg had already commenced against the king of Naples, who had commanded the left wing of Napoleon from Dresden, a reconnoisance, which resulted in a smart skirmish of the cavalry at Liebertwolkwitz. Meanwhile, Augereau had brought up an excellent *corps de reserve:* his army had also been reinforced at Erfurt by 14,000 newly organized fugitives; and, as he probably thought, that he had deceived the crown-prince and Blücher by movements made on the other side of Wittenberg, and that he had gained so much time, that he could meet the great Bohemian army alone in a decisive engagement, he did not delay to encounter it in the spacious plain near Leipsic, between the Pleisse, Elster, and Parthe. About nine o'clock in the morning of October 16, the engagement commenced to the south of Leipsic. Napoleon had rested his right wing, under Poniatowski, on the Pleisse, and strongly garrisoned all the villages from Konnewitz to the river. His centre was stationed at Wachau. The left wing was supported by the heights of the Parthe. Prince Schwartzenberg sought to turn the right wing; but all his efforts were vain, because Napoleon made such progress in the centre, that all the reserves destined for that manœuvre had to be used for the reinforcement of the centre. After destructive attacks on both sides, Napoleon had gained some ground in the centre and on the left wing. Count Bertrand repelled an attempt of the Bohemian army to gain possession of the defile of Lindenau, and, at the same time, of Napoleon's whole line of retreat, perhaps of the city of Leipsic itself. But the duke of Ragusa was very unfortunate at Möckern, where he occupied a wide line to the north of Leipsic, and was unexpectedly attacked by general Blücher with the greatest impetuosity, totally defeated, after an obstinate resis-

tance, on his left wing, and driven back, in disorder, to Gohlis. On the 17th, Napoleon negotiated, through count Meerveldt, who had been taken prisoner, for liberty to retire undisturbed, and for an armistice, both of which proposals were the less listened to, because the allies could now conduct their operations with a mutual understanding, the crown-prince of Sweden having joined Blücher with upwards of 60,000 men, and general Bennigsen, with almost an equal number, being every minute expected from Grimma. October 18, therefore, a fearful conflict took place at Leipsic. The French fought with desperation, to save their honour and secure their retreat, which had been commenced at day-break. Their centre and their right wing, from Probstheyda to Konnewitz, remained firm. The left, supported in Schönfeld on the Parthe, was defeated rather by the defection of the Saxons and Würtembergers, than from want of bravery; and nothing but the inexplicable carelessness of Napoleon on the 19th October converted the regular retreat, at last, into a flight, and a general overthrow of the rear. (See *Leipsic.*) This battle emancipated Germany. Bavaria had already (October 8) renounced the confederation of the Rhine, and united with Austria. All the German princes followed this example, with the exception of the king of Saxony (prevented by his imprisonment in Leipsic), Jerome of Westphalia, and the prince-primate. After the loss of many thousands, in prisoners and disabled, Napoleon, assailed or harassed in every quarter, was obliged, in order to gain the Rhine, to sustain a bloody conflict (October 31) with the Bavarians and Austrians stationed at Hanau. (q. v.) The allies made a halt on the Rhine, in order to unite the forces of liberated Germany with those furnished by Britain and Holland, which was now working its own emancipation. The number of troops collected against Napoleon in 1814, amounted to 1,208,000. The only remaining vestiges of Napoleon's power were the fortresses on the Vistula, Oder, Elbe, &c., in which, however, his best troops, cut off from all succour, finally perished, from want and suffering, or were forced to surrender. Even the Danes, who had been forced to form the closest union with Napoleon, in consequence of the hard terms proffered them by Britain and Sweden in the spring of 1813, were obliged to concede to the crown-prince of Sweden, in the peace of Kiel (January 14, 1814), all that they had formerly refused. The Rhine having been passed subsequently to January 1, 1814, at Caub, Manheim, Rastadt, Ehrenbreitstein, and Düsseldorf, it was easy to see that Napoleon would be eventually overpowered, because in France many had fallen from him since fortune forsook him, and the old aristocracy raised their heads again, whilst the people at large were exhausted by war. Immediately after his arrival, he had indeed set every spring in motion, in order to repeat, once more, the unexampled exertions which had been made in 1811 and 1813. But affairs in Spain had taken a most unfavourable turn. Marshal Jourdan had been totally defeated by Wellington, at Vittoria (June 21, 1813), and had been forced back to the Pyrenees, with the loss of his artillery; and, subsequently, Soult and Suchet had with difficulty kept the enemy from the soil of France itself, and it was consequently necessary to send thither new forces. For the first time, therefore, the senate ventured, though timidly, to represent the misery of France, when repeated decrees of Napoleon ordered the levy of nearly half a million new conscripts of 1807—1814, the organization of cohorts of national guards, and the formation of four armies of reserve. Still stronger terms did the deputies Lainé and Raynouard use in the legislative body; and, in consequence of the general indignation at the enormous expenditure of human life, great difficulties now presented themselves, when the demands of self-defence were imperative, in the way of collecting the myriads which were necessary, and to provide them with artillery, horses, and other requisites. Beyond the Rhine, therefore, from Switzerland to Holland, which was for the most part voluntarily evacuated by the French, the allies found but little resistance. Almost without loss of blood, they were able to gain possession of mount Jura, to put their left wing in communication with the Austrian army of Italy (which, commanded by general Hiller, had threatened, from Tyrol, to cut off the viceroy, and had obliged him to retreat to the Adige), to make themselves masters of all the passes to Italy, of the city of Geneva, of the roads over the Simplon and Bernard, and, as early as the 9th January, to occupy a new line, covered on the left by the Seine, on the right by the Meuse, in Alsace, Lorraine, Deux-Ponts, &c., with the exception of the invested fortresses. Napoleon had issued a proclamation for a kind of general rising of the people, or a levy in mass. This measure, which did wonders in the revolution, had, in this instance, but little effect among the suffering people. In a few quarters only, and not till the excesses of the enemy, exasperated by national hatred, had occasioned excitement, did the call produce some effect, but could give no new direction to the course of affairs. The allies, continuing to advance, occupied the Saar, the Moselle, the passes of Ardennes, almost without a blow. In no instance had a French general strength enough to maintain the most important points against the overwhelming force of the invaders; and it was hoped, by the middle of February, to reach Paris in safety, when Napoleon, who left it on the 25th January, and went to join his army (assembled, after infinite trouble, on the Aube), fought, from January 27 to February 3, a number of battles, which, with that at Brienne, on February 1, form one of the most striking exhibitions in military history. Napoleon put forth all his skill. He lost the battle of Brienne, after his army of 70,000 men had made the most desperate resistance, which, regardless of danger, he superintended every where, and left behind seventy-three cannon, and 12,000 prisoners, to retire, as it seemed, beyond Troyes. Meanwhile, the eagerness of the allies to improve the first victory on the soil of France, gave rise to a separation of their forces, of which Napoleon took advantage judiciously and boldly. Having received on wagons new troops from the army of Spain, he proceeded, with rapidity, from the Seine to the Lower Marne, along which the army of Blücher was marching, in security, to Paris. He broke through its centre, and destroyed, at Champeaubert (February 10), the column of general Olsusieff. Without the aid of general York, general Sacken would have met with a similar fate the next day, at Montmirail. In like manner (February 14), Napoleon repulsed, with considerable loss, at Vauchamp and Etoges, the columns led by the field-marshal himself. With great exertions, a union was, at last, effected with Blücher's reserves. Schwartzenberg and

Wrede were then, with the Würtemberg troops, beyond the Seine; for Napoleon had been deemed sufficiently enfeebled to allow them to proceed towards Paris in two large columns, one on the Seine, the other on the Marne. This idea had been, in part, recommended by the barrenness of Champagne. The great triangle between the Seine and Marne consequently separated them, for in it stood Napoleon's army. To make a lateral movement, it was necessary to cross the Seine, over which there were only two points of passage, at Nogent (strongly fortified) and at Bray, without a bridge, but in sight of a weak French reconnoitring party. Napoleon now hoped to gain important advantages over the army of Schwartzenberg. Wrede, united with Wittgenstein's corps, had to return across the Seine (February 17). On the 18th, Napoleon attacked the Würtembergers, at Montereau, at the confluence of the Yonne and Seine; but they retired, though with loss, to the left bank of the Seine. Schwartzenberg now hastened back, and passed the Seine at Troyes, to renew his communication with Blücher. Constantly hard pressed, the allies had to continue retiring; and the situation of affairs was so uncertain that, in the head-quarters of the monarchs themselves, a diversity of opinions prevailed, which had an influence on the congress of Chatillon. (q.v.) But in this very crisis, which inspired Napoleon with such hopes that he raised his demands higher at Chatillon than he had done since the battle of Leipsic, a new turn was given to affairs. The allies concluded the treaty of Chaumont. (q. v.) After the indecisive battle of Bar sur Aube (February 27), Napoleon marched against Blücher, who was approaching the northern army, the van of which had already taken Soissons, but had lost it again. But in a lucky moment, Soissons capitulated (March 2), and Blücher formed a junction with the northern army, under Bulow, who had taken several fortresses in the Low Countries and Picardy, especially La Fere (February 26), with a great quantity of stores, by means of general Thümen. The duke of Weimar, who arrived with 30,000 Saxons and other troops, had blockaded the unconquered places. On the extreme left wing, also, of the allied army, from Geneva, the most decided advantages were gained. The count of Bubna here, likewise, had been obliged to contend, till February 25, with obstacles of all kinds. Marshal Augerau, inspirited by some reinforcements from Spain, had received from Napoleon orders to advance on this side, and repulse the left flank of the allies. All the Austrian wounded were taken to Berne, and Geneva was considered in great danger; but when the prince of Homburg and count Bianchi came up with considerable reinforcements, Augerau lost his former advantages as rapidly as he had gained them. Napoleon now saw himself in danger of being surrounded on both flanks, and confined between the Seine and Marne. He therefore (March 9) attacked Blücher's army at Craone, and, on the 10th, gave battle at Laon, and was defeated. He now returned across the Aisne and Marne, took Rheims, and threw himself with impetuosity on Schwartzenberg, at Arcis sur Aube; but, repulsed on the 20th and 21st, with loss, he resumed his former plan, to approach the Rhine in the rear of the allies, supported by the fortresses of the Moselle, exhort the people to a general rising, unite with Augerau, and intercept the retreat of the allies. But the allies, merely keeping watch on him, made a rapid march to Paris (q. v.); for marshal Augerau had already been driven back to Lyons, which capitulated March 21. After the victory over Soult at Orthes, February 27, the British had gained possession of the city of Bordeaux, and driven back marshal Soult to Toulouse. Finally, advices were received at head-quarters, from Paris itself, disclosing the existence of an anti-Napoleon party, and describing the conquest of the city as easy, it being defended solely by the national guards. The battle of March 30 gave them access to the capital of France. Napoleon's family had already fled from the city. Alexander now declared that he would never treat with the emperor or his family. April 1, a provisional government was organized by Talleyrand, which declared Napoleon deposed, and transferred the crown to the Bourbons. Napoleon hastened back too late for the preservation of Paris. He approached only as near as Fontainebleau. Here the fragments of the troops which had left Paris, according to the capitulation, were reunited; but Marmont, with his corps, abandoned the emperor April 4. After many negotiations, Napoleon abdicated the throne, stipulating only for the imperial title, the island of Elba, with entire sovereignty, two millions of francs, &c., all of which were granted him. April 9, an armistice was concluded with all the French commanders. Most of the fortresses situated without the boundaries of ancient France, opened their gates; the others, situated within it, acknowledged Louis XVIII. willingly or unwillingly. Davoust, in Hamburg, hesitated the longest: he did not depart till May 29. At the same time, the taking of Paris decided the fate of Italy. In this country, partly through the excellent precautions of the viceroy, partly through the equivocal conduct of Murat, king of Naples, who had left the party of Napoleon, and, favoured by Austria, embraced that of the allies, without doing any thing in good earnest for them, the war had not taken a decisive course. Since the battle which the viceroy had fought with the Austrian general on the Mincia, he maintained his position on this river, with an army of 30,000 men, at most, against the same number of Neapolitans and 50,000 Austrians. The accounts from Paris gave here, also, a new direction to affairs. April 16, a truce was concluded, which allowed the French troops to depart for France, and compelled the Italian to remain. But an insurrection in Milan made a change in regard to the condition, that the fate of Italy should be decided in Paris; and prince Eugene resigned his command of the troops to the Austrian general Bellegarde (who had taken Hiller's place), and went, by way of Verona, to Munich. Meanwhile, the count of Artois had entered Paris, as the representative of Louis XVIII. April 23, he concluded a general truce with the allied monarchs, and a preliminary treaty respecting the future conditions of peace. Louis XVIII. entered Paris himself, May 3. On the 5th, Schwartzenberg resigned the chief command, and the armies retired with rapidity to the Rhine, though peace was not signed till May 30. (See *France, since* 1814.) On the whole, on account of the great expectations excited by the hatred against France, the joy at this peace was very slight, although it had taken from France upwards of one hundred fortified places, and twenty-five millions of souls.

The tranquillity of Europe was soon again disturbed. In France, Louis XVIII. did not succeed in winning the love of the people, to which he had

so long been a stranger. Napoleon, therefore, escaped from Elba, and reascended the French throne March 20, 1815. (See *Bonaparte*.) The monarchs being determined to support the Bourbons, the flames of war were again kindled. About 770,000 soldiers were gathered from Germany, Russia, Belgium (which was united into one kingdom with Holland), Britain, and Denmark. Napoleon, on his side, was not idle. From all France, he had convened in Paris, to a great *champ de Mai*, in the beginning of June, 4000 deputies, who swore fidelity to the new constitution and to him. From the 20th March, he, Carnot, Davoust, and others, had done every thing to put the army in a respectable state. Their efforts were very much aided by the enthusiasm of the old soldiers, who had, meanwhile, returned home from imprisonment. The Austrian emperor was threatened by a storm in Italy, which seemed to be connected with that in France. Murat, king of Naples, had been obliged to undergo, at the congress of Vienna, a contest with the Bourbon courts; so much the harder, as Britain was under obligations to the former king of Naples, and, moreover, understood Murat's equivocal behaviour the year before, and therefore declared, in express terms, that he could not remain king. Austria alone, the more faithful to her engagements with him because it was less for her advantage to have a Bourbon for a neighbour, in the south of Italy, spoke in his favour; but either gave up his cause at last, or, at least, Murat thought himself abandoned by her, or believed that the landing of Napoleon would afford him means, during the prevailing fermentation in Italy, to make himself master of the whole peninsula; so that, on the 4th of April, without declaration of war, he attacked Rome and the Austrian line of troops with 50 to 60,000 men. The Austrians, hardly 12,000 men strong, under general Bianchi, retreated, fighting, behind the Po, where they maintained themselves till the troops sent thither in wagons had arrived; after which, general Frimont, who commanded them, advanced again so quickly, and so skilfully, that, twenty days after, Murat was in the most desperate situation; and his dispirited troops by degrees dispersed, and would not stand an attack. Surrounded, and cut off from the best roads, he saw himself forced to retreat continually through by-paths, where artillery and luggage were lost. An attempt to save himself by a truce, failed, from the firmness of the Austrian general; another, at Tolentino, May 1—3, to improve his situation by arms, was frustrated by the valour of his enemy; and, in consequence of this last vain attack, made with desperation, and much personal exposure, his army totally dispersed, and he himself fled to France.—His wife was taken to Austria. The wreck of the army, 5000 strong, laid down their arms behind the river Volturno, May 20. Half the Austrian army, on account of the unexpectedly slight resistance which they had met with, had proceeded to Upper Italy, in order from thence to enter France, over the Alps. But orders from Vienna delayed the invasion, that the Russians might have time to come up. Half of June had consequently elapsed, when the attack was made on the side of Napoleon, equally impetuously and unexpectedly. Immediately after the *champ de Mai*, he left Paris for the army of 150,000 select troops stationed on the northern boundary, taking with him the guards assembled at Lyons, and, with them, attacked, at day-break, June 15, more than 200,000 British and Prussians, who were encamped along the Dyle and Sambre, under the command of Blücher and Wellington. Without giving them time to unite, he drove the Prussians back behind the Fleurus, and defeated them at Ligny, June, 16; while Ney attempted to retard, at Quatre Bras, the British, who were hastening on the Brussels road, and prevent their junction with Blücher. In the battle that took place there, in which the duke of Brunswick fell, Ney was unable entirely to accomplish Napoleon's object; but neither could Wellington come to the succour of the Prussians, who were, therefore, obliged to make a retreat, in which they were favoured by the darkness of the night. The next day, Napoleon detached two of his *corps d'armée* to pursue the Prussians, who were retreating to Wavre: with the rest of the army, he advanced, on the Brussels road, to crush the British, as he thought he had crushed the Prussians. Wellington had, meanwhile, assumed a position before the great forest of Soigny, on an elevated plain, which formed a natural fortress. (See *Waterloo, Battle of*.) On the 18th, Napoleon attacked this position, in the conviction that the British would not make a long resistance. But all his attacks were unsuccessful, and the more he wasted his forces in vain, the more terrible was his defeat, when, towards evening, the army of the Prussians, beaten on the 16th, but only the more eager for battle, coming up from Wavre in two divisions, fell upon the right wing and rear of the French army, through the defile of St Lambert. Wellington now making a general movement forward, in one hour the whole French army was dispersed, and Napoleon himself carried along with the fugitives. Blücher ordered all the cavalry to pursue the fugitives in the moonlight night. All the artillery and baggage was lost; no point of retreat was specified; they who had hoped to be in Brussels in the morning, wandered about on the Sambre, in the most melancholy condition. Not a single *corps d'armée* opposing the conquerors, the fortified places situated in their route, were taken or surrounded. Deputies from Paris, suing for a truce, and announcing Napoleon's abdication, were not heard. The allies advanced, taking advantage of the first consternation. June 27, they were already masters of the main roads leading to Paris, and expected to gain possession of the capital without a stroke of the sword. But the two French generals Vandamme and Grouchy, who had pursued the Prussians, after the battle of the 16th, and had driven general Thielemann from Wavre, at the very moment when Napoleon's army was dispersed, made such a rapid and judicious retreat, that, to the surprise of both friend and foe, they arrived, with moderate loss, under the walls of Paris at the same time with Blücher and Wellington. Paris was better fortified that in 1814; but, as the fortifications were surrounded, the city was in danger of being stormed on its weakest side. Grouchy and Vandamme were the less able to encounter the allies, as every day brought accessions to the forces of the Prussians and British; a truce was, therefore, made, and Paris evacuated. (See *Paris*.) All the troops retired behind the Loire, with their baggage, artillery, &c., and on the 6th the city was surrendered. Thus the war was essentially decided by the battle of Waterloo. While the Russians, Bavarians, Würtembergers, and Austrians, were coming up from all sides, the French forces stationed in different quarters were too inconsiderable to do any thing but shed their blood in vain, notwithstanding

the brave resistance of Rapp, under the walls of Strasburg, of Suchet before Lyons, and notwithstanding popular insurrections in several parts of Alsatia and Loraine. Armistices put an end, by degrees, to the war in these quarters the more speedily, because Louis XVIII. had already made his entry into Paris, July 9. Immediately after his return, Napoleon had abdicated. He hoped, perhaps by that means, to appease the storm, and departed for Rochefort, where he finally, July 15, surrendered to the British. In Paris a diversity of opinions prevailed in the chambers of peers and representatives. Their attention was occupied, while the conquerors advanced, with the subjects of a republic, of Napoleon II., and a new constitution; till Fouché, who stood at the head of the provisional government, closed their halls, and Louis reascended the throne, strongly as such a proceeding was deprecated by the voice of the people in the chambers, and in the army. This restoration had much influence on the event of the war. The princes had received Louis as their ally. In their declarations, they had spoken merely against Napoleon, not against the French people. The more active a part the people had taken against them, and the more strongly they still expressed themselves in some places, against the Bourbons, so much the more cautiously had they to act, in order to maintain the Bourbons on the throne (contrary to the former opinion of the prince regent), against the will of the French people. France was, therefore, still overwhelmed with troops, and the ministers of the allies were engaged with those of Louis in the adjustment of political relations; but up to September 29, the parties were so far from agreeing, that the former all took their departure. Not till new ministers had been appointed, a few days after, by Louis XVIII., were the preliminaries of peace signed (October 2); these were confirmed in the definitive treaty of November 20, which—1, fixed the boundaries of France, as they were in 1790; but, 2, took from it the fortresses of Landau, Saarlouis, Philippeville, Marienburg, Versoix, with a certain circuit of territory about each, to be subsequently defined; 3, provided that Huningen should be dismantled: 4, fixed an indemnity of 700,000,000 francs for the expense of the war, payable in five years; 5, provided that a line from Conde, through Bouchain, to Bitsch, should be occupied, for the same time by the allies, with 150,000 men, at the expense of France; and, 6, secured the demands of all private persons on France, with the exception of the bank of Hamburgh, emptied by Davoust in 1813. This was the actual termination of the war; for, till then, the northern fortresses of France had been beseiged, at least by the Prussians, and for the most part conquered. By a separate agreement, half voluntary, half forced, the restoration was granted of all the works of art, of Italy, Germany, &c., accumulated in Paris since 1792. Respecting Napoleon the allies agreed that he should live at St Helena, at the expense of Britain, as a prisoner of war, but with all the alleviations of which such a situation could admit. His family were banished from France, under penalty of death, and the members of it were obliged to have passports from the great powers. The banishment of the Bonapartes was again pronounced in 1831, together with that of the elder line of the Bourbons. Murat, impelled by an unhappy error, and deceived by the Neapolitan police, made an attempt to recover his kingdom, and, Oct. 13, died the death of a criminal, at Pizzo, in Calabria. See the *Histoire de l'Expédition de Russie*, with an atlas, 3d edition, Paris, 1825, 3 vols., by the French colonel of artillery, marquis de Chambray. The Russian colonel Butturlin's *Hist. milit. de la Campagne de Russie en* 1812, Paris, 1824, 2 vols., with plans, was used by Chambray, in the new edition of his work. See also the marquis of Londonderry's *Narrative of the War in Germany and France in* 1813 *and* 1814; and Segur's *Histoire de Napoleon et de la Grande Armée pendant l'Année* 1812 (Paris, 1825, 2 vols.).

Russian Language and Literature.—Under this head we must distinguish two languages: 1. The Russian language, originally the dialect of the Sclavi, who founded the empire. It underwent, as did the empire itself, various changes. Thus it has, by degrees incorporated into itself much of the Scandinavian, Mongolian, Tartar (1225 to 1477), and German, also the Polish and French languages. The improvement of this forcible and harmonious idiom is not, however, concluded, but is continually advancing, by means of the national literature.—2. The Sclavonian language, or that of the Sclavonian Bible. It was fixed by the translation of the Holy Scriptures, and so settled that it has since experienced but few alterations. It is the language of the Bible, of the old chronicles, as, for instance, Nestor's, about 1100, of the ecclesiastical laws, of some of the pastoral instructions, and of the prayers in the liturgy.—A mixed language arose from the combination of these two already mentioned, which is used in sermons, in rhetorical prose, and in the higher species of poetry. Its principal ingredient is the Sclavian language; but it has borrowed those words and phrases from the Sclavonian, which being used for the expression of biblical ideas and images, have thereby acquired more strength and dignity. The Sclavonian, however, prevails in sermons, and the Russian in oratorical prose, and in the more elevated kinds of poetry.

History of the Russian Language.—The first period, which was the longest, and most destitute of literary productions, extends from the foundation of the empire to Lomonosoff, who first introduced a permanent change into the Russian language. Important, as contributing to fix the written language, was the introduction of a current written character, whereby the unwieldy letters before used, and introduced by Cyril, were superseded (see *Cyril*), for the full expression of the tones, which are peculiar to the Sclavian language, and for which the Greek letters were neither suitable nor sufficient. Cyril had borrowed some characters from the Asiatic alphabets, the form of which was an impediment to a people not fond of writing. About the end of the seventeenth century, Elias Kopiewitsch improved it, and brought the letters to their present form, for the embellishment of which so much has been done in the last ten years, that the Russian characters may compare in beauty of form with those of any European language. The history of the Sclavian press, has, in modern times, attracted much attention, and a copy of a work printed in 1475 has been found. A Sclavonian psalter was printed at Cracow, 1481. The psalter of Kiev (1551) is the oldest work printed in Russia itself. Cracow was the cradle of Sclavonian typography. The oldest monuments of the language are, Oleg's treaty of peace and commerce of the year 912: Igor's treaty with the Greek emperor (945); the municipal charter of Novgorod (1019); but the most important memorials are the Russian

laws in the time of Jaroslaff (who died in 1054); the expedition of Igor, a heroic poem of the twelfth century; popular songs, and the poems of the prince Cantimir, in the reign of the empress Anna. This predecessor of Lomonosoff possessed true talent, had received a European education, and was well acquainted with the classics. His poems consist of satires and epistles, in which, in imitation of Horace and Boileau, he described in true colours the manners and faults of his times. The spirit of his poems is modern, the form antique, but his verse is rhymed. He likewise translated into Russian Fontenelle's Dialogues on the Plurality of Worlds; but the language was as yet too little refined to preserve the beauty of the original. This period shows only individual monuments of a written language in the first stages of improvement. Peter the Great had, unintentionally, given it a retrograde direction, when he introduced many foreign expressions, in place of a great number of existing technical terms, which thus became disused, so that the language itself became poorer, and was disfigured.

The second period extends from Lomonosoff to Karamsin. Lomonosoff, a man of genius, created the language of Russian poetry, by the introduction partly of poetical expressions and partly of new forms, which he borrowed principally from the German literature, and which served his successors as models. His example likewise shows how the Russian language can be enriched and ennobled by expressions and phrases from the Sclavonic. He first developed its grammatical structure, and contributed also to form its prose. His odes relate to the circumstances of the day; we find in them little poetry, but much rhetorical richness. In his tragedies the lyric tone prevails, and dramatic power is sought for in them in vain. In epic poetry, his Peter the Great was a first attempt; there are individual passages, indeed of great merit; but the poem, as a whole, is devoid of interest. His imitations of the Psalms are rich in poetical expression. His epistle on the utility of verse shows his great command of the language. Sumarokoff, an author celebrated in his time, is too diffuse upon every subject. His fertility in tragedy and comedy, in satires, epistles, elegies, eclogues, fables, epigrams and songs, gave him reputation; but in no department can he be considered a model. Keraskoff has produced two large epics upon the conquest of Kasan, and upon Wladimir the Great, besides tragedies, odes, and epistles. His language is beautiful, and far more smooth than that of Lomonosoff, but his talents are much less conspicuous. He was considered in his time as the Homer of Russia; but he is now forgotten.—Maykoff acquired a reputation by two burlesque poems, which were, however, not the less worthless on that account.—Kniäshjinin imitated the French in his tragedies and comedies, too closely, indeed, but not without talent. Some comedies in which he has interwoven many of the follies of the times in which he lived, have maintained themselves upon the stage till the present time. He very much excelled Sumarokoff; and some of his scenes, even now, are read with pleasure, although the language has proproceeded so far in improvement.—Kostroff deserves mention on account of his translation of the first books of the Iliad into Alexandrine verse, and of Ossian into prose. His language is not without force.—Bobroff, a wild genius, has left behind him a number of bombastic odes, and a descriptive poem, *Tauria*, a chaos, but which contains here and there some brilliant passages.—Bogdanowitsch, (q. v.), author of a poem called *Psyche*, in imitation of La Fontaine, is *naif*, and full of grace and originality, but diffuse, and deficient in taste.—Oserоff belongs, if his language is considered, to this period, although his poems appear in that which followed. The plan of his tragedies is French, the language neither pure nor beautiful, but the expression is often forcible, and the description of the passions natural; some scenes are really tragic; some of his characters are well delineated and supported.—Petroff was a true poet, but his language is rude; he had many ideas and striking images. He celebrated the victories of Catherine the Great in his odes. His heroes were Potemkin and Romanzoff. His translation of the Æneid into Alexandrine verse is very unpolished in its language, but is full of power.—Lomonosoff also commences the series of prose writers of this period. His eulogies upon Peter the Great and Elizabeth contain few ideas, but much rhetorical ornament. Both of these writings are entirely different from those of his predecessors. They have very much improved the language, but still have not given it a permanent form. The same may be said of his scientific treatises upon electricity and metallurgy, of his Essay towards a Russian grammar, of his Rhetoric, which contains many fragments translated from the ancients. Weissen (Wisin) wrote two comedies in prose, full of genuine humour, which describe in true colours some of the absurdities of the age; both of these have maintained themselves upon the stage. He also wrote two very original satires, and some translations from Montaigne and Terrasson.—Muravieff, the tutor of the emperor Alexander, composed for his noble pupil several treatises upon Russian history, some dialogues of the dead, and some fragments, in the manner of the English Spectator, under the title of the *Suburban*. His style is not wholly pure, neither has he a great command of language: it is evident that he has formed his style from the imitation of French writers; but he is full of ideas, and particularly rich in imagery. When we read his works, we feel that his mind is conversant with all the beauty contained in ancient and modern literature. A good heart, a pure mind, and a love of virtue, are conspicuous in every thing that he has written. He was in advance of his age. But he had little effect upon his contemporaries, as he permitted but few of his writings to be printed, and his works did not appear till long after his death. In general, it may be said, that during this period the genius of Lomonosoff awakened a taste for literature in his nation. People eagerly read every thing that was printed, particularly poetical productions. In Sumarokoff they saw a great tragic writer, and in the poem of Keraskoff, with all its defects, an Iliad. They felt the beautiful, but did not know how to distinguish it from what was miserable. Taste was in the cradle, and criticism still unborn. We may consider this age as the awakening period of genius and poetry. In the last half of it, a man of genius made his appearance, who belonged to no school, of an original and peculiar mind, without high cultivation, but unique in his kind, and the true representative of Russian poetry. This man was Derschawin. He celebrated the glory of the Russian arms during the reign of Catharine, as did Lomonosoff and Petroff; but while these were only eulogists of their sovereign and her generals, Derschawin celebrated them in the true spirit of a poet. He remained a philosopher even at the foot of the

throne: his own character appears in whatever he said of others: he awakened great and patriotic feelings, and at the same time described nature with inimitable touches. His productions, however, are not the best models, but they glow with a fire which kindles poetical sentiment. This period produced a great number of translations, particularly from the French; they are all, however, without merit as regards style, but they show the general desire and love of the age for literature. In this age the great dictionary of the Russian academy appeared, projected according to an entirely new plan, and in which the etymological order of the words is followed. This work furnishes great facilities for the study of the Russian language and literature. The Russian academy (founded October 21, 1783) has had great influence in directing the attention of authors to the pure elements of the language; several societies have likewise been formed for the improvement of the language. Finally, one man contributed greatly to the spread of literary taste, who had himself but little learning, but a good natural understanding, a love for the sciences, and withal a happy talent for illustration. This was Novikoff. He founded a typographical society, and edited a satirical journal, under the title The Painter, which at that time was very much read, and opened to Karamsin a field for the exhibition of his literary powers.

In the third period, Karamsin is the representative of prose, and Dmitrieff of poetry. The periodical edited by the former, after his return from his travels, effected a decided change in the Russian language. He revealed to his countrymen the secrets of happy diction, clearness, beauty and precision. The same perfection which he gave to prose, Dmitrieff gave to poetry. Karamsin's career as an author may be distinguished into three epochs. The first began with his editing the Journal of Moscow. In this publication appeared fragments of his Letters of a travelling Russian, and his tales, which were afterwards published collectively. These productions exhibit genuine taste, though they appear like the effusions of a youth. His remarks and notices of the writings of foreign countries, which appeared in that publication, excited an interest in foreign literature throughout Russia, and developed the germ of true criticism. The second epoch commenced with the publication of the European Courier. This periodical drew the attention of the public to politics, and awakened reflection. His essays upon some of the political topics of the day, and upon morals, are models in their respective kinds. His beautiful style gave to his ideas a still higher charm. The third epoch is marked by his History of Russia. This history, as a literary production, is a mine for all authors of his nation. No Russian prose writer since Karamsin has acquired a high reputation: greater purity, perhaps, prevails than did before, but his style has not been equalled. Many have wished to imitate him, but they have only shown their own inferiority. Makaroff has edited a Critical Journal; he wrote very correctly, but his style is dry. Batuschkoff has been able to give grace to his prose, and the Italian harmony to his verse. Shukoffskij was, after Karamsin, the editor of the European Courier, and wrote in it some essays on prose. These, and other authors, have each of them some peculiar merit, but they are not equal to their master. Besides, their works are unimportant, and cannot, therefore, much promote the further development of the language. The Russian literature is very barren in original works on the subject of philosophy. In the history of the language of poetry, Dmitrieff's imitations of La Fontaine and his tales make a particular epoch. Before him Lomonosoff, and especially Derschawin, had furnished models of poetical beauty, and opened the way to bold originality. Without checking the flight of genius, Dmitrieff knew how to direct it so as not to offend against taste and sound criticism. We possess about one hundred excellent fables by him, in imitation of La Fontaine and others, many songs, which have become popular, and odes, considered classical, without having the brilliancy of Derschawin's originality and boldness. Dmitrieff has given the language of Russian poetry its permanent form. Neledinsky-Meletzsky is less pure and correct than Dmitrieff, but many of his songs are in the mouths of the common people. The true fire of passion animates his poetry. Chemnitzer is esteemed as a fabulist; his expression is natural, but very prosaic. Kriloff, a poet in the full sense of the word, is, in his department, like Derschawin, the representative of the national poetry, for his fables are almost all original. Derschawin, in his odes, described the bright side of his age; but Kriloff, in his fables, painted the absurdities and prosaic thought of his time. In expression less pure and perfect than his predecessor Dmitrieff, he, however, excels him in descriptive powers. Kriloff has much observation: his fables, which, in this respect, will bear comparison with the best in any literature, are rich in ideas and instruction; many of his verses, therefore, are now current as proverbs.—Shukoffskij has enriched the poetical language of the Russians, by describing ideas and feelings which had not been treated in their literature. His poems are a true picture of his individual character at the time in which he wrote them. They therefore possess uncommon attraction for the reader. His predilection for German poetry, which was before his time but little known to his countrymen, induced him to incorporate it with the Russian in his imitations; his poems, on this account, have a peculiar stamp, which has given a singular charm to their deep melancholy feeling and natural tone. Batjuschoff pleases by the charms of his diction. With a brilliant imagination he united the finest taste, and he is inimitable in the choice and harmony of his expression. We possess of his writings some amorous elegies, ingenious epistles, and attempts at lyric poetry—all excellent. Prince Wiasemskij expresses much in few words: this sometimes gives his language an air of stiffness and dryness; but his satires and epigrams are particularly happy. His prose suffers still more than his poetry from this brevity.—Wostokoff has richness of thought, power of imagination, and warmth of expression; but his style is but little refined.—Gneditsch deserves much credit for his translation of the Iliad into Russian hexameters. The general characteristic of this period is an elegance and correctness previously foreign to Russian literature. The language has acquired a more settled character; but Russian prose still wants the labour of thinking minds to perfect it. The poetical language of the Russians alone can be called rich.

The latest period of Russian literature is yet in its bloom. Already it numbers one very promising poet, Alexander Puschkin, who is distinguished for his imagination and originality, and whose style is in the highest degree refined. Karamsin's historical work now opens a new field for national poetry.

Russian history was previously enveloped in the obscurity of chronicles and traditions. Karamsin dissipated this obscurity, and threw light upon the darkness of the past. Poetry, by his torch, may now light her own. Among other living poets, may be mentioned Kosloff; Gribojedoff, the author of a very amusing comedy; Glinka, a lyric poet, full of fire; baron Delwig (the editor of the Russian Almanac of the Muses, called the Flowers of the North, in 1825 and 1826); Schazykoff, Baratinskij, &c. Among the translators we may mention professor Merslakoff of Moscow, who has translated Tasso's poem of Jerusalem Delivered. Russian prose enumerates, at the present time, but few original productions. There are many journals, but they are for the most part filled with extracts from foreign periodicals. The critical department of them cannot be important, because the national literature is poor; nevertheless, among a great number of tolerable prose writers, Gretsch has distinguished himself; his style is easy, although he sometimes offends against good taste. For many years he edited the best Russian journal. He has likewise been engaged in the composition of a Russian grammar. In connexion with this, besides the old Russian grammars of Ludolph (*Grammatica Russica et Manuductio ad Linguam Sclavonicam*, Oxford, 1696, quarto), of Groning (Stockholm, 1750), of Lomonosoff, Rodde, Heym (Riga, 1821), that of the Russian academy (St Petersburg, 1802), particularly that of Vater (Leipsic, 1808), and that of Tappe, on account of the happily chosen examples and practical exercises (St Petersburg and Riga, 1810; 5th edition, 1820), deserve to be recommended, as well as Puchmayer's System of the Russian Language, in German (1820). They all, at least the modern, embrace only the common Russian. For the Sclavonian or ecclesiastical language grammatical aids are greatly needed. The grammar of the ecclesiastical Sclavian, written in the Russian language, which Peter Winogradoff published in 1811, is far surpassed in value by Dobrowsky's *Institutiones Linguæ Slavicæ Dialecti veteris* (Vienna, 1822). The government itself has taken charge of grammatical education, and prohibited the sale of Lewitzkij's small Russian grammar (St Petersburg, 1814), which was put under the interdict of the minister of instruction, in 1814, "on account of its many defects and false definitions." Concerning the dictionaries of the Russian language, by Rodde, and Heym, a German, Russian, and French pocket dictionary (Riga, 1805), and many others, see the review, by Schlozer, in the Gottingen *Gelehrten Anzeigen*, 1810, number 47. Since that, A. Oldekop has published a Russian-German and a German-Russian dictionary, in 5 vols. The present president of the Russian academy, admiral and minister Alexander Schischkoff, caused a second edition of the academy's dictionary to be published in 6 vols. quarto, in the year 1826.

After having thus characterized the poets and prose writers who have had an influence upon the formation of the Russian language, we will touch more particularly on certain portions of the Russian literature, as follows:

I. The old popular songs and traditions, which were formerly neglected by the Russians, have now excited their attention, on account of their similarity to the English, Spanish, and Scandinavian ballads. Like these ballads, they appear to refer to a connected series of popular traditions. In that period, however, to which these old songs belong (1015—1124), the national poetry had not freed itself from the old Sclavian mythology: and the Russian tales and popular traditions have thereby acquired a peculiar charm of a fantastical description, which is particularly remarkable in the story of Filipat and Maxim, and their valorous deeds; the marriage of Devgieiewas, and the carrying off of Stratigovnas, in the tale of Shinagrip, the czar of the Adorians. Prince Wladimir I., with his knights, is the central point of this whole series of tales, which may be compared with the stories of Charlemagne and his peers, and those of king Arthur and the Round Table. The heroes, Dobrenja Nikititsch, and Tschurilo Plenkowitsch, and others, here take the place of the well known and harmonious names of Roland, Rinaldo, and Amadis. J. Müller published the Expedition of Igor against the Polowzians (from the old Russian; Prague, 1811 and 1812), and this poem has since passed through several editions in the Russian original. Prince Wladimir and his Round Table (Leipsic, 1819) is a German imitation, drawn from a collection of old Russian songs, which were printed at the suggestion of Romanzoff. Prince Zerteloff's Spirit of Russian Poetry, or collection of old Russian songs (St Petersburg, 1822, in 2 vols.), has excited the attention of the Russians to this portion of their literature. The ecclesiastics of that period displayed a peculiar degree of intellectual activity; and there were also laymen of considerable merit. Nestor has mentioned many men of rank who shared in this intellectual labour. These beginnings could not, however, be of permanent consequence, because literary institutions of a high character were wanting. The Greek teachers of the public schools at Wladimir, Smolensk, and Halitsch, did not diffuse a taste for Grecian antiquities, which might have been a permanent barrier against barbarism. The Mongolian period had a withering influence on literature. In the rich convents only, which the Mongols respected, were preserved some remains of intellectual cultivation. Thence are derived the materials for the history of that period, which alone give us some insight into it, particularly the annals in the old ecclesiastical language, composed by St Simon, bishop of Susdal (who died in the year 1226), the *Stufenbuch* of Cyprian, the metropolitan (who died in 1406), and the Chronicles of Sophia, or the Russian annals from 862 to 1534 (edited by Strojeff Moscow, 1820—1822, quarto). These, and the lives of Alexander the Great, of the Roman emperors, of Mark Antony, and of Cleopatra, related after the manner of stories, were the only books. As the authors despised the language in common use, which, by its additions from the Tartar tongue, had acquired a foreign character, displeasing, even to the people themselves, and made use only of the old Sclavonian dialect, the taste for reading, even if we do not take into consideration the other inconveniences attending it, must necessarily have been confined to a few. As the Russians did not travel, nor learn any foreign languages, they were not connected, by intellectual bonds, with the rest of Europe. There were no schools in Great Russia. The press exercised but little influence, as it was exclusively devoted to the interest of the church, and the amusements of the people were rude. In the dramatic exhibitions, which were founded on religious stories, and performed by the students of Kiev, in the principal cities, during their holidays, Judith striking off the head of Holofernes, Ahasuerus ordering Haman to be hanged, and the spectacle of

the three men in the fiery furnace, excited the highest applause. The Sclavonian-Russian dramas of the monk Simeon of Polotsk (1628—1680) may be considered as an improvement on the others. These were acted in the time of Feodor III., first in the convent, and afterwards at court. Amateurs may find his Nebuchadnezzar, and his Lost Son, printed in the eighth volume of the old Russian library, and most of his other productions in manuscript, in the library of the Synod, at Moscow. The first foreign comedy translated into Russian was Molière's *Médécin malgré lui* (Physician in spite of Himself), which was performed by the czarina Sophia Alexiowna, and the ladies of her court. The Poles served as models, particularly in poetry; and the translation of the Psalms of David (Moscow, 1680), by the above-named Simeon of Polotsk, deserves to be mentioned. As early as the seventeenth century, instances of versification can be produced, which endeavoured to imitate the Greek peculiarity of long and short syllables; but they had no permanent effect. Even the restriction of verses to a particular number of syllables, was considered too stiff and unnatural; and, to the present day, there remains in their poetry (which, exhibits, for the most part, the national peculiarities) a free and unrestrained style, which neither requires lines equal in their number of syllables, nor assonance, nor rhyme, but rests upon certain laws of accentuation.

II. Peter the Great endeavoured to advance literature by technical aids. For this purpose he patronised the press, and, in 1704, himself invented a set of written characters for the Russian language, which, being similar to the Roman characters, might make the communication and interchange of thoughts with the rest of Europe more easy. With this character the first Russian newspaper was printed, in 1705, in the ecclesiastical press at Moscow. The ukase press was established in 1711, and from it, in 1714, proceeded the first St Petersburg gazette. Translations of foreign works, for the most part German, were intended to excite a love of reading; and he hoped, by means of the young Russians, whom he sent abroad to travel, to convince his people of the advantages of education. At his death, he left fifty-one schools for the people, fifty-six schools for the garrisons, and twenty-six other institutions for the children of the clergy, which, however, had little perceptible influence upon the great work of civilization. It was, however, less attachment to ancient usage, that opposed the effect of his labours on a people very susceptible of impressions, than the artifices of the state officers, to whom the public improvement was, frequently at least, an object of little importance. (See *Academies*.) The academy of sciences, from 1725, promoted the scientific direction which intellectual cultivation had taken, because the want of a national literature had not yet been felt. Establishments for the promotion of knowledge and education increased daily by imperial liberality, and Catharine II., by the patronage which she bestowed upon the arts and sciences, greatly contributed to the advancement of her nation. The endeavour to rival foreign countries became general, and those of the nobility and public officers who were capable of intellectual enjoyment, gave themselves up to it with such zeal that Paul I. became alarmed, and ordered the communication with foreign countries to be stopped. Alexander I., in the first years of his reign, established literary institutions and popular schools, took care that the clergy should be more thoroughly educated, and patronised talent with imperial liberality. Sopikoff, in his *Essai de Bibliographie Russe* (St Petersburg, 1813—1823, in 6 vols.), has enumerated, alphabetically, 13,249 original works and translations published in Russia, in the Sclavonian and Russian languages, from the establishment of the press (in 1553) to 1823. Since the year 1820, in which alone 3400 works appeared, among which nearly half were translations (more than 800 from the French, and 483 from the German), the annual number has very much decreased. In 1824, only 264 works were published, most of which were translations, particularly historical and geographical works, poems, and romances.

III. *Poetry*. With all the imitation of the poetical forms of foreign countries, the national song has always maintained an honourable rank, and celebrates love and war, games, church festivals, and banquets. Among the older ones, those of the Cossack Semen Klimoffskij (who died in 1725) are much esteemed: a collection of such as yet enjoy a high reputation, is to be met with in Ostolopoff's Dictionary of ancient and modern Poetry (St Petersburg, 1821), in which the names of Dmitrieff, Neledinskij-Melezkij, Karamsin, and Shukoffskij, are distinguished above all others. Since the Russian prosody became more settled by means of Kniäs Constantine Demetrius Kantemir (q. v., who died in 1744), every kind of poetry has been attempted, from the dithyrambic to the madrigal. The popular songs of the Russians, which are preserved among the common people, belong to the time of Peter the Great and the empress Elizabeth, who herself wrote verse. The lyric department has been particularly successful. We must likewise mention the philosophic odes and epistles of the prince Ivan Michailowitsch Dolgorucki (who died in the year 1823), under the title of the Existence of my Heart. Poetical tales, for which the old traditions furnish many materials, have been written by Sumarokoff, Kriloff, Batjuschkoff, Dmitrieff, and Shukoffskij. The Russian theatre was first established in 1758. In this year, there was a private theatre erected at Yaroslav, which was soon transferred to the royal residence, and, in consequence of the predilection of Catharine II. for the drama, soon won the favour of the people. Sumarokoff wrote the first regular tragedy, and was succeeded by Kniäshjnin. The most distinguished dramatic writer, Wladimir Oseroff, has had the honour of having his works often translated. His Œdipus (Petersburg, 1805), his Dmitrij the Donian, his Fingal, and the Rosloff of Kniäshjnin, are considered the most important specimens of tragic literature. Kniäshjnin has also accomplished much in comedy. The genius of the Russians, so sensible to the ridiculous, and so capable of imitation, would lead us to expect a rich harvest in comedy, if the readiness with which they adopt every thing foreign did not check the productiveness of native talent. The opera in a court, which, like the Russian, delights in splendour, must naturally excite a lively interest. The first, written by Sumarokoff, was performed at St Petersburg in 1764; and, since that time, there have continually been authors in this department of the drama. In didactic poetry, Keraskoff's Fruits of the Sciences formerly were in much repute. At the present time, the fables of Dmitrieff, Chemnitzer, and Kriloff have gained many admirers. Of Kriloff's

Russian fables (St Petersburg, 1826,) a part has been published in the Russian language at Paris, with a French translation, by count Orloff. The minor species of poetry find a ready admission into the twenty-one Russian literary journals (which were in circulation in 1824, throughout the capital), and are very acceptable to the literary public, which is yet small.

See N. von Gretsch's *Manual of the Russian Literature, or a Collection of Specimens from poetical and prose Writers* (St Petersburgh, 1821, in 4 vols.), and Borg's *Poetical Productions of the Russians* (Rigna, 1823, in 2 vols.), both in German; also Bowring's *Specimens of the Russian Poets* (2d edition, London, 1821), and Duprè de St Maure's *Anthologie Russe* (Paris, 1823). A. Oldekop's St Petersburg Journal is likewise to be recommended to all friends of literature, on account of the collections therein published. Among the periodicals, those which make us acquainted with the internal condition of the empire—as Bulgarin's Northern Archives; the Siberian Herald of Sspaszkij; the Son of the Country, by Gretsch; and the Promoter of Knowledge—are worthy of notice.

IV. *Prose.* Russian prose is undoubtedly inferior to the poetry of the same language. In pulpit oratory, in which its first progress was made, a bombastic rhetoric has prevailed, which is often accompanied with little intrinsic merit, as the homilies of Feofan Prokopowitsch (who died in 1736), of Gedeon, Platon, Anastasij, Georgij, Protoiereni Lewanda, Michajl the metropolitan, Filaret, and others, abundantly prove. Lately, a hypocritical rather than pious tone has passed from these homilies into political writings. The secular discourses, to which, for example, Lomonosoff owes his celebrity, are partly composed in a panegyrical style, which leads us to doubt the genuineness of the feeling which is displayed. Lomonosoff's discourse, however, on the character of Peter the Great, delivered April 26, 1755, is often mentioned as a masterpiece of eulogy. Karamsin's oration, delivered at the assembly of the Russian academy, December 5, 1818, corresponds more to the present taste. Nicholas Karamsin's name must likewise be mentioned with distinction in almost every department of description. He has given a Russian work which may be honourably compared with the historical writings of any nation. A great number of the most distinguished literati and statesmen of Russia, have preferred, in their works, to use foreign languages rather than their own. Russia has not yet produced romances, combining originality with beauty of description, which may be worthy of being translated into foreign languages. Karamsin, Shukoffskij, and Benizkij, are the best models for the novelist. The Russian accounts of voyages and travels deserve the attention of foreigners. Since the first voyages of the Russians round the world, in the ships Nadeschda and Neva, under the command of captain Krusenstern, the American company or individuals have annually sent ships to the north-west coast of America; and Golownin's Voyages (1807—1814): those of lieutenant von Kotzebue, at the expense of the count Romanzoff; those of lieutenant Lasareff; those of Bellingshausen and Wassiljeff; those of lieutenant Wrangel; Murawieff's travels; Broneffski's researches in Tauria, &c.—have produced very important results in a scientific point of view. Many of them exhibit traces of the improving state of the language, in passages containing much beauty of description. The Russian academicians and literati (Frahn, Krug, Schmidt, &c.) have distinguished themselves in Oriental literature. Frahn, at the expense of count Romanzoff, superintended the collection of extracts for Hammer's work. *Sur les Origines Russes, extraits de Manuscrits Orientaux*, and likewise the printing of Abulghasi's *Historia Mongolorum et Tatarorum* (Kasan, 1825). Wolkoff has been labouring upon a dictionary of the Tartar language. Senkoffski has published the text and translation of the Derbent-Nameh, and the French-Arabic lexicon of Berggren. He likewise published, in the Polish language, a Collection of ancient Accounts, in the Turkish Histories, relative to the History of Poland (Warsaw, 1824). Professor Boldyreff has likewise published, at Moscow, a Manual of the Arabic Language, (1824), and a Persian Chrestomathy (in 2 vols., 1826.) In 1825, eighteen journals were published in St Petersburg, and seven in Moscow, and six almanacs. Bestucheff's and Rylejeff's Polestar, a souvenir for 1824, and the Flowers of the North, for the following years, have met with decided approbation. In 1826, there appeared at St Petersburg only six gazettes and fifteen periodicals. To promote the knowledge of Russian literature, Von Köppen published in 1825, and 1826, at St Petersburg, a bibliographical paper. The society of the friends of Russian literature, established in St Petersburg in 1816, the founders of which are N. Glinka and N. J. Gretsch, have conducted the publication of a collection of the most distinguished native productions and translations (now consisting of 16 vols). See the *Survey of the most modern Russian Literature*, in the 7th volume of the Annals of Literature (*Jahrbücher der Literatur*), published at Vienna.

Russia, Black; formerly a subdivision of Lithuania, now forming the Russian governments of Minsk and Grodno.

Russia, Great; former name of a province comprising a large part of European Russia, extending from the Frozen ocean to about the middle of the course of the Don; now divided into nineteen governments.

Russia, Little; name of that part of Russia lying south of Great Russia; now forming the governments of Tchernigov, Cherson, Kiev, Ekaterinoslav, and Poltava.

Russia, Red; formerly an independent duchy, which belonged to Poland after 1396, and formed the palatinates of Chelm, Belcz, and Lemberg. It now belongs chiefly to Austria, but partly to Russia.

Russia, White; was a part of Lithuania, which now forms the Russian governments of Smolensk, Mohilev, Vitepsk, and a small part of Minsk.

RUSSIA LEATHER is prepared in Russia, chiefly from cow-hides, and is highly esteemed for its flexibility, durability, and impenetrability by water. The red leather is much used in foreign countries for book-binding, and, although it is imitated in some places, the Russian is distinguished by its peculiar odour. The best is made in Astrachan, and it now forms an important article of export.

RUSSIAN HUNTING MUSIC, or HORN MUSIC. This consists of horns, of which each produces but one tone. Twenty, thirty, or even forty performers, have each a horn. These horns vary like the pipes of an organ. One of them sounds only every C, another every D, &c., throughout the tune. The performers are, for the

most part, serfs, and so well skilled, that every one sounds his note with the greatest accuracy, whenever it is necessary; and the tones of the different instruments sound as if they proceeded from a single instrument. The Russians have carried this music to such a pitch of excellence as to execute pieces of Pleyel, Haydn, and Mozart, and likewise to mark the distinctions between piano and crescendo, with the greatest effect. This music is heard at a great distance, and sounds, when far off, like a harmonicon. It was invented by Narischkin. In 1763, these instruments were used, with great success, at a festival at Moscow; and they afterwards received great improvements.

RUST is the oxide of a metal, and is composed of oxygen combined with a metal. See *Oxygen*.

RUSTY GRACKLE. See *Blackbird*.

RUTA BAGA, or SWEDISH TURNIP. See *Turnip*.

RUTHERGLEN; an ancient royal burgh of Scotland, situated near the south bank of the Clyde, in the lower ward of Lanarkshire, about two and a half miles south-east from Glasgow. The name is supposed by some to be derived from *Reuther*, one of the early kings of Scotland; by others, from the British *Ruth-ir-glan*, signifying the "red land near the river." The place was made a royal burgh by David I., about the year 1126, and confirmed by his grandson, William the Lion, some of whose charters are dated at Rutherglen. Its privileges and immunities, as appears from the charters yet extant, were very great. These, however, were gradually diminished, as the neighbouring towns rose into consequence, and the town itself seems to have been unable to make head against the commercial prosperity of the city of Glasgow. In 1671, a new *set* of the burgh was obtained, by which the right of the election of magistrates and council was vested in the burgesses. It thus possessed a more open system of suffrage than any other burgh in the kingdom, until the Municipal Reform Bill placed all constituencies on a level. The church of Rutherglen, a very ancient Gothic structure, dedicated to the virgin Mary, was taken down in 1794, and the present one erected. The castle, another ancient structure, which sustained several sieges in the fourteenth century, was burnt by order of the regent Murray, after the battle of Langside, and though partially restored, it has been since levelled with the ground. Before the passing of the Reform Bill, Rutherglen, with Glasgow, Renfrew, and Dumbarton, sent one member to parliament. It now joins with Kilmarnock, Renfrew, Port-Glasgow, and Dumbarton in sending one. Rutherglen gives the title of earl to the marquis of Queensberry. The fairs of this town have long been noted for a great show of horses, particularly the Lanarkshire breed, which are esteemed the best draught horses in Scotland; they are held on the last Friday in April, the first Tuesday in May after Trinity Sunday, the third Friday in July and August, the third Monday in October, and the third Friday in November, all old style. Some other horse markets throughout Scotland are regulated by those fairs. The parish of Rutherglen extends along the southern border of the river Clyde, about three miles in length and one and a quarter in breadth; the surface is diversified with slight elevations, except near the river, where it is level; the scenery is extremely pleasing; and the land is enclosed and well cultivated. Population of the burgh in 1831, 4741; of parish, 762. See Ure's *History of Rutherglen and East Kilbride*.

RUTLANDSHIRE; an inland county of England, the smallest in the kingdom, is bounded on the north by Leicestershire and Lincolnshire; on the east by the latter county; on the south-east by Northamptonshire; and on the south-west and west by Leicestershire. Its extreme length is eighteen miles from east to west, and fifteen from north to south. Its superficial contents, according to the trigonometrical survey, amount to 149 square miles, or about 95,360 acres. Nearly half the land in the county is under tillage, producing wheat of a peculiar fine quality, and also barley, oats, beans, peas, turnips, and tares. The quantity of pasture is said to exceed that of the arable land. Cheese is an important product of this county, that rich kind called Stilton cheese, being made in Leighfield Forest, and in the fruitful Vale of Catmose. There are some extensive orchards in Rutlandshire; and the woodlands consist of about three thousand acres. The rivers, besides the Welland on the south-eastern border of the county, are the little river Eye, on the south-west, which rises in Leicestershire and falls into the Welland; the Wash, or Guash; and the Chater, which also joins the Welland; the former below, and the latter above the town of Stamford. These streams are fed by numerous springs and rivulets gushing from the sides of the hills, and communicating fertility to the adjoining county. Between Teigh and Market-Averton is a chalybeate spring, which at one time was greatly frequented; and there are various others in different parts of the county. The four hundreds are Alstoe, East, Martinsley, and Wrandike; and the Soke is that of Oakham. There are no boroughs, and the only market-towns are Oakham and Uppingham. Population of Rutlandshire in 1821, 18,487; in 1831, 19,385.

RUYSCH, Rachel, one of the most celebrated painters of fruit and flower pieces, was born at Amsterdam in 1664, and died in 1750. Her pictures are distinguished for truth and splendour of colouring, united with great finish.

RUYSDAEL, or RUYSDAAL, James, one of the greatest landscape painters, was born, in 1635, at Harlem. His brother *Solomon* (born 1616, and known for the beauty of his representation of marbles, &c.) seems to have been his teacher. James died in his native city in 1681. His aim appears to have been a faithful, but poetical conception of gloomy, and sometimes wild, nature. Landscapes with dark clouds hanging over them, church-yards, or thick woods after a thunder-storm, cascades between thick foliage, lakes and rivulets surrounded by overhanging trees, &c., are his subjects, and are represented admirably. The figures in his paintings were executed by others.

RUYTER, Michael Fitz Adrian; a celebrated Dutch admiral, born at Flushing in 1607. He entered young into the naval service of his country, and rose from the situation of cabin-boy to that of captain, in 1635. He was sent, in 1641, to the assistance of the Portuguese, who had thrown off the yoke of Spain; on which occasion he was appointed rear-admiral; and, two years, he was employed against the Barbary corsairs. In the war between the Dutch and English, which commenced in 1652, Ruyter repeatedly distinguished himself, especially in the terrible battle fought in February, 1653, near the mouth of the Channel, when Blake (q. v.) commanded the English, and Tromp (q. v.)

and Ruyter the Dutch. He afterwards served against the Portuguese, the Swedes, and the Algerines, previously to the naval warfare between England and Holland, in the reign of Charles II. He commanded in the great battle fought in the Downs, in June, 1666, against prince Rupert (q. v.) and the duke of Albemarle (see *Monk*); and, in the following year, he insulted the English by his memorable expedition up the Thames, when he destroyed Upnor castle, and burnt some ships at Chatham. He was admiral of the Dutch fleet at the battle of Solebay in 1672, and signalized his skill and courage on several other occasions. He died in the port of Syracuse, April 29, 1676, in consequence of a wound received in an engagement with the French, a few days before, off Messina. His body was carried to Amsterdam, where the states-general erected a monument to his memory.

RYE *(secale cereale)*; a species of grain, generally considered, in temperate climates, next in value to wheat. It is a grass, from four to six feet high, with a fibrous annual root, producing one or several slender culms, which are provided at their articulations with linear and smooth leaves; the flowers are greenish, disposed in a terminal simple compressed spike, four or five inches in length. It is supposed to have been brought originally from the Levant, but has been cultivated in Europe from a very ancient period. Of all domestic plants, it has been the least altered by cultivation, and no permanent variety has been produced. It is the only species of the genus. Rye succeeds better in cold climates than wheat, grows in a greater variety of soils, resists severe frosts better, and arrives at maturity sooner. All soils will produce rye, provided they are not too moist; and many barren lands, which are unsuitable for the cultivation of wheat, may be sown with this grain to advantage. The time of sowing is earlier than with any other grain. It does not require so much attention during its growth as wheat, and the ripening varies according as the season is more or less warm and favourable, from the first of July to the last of the month; but, in general, it precedes wheat by fifteen or twenty days. In some countries, it is customary to sow in March; but it rarely produces so well as when sown before the setting in of the winter. In many places, it is cultivated only for fodder, which is an excellent plan, as cattle are often in want of green food in the early spring. Rye is the principal sustenance in the greater part of the north of Europe, and, after wheat, nourishes the greatest portion of the population of that continent. Even in more than half of France, rye bread, either pure or mixed with wheat in equal proportions, is the only kind to be procured. Rye bread is not so nutritious as wheat, but has more flavour. The farina, or meal, differs from that of the latter in containing a much smaller proportion of gluten. In the north, the greater part of the ardent spirits is distilled from rye. The straw is long, flexible, and does not rot so easily as that of other grain; it is used by brick-makers and collar-manufacturers, and is considered an excellent material for the thatching of cottages and barns. Rye is but little cultivated in Great Britain. For spurred rye, see *Ergot*.

RYE; a borough-town of England, in the county of Sussex, and one of the cinque port towns. It is situated sixty-three miles south-east from London, on an eminence in the British channel, at the mouth of the river Rother. The commerce carried on here is chiefly in corn, coal, hops, oak-bark, timber, and wool; the herring and mackerel fisheries, in their season, afford much profitable employment. Population in 1831, 3,715.

RYE HOUSE PLOT. See *Russell, Lord William*, and *Sidney, Algernon*.

RYMER, THOMAS, of Eruldon or Earlston, in Berwickshire, otherwise called THOMAS THE RHYMER, was a poet or romancer, who flourished during the thirteenth century. To this day, the name of Thomas the Rhymer is popularly known in Scotland as a prophet; and it is only by a late discovery of the manuscript of a metrical romance called "Sir Tristram," that he has acquired a less exceptionable claim to remembrance. "The Prophecies of Thomas the Rhymer," were published, in Latin and English, at Edinburgh, in 1615, and have been repeatedly reprinted, copies of them being still to be found among the country people of Scotland. The romance of "Sir Tristram" was considered to be lost, till a copy of it was discovered among the Auchinleck manuscripts belonging to the library of the faculty of advocates, Edinburgh, and published, with introduction and notes, by Sir Walter Scott. The reader is referred to that edition for all that is to be learned regarding the work and its author. See also an article on the metrical romances of Sir Tristram in No. VII. of the 'Foreign Review.'

RYMER, THOMAS, a critic and antiquary, studied at Cambridge and at Gray's-inn. In 1678, he published Edgar, a Tragedy, and wrote a work entitled a View of the Tragedies of the last Age. Succeeding Shadwell, in 1692, as royal historiographer, he employed the opportunities afforded him by his office, to make a collection of public treaties, which he began to publish in 1704, under the title of *Fœdera, Conventiones, et cujuscunque Generis Acta publica, inter Reges Angliæ et alios Principes* (15 vols., folio, five more being added by Robert Sanderson). Rymer died in 1713.

RYSBRACH, JOHN MICHAEL, a statuary, was the son of a painter of Antwerp, in which city he was born in 1694. He went to England early in life, and derived considerable reputation and profit from the exercise of his art, of which Westminster abbey, and other cathedral churches, contain specimens, among which may be mentioned the monuments of Sir Isaac Newton and the duke of Marlborough; while others, and especially busts, enrich the best private collections, the heads of English worthies at Stowe, and in the Hermitage at Richmond, being of the number. His death took place in 1770.

RYSWICK; a village and castle situated in South Holland, a league from the Hague, where the peace of Ryswick was concluded September 20 and October 30, 1697. Louis XIV. had, in 1688, attacked the German empire in order to anticipate the league of Augsburg (the object of which was to set bounds to his conquests), and, at the same time, to frustrate the designs of William III., the stadtholder of Holland, to place himself on the British throne. When William landed in England (November 8, 1688), Louis declared war against Holland. He had already conquered the provinces on the Rhine, when the emperor Leopold and the states-general concluded a league against France (Vienna, May 12, 1689), to which Great Britain, Spain, and Savoy acceded. The war was carried on by France on land with great success. Marshal Luxembourg conquered the Spanish Nether-

lands, and Cattinat was victorious in Italy. But the landing of the French in Ireland, at the instigation of the deposed James II., proved unfortunate, and the French fleet under marshal Tourville was totally defeated by the English and Dutch, under the command of admiral Russell, near La Hogue, May 29, 1692. Since that time, the British naval power has always maintained an ascendency over the French. In the mean time, the duke of Vendome conquered Catalonia, and, August 7, 1695, also Barcelona. This, and the wish of Louis to dissolve the great European league, before the Spanish throne should become vacant, hastened the conclusion of a peace. Savoy had already concluded a separate peace with France, at Turin, August 29, 1696, and connected herself with that power. Upon this, Sweden mediated the general peace at the congress held at Ryswick, from May 9, 1697, until September 20 of the same year, when England, Spain, and Holland signed a treaty of peace with France. Louis XIV. restored all his conquests in Catalonia and the Spanish Netherlands, with the exception of eighty-two places, which had been taken by the process of *reunion* (see *Louis XIV.*), and acknowledged William III. as king of Great Britain and Ireland. The emperor and empire first signed the treaty of peace with France, October 30. Louis restored all the places which he had taken possession of in Germany by the process of *reunion* (see *Louis XIV.*), with the exception of those which were situated in Alsace, the sovereignty of which was conceded to him. He likewise retained the free city of Strasburg, which was taken in 1681. The clause of the fourth article of the treaty of Ryswick, according to which the Catholic religion, which had been introduced into the 1922 places now restored by the French, was to remain as it then stood, gave much dissatisfaction to the Protestants. France restored all her conquests. The navigation of the Rhine was declared free. See *Actes et Mémoires des Négociations de la Paix de Ryswik* (in 5 vols.)

S.

S; the nineteenth letter of the English alphabet, representing the hissing sound produced by emitting the breath between the roof of the mouth and the tip of the tongue placed just above the upper teeth, so that the air is driven through the teeth. From this circumstance, *s* has sometimes been reckoned among the linguals (as the tongue is essential in its pronunciation), sometimes among the dentals (as the teeth co-operate in producing the hissing sound). It is also one of the semivowels, as it can be pronounced without the assistance of a vowel, and the sound be prolonged indefinitely, like *l, m, n, r;* and Missula, in Martian, does not allow it to be a letter, but only a *sibilus* (hissing.) In pronouncing *s*, the breath may be driven with more or less violence over the end of the tongue; hence, in most languages, it has a twofold pronunciation—sharp, as in *sack, sin, this, thus;* and soft, as in *muse, wise.* The German *Sinn* (pronounced *zin*), and *Maus* (pronounced *mouse*), and the French *soit* and *base*, are also examples of these two sounds. In German, the *s* is soft at the beginning of a syllable, and sharp at the end or in the middle, while the contrary is usually the case in English. But in some parts of Germany (e. g. Holstein) *s* at the beginning is sharp. But the Germans have, besides, a peculiar character for the sharp *s*, being a contraction of *sz*, which, when words containing it, are printed with Roman characters, is changed into *ss*, as *Ross, Mass*—an inconvenient contrivance, as the *ss*, according to the common German rule, always gives the preceding vowel a short pronunciation, which is not the case with *sz*. It is a fundamental rule of etymology, that if a word begins with two or more consonants, the last of them only belongs to the root, though the others are not always useless additions. This rule is particularly true of words beginning with *s* followed by one or more consonants; e. g. *slime*, from *lime*, Latin *limus*, in German *Lehm* and *Leim*, which, instead of *slime*, has *Schleim* (pronounced *shlime*). The German *stumm*, for the English *dumb*, which, in German (formerly also written *damb*, now *dumm*), signifies *stupid* (one "who has not much to say for himself"), *slippery* (in German *schlüpfrig*), from the Latin *lubricus*. In both these cases, the *s* has an intensitive power, which, in fact, it has very often, and of which numberless instances are found in all languages. But it is often put before words, apparently without this meaning; as in *Servus*, from the ancient Roman *Erus, Eruus*. The Greeks made *Scythians* of the *Kythi*. *Tinn* (in German *Zinn*) is of the same root with the Latin *stannum*. The Greek ὕς, ὑλη, ὑλη and ὕδωρ became with the Latins *sus, sol, sylvia*, and *sudor*. This easy addition of *s* to words is also the cause of its playing so prominent a part in the declension of substantives and verbs in many, perhaps most languages. Notwithstanding the predominance of this letter in most languages, particularly in English,* the people of the South sea islands cannot pronounce it at all, and say, for instance, instead of *Ellis, Elliki*. The sounds of the letters *s, r, t, sh* and *th* (which, in fact, represents but a simple sound, though written with two characters in English, whilst the Spaniards have one, the *z*), are all produced by a very similar motion of the organs; and hence the frequent change of the *s* into the other letters. (See the articles *R* and *T*.) The sound *th* is the transition between *s* and *t*; hence the third person singular of the present tense, ending, in German, in *t*, ended formerly, in English, in *th*. and now in *s*; e. g. *has, hath* (Germ. *hat*);

* If you hear two persons conversing in English at such a distance that nothing but the general sound of the discourse reaches your ear, they appear to be engaged in a continual hissing, from the frequent occurrence of the *s*. The constant repetition of this sound produces a very bad effect in English vocal music.

brings, bringeth (Germ. *bringet*). *S* is so nearly akin to *r*, that *Valerii, Furii, ara, carmen, lares*, and numerous other words, were originally written *Valesii, Fusii, asa, casmen, lases*. The Swedish and English *hare* is in German *Hase*. *S* often alternates with the sound *sh* (written in German *sch*); and some German tribes, particularly the Suabians, change the *s* regularly into *sch*, when it precedes another consonant: thus they say *bischt* and *hascht* (pronounced *bisht* and *hasht*) for *bist* and *hast;* and even in High German, *s*, at the beginning of a word, followed by another consonant, is generally pronounced *sh*; this, in fact, was long considered by many correct; but at present, we think, the weight of opinion is in favour of the simpler sound of *s*. It is a peculiarity of *s*, that it may be sounded before all the simple consonants—a circumstance which makes it so formidable a letter to lexicographers and encyclopædists. S signified seven, according to the verse:—

S vera septenos numeratos significabit.

Among the Greeks, σ signified 200, and ϡ denoted 200,000; the sigma joined to the *tau*, i. e. στ, denoted 6. The sameeh of the Hebrew, ס, denoted 50, and with two points above, ס̈, it signified 50,000. S is the common abbreviation for *societas* and *socius* (fellow). S. S. stands for *sanctissimus;* S. D. for *salutem dixit*; S. P. D. for *salutem plurimam dixit*; S. P. Q. R for the famous *senatus populusque Romanus*. S., in geography, stands for *south*; in music, for *solo* (alone), as T. for *tutti* (all). On French coins, *S* signifies Rheims. See *Abbreviations*.

SAADI. See *Sadi*.

SAALE; the name of several German rivers, the most important of which is that which rises in the Fichtelgebirge in Bavaria, and falls into the Elbe south of Barby. Several considerable places are situated on it, as Jena, Naumburg, Merseburg, Halle, &c. It is navigable to Halle, and it is intended to make it so to Naumburg.

SAAR LOUIS (in the time of the French revolution called *Sarrelibre*); the Prussian fortress nearest France, on the river Sarre, belonging to the government of Treves. Including the garrison, it has 7000 inhabitants. Vauban fortified the town for Louis XIV. In 1814, it was ceded to Prussia. Lon. 6° 50′ E.; lat. 49° 20′ N.

SABÆANS; the ancient name of the inhabitants of the modern Yemen, in Arabia. Their capital was Saba.

SABÆANS. See *Sabians*.

SABAISM (from the Hebrew *Zaba*, lord, from which God is called *Zebaoth*, Lord of the heavenly hosts, because the stars or powers of heaven are called the *hosts of God*); that religion which worships the heavenly bodies, especially the sun and moon. The connexion of these with the constant changes in nature, and with the condition of men, produced the idea of their divinity; and the actual or symbolical connexion of the heavenly bodies and certain animals and plants, as well as the powers of nature, which are active in them, invested the latter also with a divine character, and made them objects of worship to the adherents of Sabaism. The sexual relations of living creatures gave rise to the fundamental idea of generation, conception and production, which predominates in the Indian mythology, and became united with the doctrines of Sabaism; and thus the latter received that character which we find it to have in the mythology of Western Asia. Egypt, Arabia, and particularly the region bounded east by the Euphrates and Tigris, west by the Mediterranean, and north by the Black sea, were the countries where Sabaism prevailed in times previous to Christianity: and even the Hebrews often showed an inclination towards it. The religious history of the Chaldæans, Assyrians, Syrians, and tribes of Asia Minor, as given in Wagner's Contributions towards a general Mythology of the ancient World, in Gorres's History of Mythuses, in Creuzer's *Symbolik*, and in Baur's *Symbolik*, shows the justice of the reproaches which the prophets of the Old Testament heap on the sensual worship of these heathens.

SABBATARIANS; those Christians who keep the seventh day as others do Sunday; chiefly found among Baptists. They hold that the sabbath was established by divine authority, and changed from the seventh day to the first day of the week by human authority only.

SABBATH (a Hebrew word signifying *rest*) is the day appointed by the Mosaic law for a total cessation from labour, and for the service of God, in memory of the circumstance that God, having created the world in six days, rested on the seventh. For the manner in which the Jews kept it, and the awful consequences of neglecting it, we refer the reader to the Old Testament, Lev. xxvi. 34, 35; Neh. xiii. 16—18; Jer. xvii. 21; Ezek. xx. 16, 17; Numb. xv. 23—36. A law so strictly enjoined, and whose observance is of so public a character, was naturally kept by the Pharisees with the utmost strictness, in its outward forms, so that they reproached the Founder of Christianity, who taught that religion had its seat in the heart, and that God must be worshipped in spirit, with breaking the Sabbath when he healed the sick on that day. His rebuke of their hypocrisy is contained in John v. 16, and Matthew xii. 1 et seq.

Sabbath also signifies, in the Bible, the eternal rest of God; also holy days in general. It likewise came to signify a week.

In the earliest times of Christianity, the law of the Sabbath, like other parts of the Jewish faith, could not be received into the new religion, except spiritualized and refined like the sacrifices and other ceremonies. Every day, the whole life of the Christian had become a Sabbath, destined for the service of God. St Paul explicitly treats the reverencing of certain days as invested with a holy character by a divine ordinance, as Jewish and unchristian, and as a return to the servitude of the law. The first communities assembled every day; e. g. the community of Jerusalem for common prayer, meditation on the Word, communion and love-feasts. Traces of these daily meetings are found even later. With the spread of Christianity, however, and the necessity of instructing a greater number, the appointment of a certain time for this service became necessary. This was not a departure from the spirituality of the new religion, but only an accommodation to the wants of mankind. In the same way, peculiar persons became priests, though all Christians had an equal sanctity of character, and the departure from the spirit of Christianity consisted only in assuming a peculiar spiritual character for the priests. The gradual adoption of forms and ideas from the Old Testament took place in the same way, in respect to the Sabbath, as in respect to the priesthood. When the Montanists intended to establish new fasts, assigned to fixed times, they were re-

minded of the Epistle to the Galatians; but Tertullian treated the censure of St Paul as attaching only to the celebration of Jewish festivals. (Tertullian, *De Jejuniis*, c. 14.) The weekly and yearly festivals of the Christians originated from the idea of following Christ, the crucified and the arisen; hence the festival of the resurrection, and the fasts preparatory thereto. In each week, the joyous festival was on Sunday, and the preparation for it was on Wednesday and Friday, the days of the Saviour's passion. This point of view is necessary for a right understanding of the early festivals. The desire of distinguishing the Christian from the Jewish observance, early gave rise to the celebration of Sunday, the first day of the week, instead of the Jewish Sabbath; the first trace of which is found in Acts xx. 7. This, however, is by no means conclusive, because the community, collected on the first day of the week, might easily have been assembled by the near departure of St Paul; and still less can be proved from 1 Corinth. xvi. 2. Another trace is in the Apocalypse, i. 10, as here we cannot suppose that by Lord's day is meant day of judgment. In the letter of Ignatius to the Magnesians (chap. ix.), allusion is made to the Sunday celebration, as the symbol of a new life, consecrated to the Lord, in contradistinction to the former Sabbath. Sunday was distinguished as a day of joy, so that none fasted on it; people prayed standing, and not kneeling, in allusion to Christ having raised fallen man. Wednesday and Friday, the latter particularly, were sacred to the memory of the Saviour's passion. Jewish-Christian communities, however, retained the celebration of the Sabbath, though they adopted also that of Sunday, and thus it became customary, in the Oriental church, to distinguish this day, also, by not fasting, and by praying in a standing posture: on the other hand, in the Western and particularly in the Roman church, in which the opposition to Judaism prevailed, the custom grew up of using the Sabbath particularly as a fast-day. (Tertullian, *De Jej.*, chap. 14.) And when, at a later period, the causes of this fasting on Saturday were lost, legends were invented to explain it, such as that Peter had fasted on this day to prepare himself for the disputation with Simon Magus. Tertullian speaks of this difference between the Oriental and Western churches with much moderation. The learned Hippolytus wrote, at the beginning of the third century, on this point of dispute. (Hieronymus, *Ep.* 72, *ad Vital.*) Constantine the Great made a law for the whole empire (321 A. D.), that Sunday should be kept as a day of rest in all cities and towns; but he allowed the country people to follow their work on that day. In the year 538 (A. D.), however, the council of Orleans prohibited country labour; but because there were still many Jews in Gaul, and the people fell into many superstitious uses in the celebration of the *new* Sabbath, in imitation of the practices of the Jews, the council declares that to hold it unlawful to travel with horses, cattle and carriages, to prepare food, or to do any thing necessary to the cleanliness and decency of houses or persons, savours more of Judaism than of Christianity.* The reformation, abolishing so many of the festivals, which had increased in the Roman church to an immense number, naturally elevated the character of those which it left, as Easter, Christmas, &c., and Sunday; but Sunday, though considered by the Lutherans as a proper day for religious service, was never regarded by them with that awe which was connected with its observance in the Old Testament. It is with them a day of rest and enjoyment, and many amusements are taken by Protestants on the European continent, during that day, which people there would think improper on week days appropriated for labour. Calvinism, which is altogether of a sterner character than Lutheranism, may have induced its adherents to observe Sunday more strictly; but even at Geneva, the Sunday evening is spent in various amusements, in visiting, dancing, playing foot-ball, &c., and the labours of husbandry are permitted in harvest on Sundays. The custom of calling Sunday *Sabbath* indicates the inclination to transfer the character of the Jewish Sabbath to the Christian Sunday. In fact, the Puritans, from whom it has descended, showed, in many respects, a decided inclination to the sternness of the Old Testament. (See *Sabbatarians.)* So much did they consider the Christian Sunday as a Jewish Sabbath, that a controversy has existed as to the time when the Christian Sabbath begins, many clergymen maintaining that it begins at sunset on Saturday; and some communities have acted on this view in their mode of observing it.

SABELLIANS. See *Sabellius.*

SABELLIUS, a Christian teacher at Ptolemais, a native of Africa, lived about 250, and is known as the founder of a sect, who considered the Son and Holy Ghost only as different revelations or manifestations of the Godhead, but not as separate persons. The Trinity, according to them, is but a threefold relation of God to the world. The *Logos* of John, called, by the church, the *Son*, was compared by Sabellius to a ray emitted from the sun, active in and through the man Jesus Christ, but by no means a separate existence from the one God. The Sabellians were suppressed in the fourth century by the orthodox church, but their views have always found adherents, and, even now, theologians exhibit conceptions of the Trinity, coinciding with that of Sabellius, in order to make it intelligible by reason.

SABIANS, or CHRISTIANS OF ST JOHN (likewise called *Nazoræans* and *Mendæans*); a sect which, according to tradition, has existed from the time of John the Baptist. The members at present are found chiefly in Persia, and consider their original country to have been on the Jordan, whence, they say, they were driven by the Mohammedans before the destruction of Jerusalem, and, being persecuted by the first caliphs, their temples destroyed, and their sacred books burnt, they fled to their present residence, and some also to India. Having been again persecuted, they submitted to the Nestorian bishop in Chaldæa, and allowed themselves to be called Christians, but have been separated from them for more than three hundred years. The question, whether they are really of Galilæan origin, and are derived from the disciples of John

* In the fourth volume of Blackstone's Commentaries, p. 63, the commentator says that the profanation of the Lord's day is vulgarly, but *improperly*, called *Sabbath-breaking*, and is punished by the municipal law. by a fine of three shillings and four pence; and that, by the laws of England, no fair or market is allowed to be held on any Sunday, except the *four Sundays in harvest*, on pain of forfeiting the goods exposed for sale. The law, however, does not prohibit (the commentator adds), but rather *allows*, any *innocent recreation or amusement* on the Lord's day, *after service is over*. But it prohibits *work* on that day, or exposure of goods for sale, except mackerel, milk, meat, &c., under the penalty of five shillings. He considers Sunday as a *civil institution*, to be regulated by the municipal law.

the Baptist, or whether they formed their doctrines from a mixture of the Jewish, Christian, and Persian religions, and, having chosen John as an object of meditation and reverence, afterwards supposed him to have been their founder, is difficult to decide. Tychsen has declared for the latter opinion; yet the argument seems stronger in favour of the former. In the middle of the seventeenth century, according to Ignatius a Jesu (*Narratio Originis*, &c., *Christianorum S. Joh.*, Rome, 1652), there were from twenty to twenty-five thousand families of them. Five religious books of these people are known to us: 1. The Divan, of which we have only the extracts given by Ignatius. This book is said to have been given by God to the angels several thousand years before the creation of the world, though Mohammed is alluded to in it. 2. The Book of Adam, consisting of revelations brought by angels, or æons, to Adam, and composed of eighty or ninety discourses, laudatory, didactic, hortatory and prophetic. 3. The Book of John, or Conversations of Angels. Specimens of this are given by Lorsbach. The bells and rosaries of the Christians are mentioned in it. 4. *Cholasteh*, which contains the means and conditions of salvation. 5. The Book of the Signs of the Zodiac, of an astrological character, and only known from the account of Abraham Ecchellensis. (*Eutychii Vindic.*, i. 3.) The language and alphabet of these books are altogether peculiar; the former is an Aramæan dialect, equally resembling the Syriac and Chaldean. Their religious doctrines stand in the same relation to those of Zoroaster, that Gnosticism and Manicheism do, except that they give to John the Baptist the elevated rank which the Gnosis gives to Christ. The latter and the Holy Ghost they look upon with the same contempt with which the Gnostics regarded the God of the Old Testament. Their system is a highly complicated doctrine of emanations, on which the influence of the Jewish cabala and of Mohammedanism is perceptible. The original being (like the endless time of the Zend-Avesta) is a divine æther (Ferha) of unspeakable splendour. Next to him is a female principle (Ajar). From these two proceeds Mana (the lord of the kingdom of light). Then follow numerous æons, or angels of light, and opposite to the kingdom of light is that of darkness, under Ur, with seven chief evil spirits, which inhabit the seven planets. Their theology ends with John the Baptist (Anusch), who came to win men, by baptism, for the kingdom of light. He was produced by a single kiss of his father Zachariah, and was married, but received his children out of the Jordan, one of the first elements of light in their theology. Mohammed is the last false prophet, after whom no other will appear. They despise Mahommedans more than Christians. The best part of their doctrine is their morals, founded on the repression of sensuality, as the only condition of virtue. The elect (they allow gradations of virtue) are forbidden to enjoy sensual pleasure, singing, dancing, &c.; yet matrimony is often praised. Matrimonial fidelity, careful education of their children, respect for the first born, abstinence from usury, &c., are inculcated. Their priests are divided into three orders. The priestly dignities are hereditary, descending to the eldest son. Baptism is their most solemn rite. It is the indispensable condition of the forgiveness of sin, and is administered to new-born children and adults. The baptism of the latter takes place at least once every year, during the great feast of baptism, which lasts five days. They have also a kind of *agape*, or love-feast. Polygamy is not prohibited even to priests. Among their laws, in which we also find some resembling the Jewish, is one which prohibits mourning for the dead; but prayers are offered up, sermons delivered, and alms given. Their antipathy for blue is remarkable. A pretty complete list of works relating to this sect is given in Nosselt's *Theolog. Litteratur* (§ 474). See Norberg, *De Relig. et Lingua Sabæorum*, in the 3d vol. of *Comm. Soc. Goth.* (1780); Walch, *De Sabæis* (4th vol. ibid., 1781); Norberg's *Codex Nasareus seu Liber Adami, Syriace transcriptus Latineque redditus* (t. i.—iii., 1815 and 1816); Tittman, *Meletemata Sacra* (Leipsic, 1816, p. 15 et seq.)

SABINES (*Sabini*); an old people of Italy, probably the descendants of the Ausonians, and related to the aborigines. This numerous people, who founded many colonies, lived in the Apennines, principally occupied with the care of herds. Horace has celebrated their honesty, modesty and simplicity of manners. Their country, to the west, was separated from Etruria by the Tiber; towards the south, by the river Anio (Teverone), from Latium; and towards the north, by the river Nar, from Umbria: towards the east dwelt the Sabine colonies of the Vestini and Marrucini, who separated it from the Adriatic sea: it therefore embraced the principal part of the mountainous country of the Apennines. The soil is very fertile, and rich in pasturage. The productions are oil, fruits and wines, besides acorns in abundance.

SABINES, Rape of the. See *Romulus*

SABLE. See *Weasel.*

SACBUT; a bass wind instrument, resembling the trumpet, and so contrived as to be capable of being drawn out to different lengths, according to the acuteness and gravity of the scale required. The sacbut is usually about eight feet long, and, when extended to its full length, about fifteen. There are, however, sacbuts of different sizes, to execute different parts, particularly a small one, called by the Italians *trombone piccolo*, and by the Germans *kleine Alte-Posaune*, proper for the counter-tenor. Respecting the sacbut of the ancient Hebrews, commentators have differed much. Indeed, scarce any ancient instrument has been heard of, for which the sacbut or the psaltery has not furnished a name.

SACCHARINE. See *Fermentation*, and *Sugar.*

SACCHINI, Anthony Mary Gaspard, was born at Naples, in 1735, and studied music under Durante. After being employed in Rome, Venice, and several other cities of Italy, he went to London, where he composed *Montezuma*, *Perseus*, and the *Cid*. He was engaged for the opera in Paris, in 1782, where his *Œdipe à Colonne* procured him great fame at the time of the quarrel between the Gluckists and Piccinists. He died in 1786, leaving fifty operas. His bust stands in the Pantheon at Rome, next to Raphael's.

SACHEM. In North America, this is the name given by some of the Indian tribes to their chiefs.—*Sagamore* is a word of similar import among the Indians.

SACHEVERELL, Henry, D.D., an English divine of the establishment, exalted into temporary importance by the spirit of party, was educated at Oxford. In 1705, he was appointed preacher of St Saviour's, Southwark. While in this station, he preached his two famous sermons, in 1709, the object of which was to rouse apprehensions for

the safety of the church, and to excite hostility against the dissenters. Being impeached in the house of commons, he was brought to trial in February, 1710, and sentenced to be suspended from preaching for three years. This prosecution, however, excited such a spirit in the high church party, that it ultimately overthrew the ministry (see *Bolingbroke*, and *Harley*), and established the fortune of doctor Sacheverell, who, during his suspension, made a sort of triumphal progress through the kingdom. The same month that his suspension terminated, he was appointed to the valuable rectory of St Andrew, Holborn, by queen Anne; and such was his reputation, that the copy-right of the first sermon which he afterwards was allowed to preach, sold for £100. He had also sufficient interest with the new ministry to provide handsomely for a brother. Little was heard of him after this party ebullition subsided, except by his numerous squabbles with his parishioners. His abilities, even according to writers on his own side, were contemptible; and, if we may credit doctor Swift, he was despised by the ministry whom his notoriety so much contributed to support. He died in 1724.

SACHS, Hans, the most distinguished master-singer of Germany, in the sixteenth century, was born at Nuremberg in 1494, and was by trade a shoemaker. He followed his business and made verses with equal assiduity. He became a Protestant, and died Jan. 19, 1576. His complete works appeared in 1570 et seq., in five folio volumes., in Nuremberg; also in 1588, ibid.; and at Kempton in five 4to. vols. (1612—1616). Büsching published a selection of them in 1828 (Nuremberg, in 6 vols.). He possessed a fruitful genius, and, notwithstanding the rudeness of his language, his poems are distinguished for *naïveté*, feeling, invention, wit, and striking description.

SACHSENSPIEGEL (*Mirror of the Saxons*); a private collection of legal precepts and legal customs, which had the force of law in the middle ages in Germany, especially in the north of Germany. A Saxon nobleman (Epko von Repkau, or Eyke von Repgow) made this collection in 1215 et seq. It enjoyed great authority even in foreign countries, as Poland, Denmark, &c., though the pope put many obstacles in its way, and though it was but a private collection. It is written in the old Saxon dialect, and is of much value, both for the lawyer and the philologist. The study of it has been revived, of late, in Germany, and Homeyer published a critical edition of it in Berlin (1827).

SACK (*secco*, Spanish; *sec*, French; *dry*); a general name for the different sorts of dry wine, more especially the Spanish, which were first extensively used in England in the sixteenth century. Thus we find the writers of that time speaking of "sherry sack," meaning Sherry, and "Canary sack," for the dry wines of the Canaries. Henderson gives some curious information on this point, on which there has been a good deal of confusion and dispute. (*Ancient and Modern Wines*, p. 308, seq.) The practice of putting sugar into wine, which we often find alluded to in Shakspeare and other writers, was not confined to the sacks; the English, at that time, sweetened all their wines.

SACKVILLE, Thomas, (lord Buckhurst and earl of Dorset,) an accomplished statesman and poet, was the son of Sir Richard Sackville of Buckhurst, in the parish of Witham, in Sussex, where he was born about 1527. He was first of the university of Oxford, but removed to Cambridge, and afterwards became a student of the Inner Temple. At both universities he was distinguished for his performances in Latin and English poetry, and in the Temple he wrote his tragedy of Gorboduc. Of a poem intended to comprehend a view of the illustrious but unfortunate characters in English history, entitled the Mirror of Magistrates, he finished only a poetical preface, and one legend on the life of the duke of Buckingham. He was member in the two first parliaments of Elizabeth, after which he travelled. On the death of his father, in 1566, he succeeded to a large inheritance, and was soon after raised to the peerage by the title of baron Buckhurst. He was then imprisoned owing to the influence of the favourite, Leicester, in consequence of a report in disfavour of the latter, when sent on an embassy of inquiry into his conduct in Holland. In 1598, he was joined with Burleigh, in negociations for peace with Spain, and signed the treaty which followed with the states-general. On the death of that minister, he succeeded him as lord high treasurer. In this situation he was instrumental in discovering the dangerous projects of the earl of Essex, at whose trial he presided as high-steward, in which office he conducted himself with great prudence and humanity. On the accession of James I., his post of treasurer was confirmed to him, and in 1604, he was created earl of Dorset. He died suddenly, at the council table, in April, 1608, at an advanced age. This statesman ranks among the most prudent and able of the ministers of Elizabeth, and was a good speaker, and a still better writer. As a poet, he was the first who approached to perfection in the English heroic stanza, and gave the first example of regular tragedy in blank verse. His tragedy of Gorboduc, or, as entitled when printed in 1671, the Tragedie of Ferrex and Porrex, is a sanguinary story from early British history, composed with little pathos or attention to dramatic rules, but with considerable force of poetical conception and moral sentiment. The language is also pure and perspicuous, and free from the turgidity which soon after prevailed.

SACKVILLE, Charles, sixth earl of Dorset and Middlesex, was born Jan. 24, 1637. He received his education under a private tutor, and, after making the tour of Italy, was chosen member of the first parliament which assembled after the restoration. He made a great figure as a speaker, but declined all public employment, being wholly engrossed with gallantry and pleasure. He, however, served as a volunteer in the first Dutch war, in 1665, and, the night before the engagement, composed his celebrated song of "To all you ladies now at land," which is esteemed one of the happiest of his productions. He succeeded to the estate of his uncle, James Cranfield, earl of Middlesex, in 1674, and, in 1675, to his title by creation. In 1677, on the death of his father, he also succeeded him in his estate and the title of Dorset. He utterly disliked and discountenanced the violent measures of James II., and early engaged for the Prince of Orange, who made him lord chamberlain of the household. In 1698, on the decline of his health, he retired from public affairs, and died January 19, 1705—6, leaving a son and a daughter, the first of whom was created duke of Dorset in 1720. Lord Dorset wrote several small poems, which are included in Chalmers's collection; but they are not numerous enough to make a volume of themselves. He was still more celebrated as a patron of poets and of men of wit, who in their turn, have been very copious

in their panygeric; and Prior, Dryden, Congreve, and Addison, all bear testimony to his merit. He was a very able critic; and Butler owed it to him that the court relished his Hudibras. His own brief productions are those of a man of wit, gay and airy.

SACKVILLE, GEORGE (viscount Sackville), was the third son of the first duke of Dorset, and was born in 1716. He was educated at Trinity college, Dublin, served with reputation at the battles of Fontenoy and Dettingen, and, in 1758, had attained the rank of lieutenant-general. The following year he commanded the British cavalry at the battle of Minden, under prince Ferdinand of Brunswick, whose orders to advance with his troops, during the engagement, he disobeyed, either from cowardice or misapprehension. His behaviour was generally attributed at home to the former cause, and he was tried by a court-martial, convicted of dereliction of duty, and sentenced to be dismissed from the service. Under the administration of lord Bute, he was restored to favour. In 1775, he was appointed colonial secretary of state, and held that office during the progress of the war with America. On relinquishing his post in 1782, he was created viscount. For a considerable part of his life, he was called lord George Germaine, having taken that name on succeeding to an estate left him by lady Elizabeth Germaine, who died in 1769. See *Junius*.

SACLACTIC ACID. See *Mucic Acid*.

SACO; a river of America, which rises in the White mountains, and runs south-east into the Atlantic, below Saco, in Maine. It is 160 miles long, and has falls of seventy-two feet at Hiram, of twenty feet at Lymington, of thirty feet at Buxton, and of forty-two feet at Saco. To Saco, six miles from its mouth, it is navigable.

SACO; a post-town and port of entry in York county, Maine, United States, at the falls on Saco river. It is fifteen miles south-west of Portland. Population in 1830, 3219. The falls at this place are used in working saw-mills and factories.

SACRAMENT (Latin, *sacramentum;* the assumption of an obligation, and oath). This word received a religious sense, in the Christian church, from its having been used in the vulgate, to translate the Greek μυστηριον. Among the early Latin ecclesiastical writers, *sacramentum*, therefore, signifies a mystery, a symbolical religious ceremony; but first acquired the peculiar sense which it now has in the Roman Catholic church, denoting seven particular religious rites. The Catholic church considers a sacrament as a visible token, ordained by Christ, by means of which an invisible grace is communicated to Christians. The seven Roman sacraments, as confirmed by the council of Trent (sess. vii.), are 1. Baptism (Matthew xxviii, 19); 2. Confirmation (Acts viii, 14—21, xix, 1—4); 3. the Eucharist (see *Lord's Supper*); 4. penance (q. v.); 5. extreme unction (James v, 14, 15); 6. orders (Acts vi, 1—7; xiii, 1—4; xiv, 20—24; and 2 Timothy i, 6 and 7); and marriage, the sacred and indissoluble nature of which is conceived to be taught in Matthew v, 31, 32; xix, 1—10; Mark x, 2—13; Luke xvi, 18; Romans vii, 2—4; 1 Corinthians vii, 10 and 11. The Greek church agrees with the Roman church in the doctrine of the sacraments. (See *Greek Church*.) The Protestants, in general, acknowledge but two sacraments, baptism and the Lord's supper, considering a sacrament to be a festival instituted by Christ, by which he who partakes of it worthily, participates in the influences of divine grace through sensible means and signs. The different views of the early reformers on the subject of the eucharist are stated in the articles *Carlstadt*, *Zuinglius*, *Lord's Supper*. (See also, *Reformed Church*.) Luther and Melanchthon at first acknowledged penance or absolution as a sacrament, but afterwards ranked it only as a preparation for the Lord's supper. The Quakers consider the sacraments as of little importance. See *Quakers*.

SACRIFICES. See *Offerings*.

SACRILEGE; the alienating to laymen, or common purposes, what was given to religious persons and pious uses. The idea that sacrilege is to be punished with peculiar severity, as a profanation of things sacred, or a direct indignity to God, was controverted even in the chamber of Catholic France, in the debates respecting the bill *sur le sacrilège*, in 1825. See St Edme's work, *La Législation historique du Sacrilège chez tous les Peuples* (Paris, 1825). Church robbery, or the taking things out of a holy place, is sacrilege, and, by the common law, was punished with more severity than other thefts, for the benefit of clergy (q. v.) was denied to the offender, but it is now put by statute on a footing with other felonies.

SACS. See *Indians, American*.

SADDUCEES; one of the four principal sects of the Jews, the founder of whom was Sadoc, a Jewish rabbi, who lived about 200 years B. C. The doctrines inculcated by his master, Antigonus, that we ought to practise virtue, not for the sake of reward, but solely on account of its own intrinsic excellence, led him to maintain that there would be neither rewards nor punishments in another life. His adherents, therefore, denied the resurrection and the immortality of the soul; believed neither in angels nor spirits; but were very strict in their morals; so that Christ, notwithstanding the reproach that they did not understand the Scriptures, did not censure them on account of their morals. They succeeded to the highest dignities and offices, and even to the high priesthood. This sect still exists among the Caraites. (q. v.)

SADI, OR SAADI (SHEIK MOSLEHEDIN SADI EL SHIRAZI), of Shiraz, one of the most celebrated lyric and moral poets of Persia, was born at Shiraz, in the year of the Hegira 571 (A. D. 1175), and died in the 116th year of his age (A. D. 1292.) As his parents were poor, he was educated at the court of Abubeker, and received great favours from different monarchs of Persia. He spent thirty years in travelling, and did not begin to write until his ninetieth year. He completed his works, which are extensive, in the last twelve years of his life. The Persians esteem him exceedingly, on account of his golden maxims, which they consider as a treasure of true wisdom, and also on account of his pure, elegant, and simple style. Of his works, we possess, 1. a collection (Divan) of lyric poems in the Arabic and Persian languages, consisting partly of amatory poems, and partly of exhortations to partake in the joys of life, intermingled with serious reflections; 2. a moral work, under the title of *Gulistan* (the Garden of Roses), composed both of prose and verse, in eight books, with the following titles: "on the minds and morals of kings;" "on the minds and morals of dervises;" "on the quiet and happiness of contentment;" "on the importance of silence;" "on love and youth;" "on weakness and old age;" "on the education of

children and good morals;" and, lastly, "on the art of associating with men:" 3. a work in verse, called *Bostan* (the Orchard), containing a collection of histories, fables and moral instructions; 4. and, lastly, a collection of moral sentences, also in verse, under the title of *Pendnahmeh*, or *Molamaat*. The complete works of Sadi have been published in Persian at Calcutta, in two large quarto volumes. Gentius has also published *Gulistan*, the finest of his poems, in Persian and Latin; and Dumoulin the same poem in Persian and English (Calcutta, 1823). Doctor Bernard Dorn has translated Three Pleasure-Walks from Saadi's Garden of Roses (Hamburg, 1827). The *Pendnahmeh* has been published separately in the East Indies and England, in the Persian and English languages. There are also translations of many of his lyric poems, by Ouseley and others; and the *Bostan* and *Gulistan* have been translated into a variety of languages. (See *Persian Literature*.) Franklin and Morier, in their travels, have described his monument, which is situated about nine miles to the north-east of Shiraz.

SAFE-CONDUCT; a security granted by the sovereign authority, or persons delegated by it, to strangers, or other persons, to enable them to repair to, and return from a certain place undisturbed. In most of these cases, passports have now taken the place of special safe-conducts. Sometimes the safe-conduct is given to persons accused, to secure them against harm, when summoned to an examination. Thus the emperor Sigismund gave a safe-conduct to Huss, when he was cited to appear before the council at Constance (in this case, however, the safe-conduct was violated, and Huss was burnt, because the clergy persuaded the emperor that he need not keep his word towards a heretic); and Charles V. gave a safe-conduct to Luther, to induce him to appear at Worms. Judges sometimes give safe-conducts to delinquents, to enable them to act in their affairs. In Germany, a safe-conduct is sometimes granted, to give a person accused an opportunity to defend himself without experiencing the usual disadvantages of a prosecution; and a safe-conduct is granted in criminal cases, "until something penal is proved against the accused;" e. g. If the accused thinks he can make out an *alibi*, or that the act with which he is charged is not punishable, &c.

SAFETY-LAMP. See *Damps*.

SAFFRON. The true saffron (*crocus sativus*) is a low, ornamental plant, with grass-like leaves, and large lily-shaped flowers, inhabiting the European continent, and frequently cultivated for the sake of the yellow stigmas, which were formerly much employed in medicine, domestic economy, and the arts; now they are used by painters and dyers; also in cookery and confectionary. The bulbs are planted in rows six inches apart, and three from bulb to bulb, in a well pulverized soil, not poor, nor a very stiff clay, and in the month of July. The flowers are collected in September, and the yellow stigmas, and part of the style, are picked out and dried on a kiln, between layers of paper, and under the pressure of a thick board, to form the mass into cakes. Two pounds of dried cake is the average crop of an acre, after the first planting, and twenty-four pounds for the two next years. After the third crop, the roots are taken up, divided, and transplanted. Other species of crocus are often cultivated in gardens, on account of the brilliancy of their flowers, and the early season at which they flower. The term *saffron* is often applied to the *carthamus tinctorius*, a large thistle-like plant, with orange-coloured flowers, belonging to the family *compositæ*. The root is perennial, but the stem herbaceous. It is said to have been originally brought from the East, but is now naturalized in many parts of Europe, and is, besides, extensively cultivated. The flowers are used by the Chinese, to communicate some of the fine rose, scarlet, purple, and violet colours to their silks; for this purpose the flowers are thrown into an infusion of some alkali, and left to macerate: the colours are afterwards drawn out by the addition of lemon juice in various proportions, or of any other vegetable acid. Great quantities of these flowers are annually imported into Britain, for dyeing and painting. In Spain, they are used to colour soups, olives, and other dishes. The Jews in Poland are remarkably fond of it, and mix it with their bread and most of their viands. In Germany, it is cultivated in a light soil, well pulverized, and is sown in rows about eighteen inches apart, and afterwards thinned, so as to leave three or four inches between the plants. In September the plants begin to flower, and the field is then gone over once a week for six or seven weeks, to gather the expanded florets, which are dried in a kiln, in the same manner as true saffron. The *carthamus* is sometimes used for culinary purposes, under the impression that it is the true saffron, but, if in too great quantities, communicates a purgative quality.

SAGA. See *Scandinavian Literature*.

SAGAMORE. See *Sachem*.

SAGE (*salvia*). This genus differs from the majority of labiate plants in having but two stamens, instead of four. More than two hundred species are known, which are herbaceous or shrubby, with opposite leaves, and flowers also opposite, or, more frequently, verticillate, forming spikes at the extremities of the stems and branches. The garden sage (*S. officinalis*) was formerly in great repute as a sudorific, aromatic, astringent, and antiseptic. It possesses stimulant properties in a high degree, is tonic and stomachic; the odour is strong, aromatic, and agreeable; the taste bitter, pungent, and somewhat resembling camphor, which substance, indeed, is contained in the plant. The leaves are often employed in seasoning dishes, especially in the south of Europe. The Chinese esteem this plant very highly, and use it as a tonic for strengthening the stomach, often giving it the preference to their own tea.

SAGHALIEN; a large island, or peninsula, on the eastern coast of Asia; lon. 142° to 145° east; lat. 45° to 54° north. The northern part belongs to the Chinese, the southern to the Japanese empire. It is uncertain whether it is connected with the continent by a low and narrow neck of land, or is entirely separated from it. It is inhabited by a few barbarous tribes.

SAGO PALM (*sagus Rumphii*); a low species of palm, found wild in the East Indies. The trunk is upright, and is crowned at the summit with a tuft of pinnated leaves, composed of very numerous, long, narrow, pointed, smooth leaflets. The fruit is about as large as a pullet's egg, covered with shining scales, and is edible. The trunk contains a farinaceous pith, which is a very wholesome aliment: sago is made from it, as from that of most other palms. For this purpose, the pith is taken out, bruised in a mortar, and put into a cloth or

strainer: it is then held over a trough, and, water being poured in, the pith is washed through the cloth into the trough below: the water being then drawn off, the sago is taken out and dried for use or transportation. It is highly esteemed as an article of food. The preparation of sago, under different forms, constitutes a principal source of employment to the inhabitants of many parts of the coast of Malabar, and of several of the East India islands. Sago is granulated in a manner somewhat similar to that adopted in the preparation of tapioca (see *Manioc*), and in this state enters into commerce.

SAGUENAY; a river of Canada, which flows into the St Lawrence in lat. 48° N., lon. 69° 40′ W. Its course is south-east. At its mouth it is about a mile wide, but higher up it has two or three times that breadth, and is deep enough for the largest ships. Its length is about 350 miles, and the tide flows up about seventy miles. Its current is remarkably rapid. The harbour of Tadousac, at its mouth, is sufficient to contain twenty-five ships of the line, affords good anchorage, and is well protected.

SAGUNTUM; a celebrated city in Hispania Tarraconensis, near the river Turius (Murviedro). It was in alliance with Rome, and therefore attacked by Hannibal, 219 years B. C., and conquered after an obstinate siege; upon which the second Punic war commenced. The city of Murviedro (*Muri veteres*) now stands upon the same spot. In the war between Spain and France, the army of Valentia, under Blake, was defeated here by Suchet, October 25, 1811; in consequence of which the fort of Saguntum capitulated.

SAHARA, ZAARA, OR THE GREAT DESERT; an immense tract of territory situated between the states of Barbary and the countries watered by the Niger, between lat. 16° and 30° N., and lon. 29°. E. and 16° W.; superficial area, 1,800,000 square miles. In its greatest length, it extends nearly across Africa, from the Atlantic to the Nile, 45 degrees of longitude, or about 3000 miles: its breadth is about 15 degrees, or 1000 miles. But the name is usually limited to the main body of the desert, which lies to the west of Fezzan and Cassina, extending through about thirty degrees of longitude. It is the largest desert on the globe. A great part of the surface consists of a dead level. In some parts it is covered with small sharp stones; in some places the surface is diversified by ravines, rocks, and eminences covered with shrubs; other parts are composed of moving sand, which, when blown by the wind, sometimes produces the most terrible effects, and whole caravans have been found buried beneath it. This vast tract is occasionally diversified by oases, in which a supply of water affords support to a certain number of inhabitants, or, in some, merely furnishes springs, for the refreshment of travellers. These places are inhabited by nomadic Arabs. Lions, panthers, enormous serpents, ostriches, and gazelles are found here. This desert is traversed, for purposes of commerce, by means of the camel, by caravans sometimes consisting of 2000 persons. (See *Africa*.) These caravans convey from Northern Africa salt, cloths, and various kinds of European goods, receiving in return, gold, ivory, and slaves. The coast of Sahara, extending along the desert, is, for the most part, rocky, dangerous, and destitute of harbours. Denham, Clapperton, and Caillié, are among the latest travellers who who have crossed this desert.

SAIGON; a city of Cochin-China, on the Dongnay, 56 miles from its mouth, in lat. 10° 50′ N., lon. 106° 42′ E., with a population of 150,000 souls, of whom 10,000 are Chinese. The largest vessels can ascend the river to Saigon, which has a safe and convenient harbour. The streets are regular, but filthy, and the houses are generally low, of wood, and thatched with straw. The citadel, which contains the royal palace and barracks, is situated on an elevation sixty feet above the river, and is strongly fortified. Mr White, who visited it in 1819, saw 250 pieces of cannon here. There are also, an extensive naval arsenal, a cannon foundery, with a great number of temples, several pagodas, and a Christian church in Saigon. Previously to 1800, the commerce was monopolized by the Portuguese; but other European nations, the Chinese, and Americans, have since engaged in it. Rice, betel nut, sugar, pepper, cinnamon, silk, cotton, ivory, gold, and silver, are the chief articles of export. See *Cochin-China*.

SAIL. See *Ship*.

SAILING. See *Navigation*.

SAINT. *Names of persons and places beginning with this prefix, and not given here, will be found under the head of the word following it.*

SAINTS (from the Latin *sanctus*, holy), in its widest sense is used by Catholics and Protestants to signify the pious, who in this world strictly obey the commands of God, or enjoy, in the eternal world, that bliss which is the reward of such a life on earth. In a narrower and more usual sense, the word *saint* signifies certain individuals whose lives were deemed so eminently pious, that the Greek and Roman Catholic churches have authorized the rendering of public worship to them: these two churches, however, by no means acknowledge, in all cases, the same saints. The doctrine of saints, and the ideas and usages which grew out of it; their worship and invocation; the power which they are considered to possess of interceding for men with God, and of working miracles; their peculiar patronage of particular individuals, &c.,—form one of the main points of difference between the Protestants and the adherents of the above mentioned churches. The *Dictionnaire de Théologie*, (Toulouse, 1817,) a work exhibiting the Catholic faith, and defending it against Protestantism, speaks in the following manner of *saints* in the narrower sense of the word: "The name of saint is given to a person who is not only much attached to the worship of the true God, but who is exempt from every considerable vice, and who practises the Christian virtues in an exalted degree; and as the bliss of heaven is the certain reward of such a life, we often understand by *saints* those who enjoy eternal felicity. When the church is convinced that an individual has led such a holy and pure life, when God has deigned to attest it by miracles, it places him among the number of saints by a decree of canonization, and authorises the faithful to render him public worship. (See *Canonization*.) The church, however, does not intend to intimate thereby that such an individual has been exempt from every weakness of humanity, and that he has never sinned; human frailty does not admit of this perfection."

The article from which this definition is taken, treats the worship and invocation of saints, and their intercession, as something essential to the Catholic faith; while there are other Catholic writers who explicitly say, that the church has made the worship of saints, not a matter of doctrine, but simply

of discipline, as the Catholic writer of the article *Heilige*, in the German Conversations-Lexicon. Without further statement of the views of Catholic writers, among whom, as may be imagined, a great many shades of opinion prevail on this subject, from the enormous absurdity—by no means unfrequently maintained—that saints are persons who have led a life so much more virtuous than was necessary to obtain happiness in another state, that this surplus of virtue is made operative by their intercession for the salvation of others, down to the view of the German writer just mentioned, we refer the reader to the decree of the council of Trent, as the acknowledged orthodox basis of the veneration of saints, images, relics, &c. It is explicitly stated there, that Jesus Christ is the only Redeemer and Saviour; but that it is "good and useful suppliantly to invoke saints, and to resort to their prayers and assistance;" that they pray for men; that their bodies are to be venerated by the faithful; and that the images of Christ, of the Virgin Mother of God, and of other saints, are to be also venerated; "not that it is believed that any divinity or power resides in them, on account of which they are to be worshipped, or that any benefit is to be sought from them, or any confidence placed in images, as was done formerly by the Gentiles, who fixed their hope in idols; but that we honour the subjects represented, when we kiss their images, or uncover our heads before them," &c. This is accompanied with the usual anathema against all who teach or profess contrary doctrines. But so much depends upon the true understanding of the decrees upon these points, and so easy is it to put various interpretations on human language, that we shall give that part of the decree of the twenty-fifth session of the council of Trent, which relates to the subject of this article in the original.* The Catholic theology has two different words for the veneration of saints, and that of God and the Mediator, the former being called *dulia*, the latter *latria*, and the church must watch that the former does not degenerate into the latter. How much the worship of saints, and the great variety of human characters which thus became objects of veneration, contributed to the diffusion of Christianity in the middle ages; how it brought Christianity into connexion with the fine arts, by affording the most copious store of religious subjects to the genius of artists; and how the worship of the Virgin Mary became a very active element in the religion of the middle ages, as it still is a prominent feature in the Roman Catholic faith—would be highly interesting to consider; but our limits will not allow it.

The Catholics regard their notions on the subject of saints as supported by different parts of the Bible, e. g. Timothy ii. 12, various passages in the Apocalypse, Jeremiah xv. 1 and 5, Luke xvi. 9, and the writings of many of the early fathers, as Origen, who wrote in the third century (1 *de Orat.*, n. 11, and several other places of the same character): for the invocation of the saints, they refer chiefly to Genesis xlviii. 16, John xii. 26, xvii. 20, and many passages in early Christian writers. The Protestants object to the whole doctrine, and allege that even Christ himself said, "There is none good but one, that is, God;" that not only is the idea of saints, as intercessors, no where contained in the Bible, but that it originated centuries after the establishment of Christianity; that it is against the chief doctrine of Christianity, which declares all men to be sinners, and to be saved only by Christ; that it is impious to imagine God like an earthly king, who is influenced by the suggestions of those around him; that Christ's mediation is founded either on an atonement, which is the more general opinion, or on his bringing the gospel to men; and that it can be clearly proved that many saints, now so considered, never existed, but were the offspring of ignorance, mistaking, e. g. a Greek word in a church inscription for the name of the saint to whom the church was dedicated, and that others were of very equivocal characters;† that fraud evidently sometimes had part in the creation of saints; and that a doctrine, which has led, for centuries, and so universally, to such gross superstitions, as Catholics themselves admit, have often arisen from the doctrine of saints, notwithstanding these superstitions are not supported by the council of Trent, must be highly dangerous; for the essential question with regard to every law and doctrine, is not—For what was it intended? but How does it operate? If Protestants do not see that the Bible contains any divine command which could fairly lead to the invocation of saints, and to the supposition of their intercession for men with God, still less do they find any ground for the veneration of relics. The doctrine of saints seems to us to have essentially originated from the virtues displayed by the martyrs. Heroism in suffering always remained the most common ground of saintship, as, in fact, is natural, since the great Prototype of Christianity became such by his sufferings. When the gospel had filled the heart of believers with the hope of an eternal life of felicity, death soon came to be considered as affording occasion for joy rather than sorrow to the friends of the departed. Cyprian pronounces this opinion

* "Mandat sancta Synodus omnibus Episcopis, et cæteris docendi munus curamque sustinentibus, ut juxta Catholicæ et Apostolicæ Ecclesiæ usum a primævis Christianæ religionis temporibus receptum, sanctorumque Patrum consensionem, et sacrorum Conciliorum decreta, in primis de Sanctorum intercessione, invocatione, Reliquiarum honore, et legitimo imaginum usu, fideles diligenter instruant, docentes eos, Sanctos, una cum Christo regnantes, orationes suas pro hominibus Deo offerre; bonum atque utile esse suppliciter eos invocare: et ob beneficia impetranda a Deo per Filium ejus Jesum Christum Dominum nostrum, qui solus noster Redemptor et Salvator est, ad eorum orationes, opem, auxiliumque confugere; illos vero, qui negant Sanctos, æterna felicitate in cœlo fruentes, invocandos esse: aut qui asserunt vel illos pro hominibus non orare; vel eorum, ut pro nobis etiam singulis orent, invocationem esse idololatriam, vel pugnare cum verbo Dei, adversarique honori unius mediatoris Dei et hominum Jesu Christi; vel stultum esse in cœlo regnantibus voce vel mente suplicare, impie sentire. Sanctorum quoque martyrum, et aliorum cum Christo viventium sancta corpora, quæ viva membra fuerunt Christi, et templum Spiritus sancti, ab ipso ad æternam vitam suscitanda et glorificanda, a fidelibus veneranda esse, per quæ multa beneficia a Deo hominibus præstantur: ita ut affirmantes, Sanctorum Reliquiis venerationem atque honorem non deberi, vel eas, aliaque sacra monumenta a fidelibus inutiliter honorari, atque eorum opis impetrandæ causa Sanctorum memorias frustra frequentari, omnino damnandos esse, prout jampridem eos damnavit, et nunc etiam damnat Ecclesia. Imagines porro Christi, Deiparæ Virginis et aliorum Sanctorum in templis præsertim habendas, et retinendas: eisque debitum honorem et venerationem impertiendam; non quod credatur inesse aliqua in iis divinitas, vel virtus, propter quam sint colendæ: vel quod ab eis sit aliquid petendum; vel quod fiducia in imaginibus sit figenda, veluti olim fiebat a Gentibus, quæ in idolis, spem suam collocabant; sed quoniam honos qui eis exhibetur, refertur ad prototypa, quæ illæ representant: ita ut per imagines, quas osculamur, et coram quibus caput aperimus et procumbimus, Christum adoremus, et Sanctos, quorum illæ similitudinem gerunt, veneremur, id quod Conciliorum, præsertim vero secundæ Nicænæ Synodi, decretis contra imaginum oppugnatores est sanctum."

† Doctor Reichlin Meldegg, Catholic "professor ordinarius" of ecclesiastical history, and temporary dean of the theological faculty at Freiburg, says, in his Proposals for Reformations in the German Catholic Church, "The old Roman breviary, crammed with fictitious or much coloured anecdotes of saints, with repetitions that weary, with passages of indecorous import, &c. requires a thorough revision." In another passage he says, "Some masses are founded on stories not sufficiently proved, or palpable fictions, as the mass of the 'lancea Christi,' the 'inventio crucis,' &c."

distinctly in his *De Mortalitate*. The anniversaries of the death of friends were celebrated by partaking of the Lord's supper, and by a gift laid on the altar, in return for which the prayer for the soul of the deceased was introduced into the prayers which preceded the communion. If this was the case with all, it was naturally still more so with the martyrs whose death was their glory. Hence the anniversaries of their suffering were called the *dies natales, natalitia martyrum, γενθλια των μαρτυρων*. We find in Eusebius (lib. iv. 15) the report of the martyrdom of bishop Polycarp, by the community of Smyrna. They say there, in answer to the reproaches of the heathens, "They (the heathen) do not know that we can never forsake that Christ, who has suffered for all the saved, nor can worship any one besides. Him we worship, as the Son of God; but the martyrs we love, as they deserve, on account of their unparalleled love of their King and Lord," &c. They continue: "We took up his bones, which are more precious than gold and jewels, and laid them down in the proper place; and God will grant, that we may assemble there in joy and gladness, and celebrate the festival of his martyrdom, in memory of the departed champions, and to exercise and prepare those who are still awaiting the struggle." In this passage we see, already, the beginning of the veneration of relics. By degrees, the veneration of martyrs and the estimation of their relics increased; and, according to the unanimous testimony of the most distinguished fathers of the church of the fourth and fifth centuries, they were even then invoked as intercessors at the throne of God. In ages when information is transmitted chiefly by tradition, facts easily become exaggerated, without intentional violation of the truth; and soon many miracles were reported to have been wrought by their relics or intercession. At the same time, it is undeniable, that, with the diffusion of Christianity, when danger was no longer connected with its profession, and many persons came over to this religion who had but an imperfect knowledge of it, and had not abandoned entirely their former superstitions, pagan notions often became blended with the new religion; and, as many statues of pagan deities were changed into those of martyrs and other persons distinguished for piety, so some hymns, originally addressed to these deities, were now sometimes addressed to departed Christians, who had been eminent for piety; and the special protection of certain persons or things, as ships, churches, &c., was attributed to them as intercessors with God. When monarchs became Christians, and the persecution of believers ceased, so that instances of martyrdom were no longer found, the retiring from the world to the seclusion of a convent, or other great sacrifices made from religious motives, often led to investing the deceased with the character of intercessors with God. A pious bishop, who had devoted his whole life to the welfare of his flock, was looked upon as retaining his care for it in the regions of eternal bliss; so that, by degrees, many saints arose; and it naturally happened that this honour was sometimes paid to unworthy persons, and sometimes actual fraud was committed to obtain it. It was not uncommon for a person to be long considered and invoked as a saint, when it remained doubtful whether he was so regarded by the church. Hence we find that the council at Frankfort on the Maine, 794, prohibited the invocation of new saints; and Charlemagne again, in 805, revived the decree. The pope at last took the matter into his own hands. Pope John XV., in 993, gave the first example of a canonization by the Roman see; and Alexander III. declared, in 1170, that canonization was an exclusive right of the pope, with whom it has since remained.* See *Canonization*, and *Beatification*.

Few popes have become saints. Pius V., in 1712, was the first for almost a thousand years, and, so far, has been the last. France, Naples, and the German empire, would not acknowledge the canonization of Gregory VII., by Benedict XIII., in 1728. One of the last, if not the very last canonization, is that of cardinal J. M. Tomasi in 1807.

Countries, cities, arts, trades, orders, things, &c., have their patron saints; but the church, it seems, determines nothing in relation to them. St Denis is the patron of France; St George, of England and Russia; St Andrew, of Scotland; St Patrick, of Ireland; Olaff, of Norway; Cnut or Canute, of Denmark; Nepomuc, of Bohemia; Cecilia, of music; Hubert, of hunting; Crispin, of shoemakers, &c. The Greek church does not acknowledge the saints canonized after its separation from the Western Church. See *Acta Sanctorum*.

SAINT-FOIN *(hedysarum onobrychis)*; a plant, somewhat resembling the pea, which grows wild in the countries about the Mediterranean, and is often cultivated elsewhere for fodder. The stem is about a foot and a half or two feet high; the leaves are pinnate, composed of small leaflets: the flowers are pretty large and showy, of a fine pink colour, and are disposed in a short spike, upon a long axillary peduncle. Cattle are extremely fond of it. In its wild state, it is only found on dry, warm, chalky soils, where it is of great duration; and it is chiefly in such districts that it is cultivated to advantage. Its peculiar value is, that it may be grown on soils unfit for being constantly under tillage, and which would yield little undergrass. The deeper the soil is stirred previously to sowing, the better. The seed is generally put in broadcast, at the rate of three or four bushels to an acre; and sometimes a little red clover is sown afterwards, to produce a crop the second season, when the saint-foin plants are but small. Saint-foin is highly nutritive, either cut green, or made into hay. The produce, on a medium of soils and cultivation, may probably be estimated at from one and a half to two tons the acre. The usual duration of this plant in a profitable state is from eight to ten years. It ordinarily attains its perfect growth in about three years. The proportion of nutritive matter in saint-foin is estimated equal to that afforded by white and red clover.

SAINT ALBANS (anciently Verulam); a town in Hertfordshire, England, twenty miles north-west of London. St Albans owes its name to Alban (q. v.), the first martyr in Great Britain, who was buried on a hill near the town, where a monastery was dedicated to his memory. In 1455, a battle was fought here between the Yorkists and the Lancasterians; and, in 1461, another battle was fought between the same parties.

SAINT ANDREWS. See *Andrews, St.*

SAINT ANTHONY'S FIRE. See *Erysipelas*.

SAINT AUGUSTINE; a city and seaport of East Florida, on a bay of the Atlantic, two miles within the bar; about thirty miles south of the mouth of St John's river, eighty south of St Mary's,

* The above-mentioned decree of the council of Trent also guards against the introduction of new miracles, new relics, &c., if not approved of by the bishop of the diocese.

three hundred and ten south of Charleston; lat. 29° 45′ N., lon. 81° 40′ W. The town is built on a peninsula, is of an oblong form, and consists of four principal streets. The houses are built of stones formed by the accretion of shells, from the island of Anastasia, near the town. A fort, twenty feet high, with walls twelve feet thick, and mounting thirty-six guns, defends the town. In 1821, when Florida was ceded to the United States, St Augustine contained about 2500 inhabitants; and it has not increased. The appearance of this city indicates decay, and the country around it is too low and unhealthy to sustain it.

SAINT CLAIR; a river of America, which flows from lake Huron into lake St Clair. It is about forty miles long, one mile wide, transparent, of easy navigation, and is a pleasant and noble stream. *Fort St Clair* is situated at the upper end of this river.

SAINT CLAIR; a lake situated between lake Huron and lake Erie, and connected with both. It is about ninety miles in circumference, and has several fine islands. Its waters are remarkably transparent. Lat. 42° 52′ N.; lon. 82° 25′ W.

SAINT CYR. See *Cyr.*

SAINT DOMINGO. See *Hayti.*

SAINT ELIAS; a mountain on the western coast of North America, situated about twenty-five miles from the Pacific ocean, in lat. 60° 27′ N., lon. 148° 51′ W. It rises 17,850 feet above the ocean, and stands so separate from other mountains as to be a very important landmark. Its top is always covered with snow. This is the most elevated summit of what is sometimes called the Cordillera of New Norfolk, and is one of the highest mountains in North America.

SAINT EVREMOND. See *Evremond.*

SAINT FRANCIS; a river which rises in Missouri, and flows into the Mississippi in Arkansas, lat. 34° 45′ N. It is a large river, and was formerly navigable 300 miles for large keel boats; but the earthquakes of 1811—12 raised its channel so much, and so irregularly, as to cause the waters to overflow the banks, and form a vast number of lakes and irreclaimable swamps along its former course. At high water, this river is still navigable about 200 miles; and there are several considerable settlements about seventy miles from its mouth. A great deal of land on its banks is fertile; its waters abound with excellent fish; and the forests through which it flows afford abundance of the finest game.

SAINT GALL (in German, *Sanct Gallen*); a canton of Switzerland, in the north-west part of the confederacy, bounded north by the lake Constance, east by Tyrol, south by the cantons of Schweitz and Glarus, and west by that of Thurgau; square miles, 2100; population, 140,000, of whom rather more than one half are Catholics. The manufactures of this canton, principally of linen and muslins, are extensive, and furnish the chief occupation of the inhabitants. St Gall is formed from the estates of the rich Benedictine monastery of the same name, which were secularized by the French, and was admitted into the confederacy in 1803. The constitution is aristocratical, the government being conducted by a great council of one hundred and fifty members, and an executive council of thirteen, composed of members of the former. The canton sends a member to the federal diet. In 1830, St Gall was the theatre of revolutionary movements, which were quieted by seasonable concessions. (See *Switzerland.*) The capital, St Gall, with a population of 9000, is distinguished by the manufacturing and commercial activity of the inhabitants. It contains the old Benedictine abbey, has two libraries rich in manuscripts, and some learned societies.

SAINT GERMAIN. See *Germain.*

SAINT JOHN. See *Bolingbroke.*

SAINT JOHN'S BREAD, or CAROB-TREE (*ceratonia siliqua*); a middling sized tree, with tortuous branches, which grows wild in the countries about the Mediterranean, and particularly abounds in Barbary and Egypt. It belongs to the *leguminosæ*, and is allied to the locust. The flowers are diœcious, small, inconspicuous, and disposed in spikes; they are succeeded by long, indehiscent, thick pods, pulpy internally, and divided by several transverse partitions. The Moors make great use of the pods as an article of food, and they have a sweetish and very agreeable flavour. It is the only species of the genus.

SAINT JOHN'S WORT (*hypericum perforatum*). The stem of this plant is straight, one or two feet high, bearing oblong and obtuse leaves, with semi-transparent dots. The flowers are in a terminal corymb, and of a bright yellow colour. It formerly enjoyed a high repute for medicinal purposes, but is now entirely out of use. The flowers communicate a fine purple colour to spirits and oils; and the dried plant, boiled with alum, dyes wool yellow. It formerly enjoyed much celebrity among the superstitious, as a charm against witchcraft, &c.

SAINT LOUIS. See *Louis, St.*

SAINT MARIA DE PUERTO PRINCIPE; a city of Cuba, capital of the department of the Centre, on the northern coast of the island, 300 miles south-east of Havana. It has a good harbour, and contains several hospitals. The population of the city and precincts is 49,012, consisting of 32,996 whites, 6165 free persons of colour, and 9851 slaves. Lat. 21° 20′ N.; lon. 77° 45′ W.

SAINT PIERRE. See *Pierre, Saint.*

SAINT REAL, Cesar Vichard, abbe de; a historian, born at Chamberry in 1639, studied with the Jesuits at Paris, where his talents and learning gained him friends. He accompanied the duchess of Mazarin to England, and afterwards resided again in Paris, assuming the title of abbé, although without having any benefice. His writings involved him in a controversy with Arnaud, who accused him of Socinianism. He died in 1692. His principal works are his *Discours sur la Valeur;* his *Sept Discours sur l'Usage de l'Histoire;* and his *Histoire de la Conjuration des Espagnols contre la République de Venise,* which partakes of the romantic, and is by no means equal, in point of style, to his model, Sallust. His *Don Carlos* is well written, but is likewise of a romantic character: his translation of Cicero's letters to Atticus is of less merit. A complete edition of his works was edited by Perau in 1757 (8 vols., 12mo.).

SAINT SALVADOR. See *Bahia.*

SAINT SALVADOR. See *Cat Island.*

SAINT SEBASTIAN. See *Sebastian, San,* and *Rio Janeiro.*

SAINT SIMON. See *Simon, St.*

SAINT THOMAS, Christians of. See *Christians of St Thomas.*

SAINTONGE; formerly a province in the west of France, bounded by the Atlantic, Poitou, Guienne, and Angoumois. It belonged to the

English from the time of Henry II. until it was conquered by Charles V. It now forms the department of the Lower Charente. The capital, Saintes, with 10,300 inhabitants, contains some fine remnants of ancient architecture.

SAKER; a name formerly used for a small species of cannon. See *Cannon*.

SAKHARA; the necropolis of ancient Memphis, from whose ruins it is about two miles distant, on the edge of the Libyan desert. It is remarkable for its ancient monuments, among which are thirty pyramids, besides the ruins of a great number, and numberless grottoes, sarcophagi, the ibis-catacombs, &c.

SALACINE. M. Leroux, a Frenchman, extracted this principle from willow bark, and presented a memoir* on it to the French academy in 1830. He recommends it as a febrifuge instead of quinine, and cases of cures with it have since been reported. Salacine (thus called by M. Leroux) is in the form of very fine nacreous white crystals, very soluble in water and alcohol, but not in ether. It is in a high degree bitter.

SALADIN, or SALAHEDDIN YUSEPH BEN AYUB, a celebrated sultan of Egypt and Syria, was born, in the year 1137, in the castle of Tecnib, of which his father, a native of Curdistan, was governor. In 1168, he was chosen to succeed his uncle Siracouh in the command of the armies of the Fatimite caliph Adhed, or rather of the sultan Noureddin, his immediate superior. He terminated the dynasty of the Fatimite caliphs of Egypt (1171), at the command of Noureddin, and subsequently endeavoured to supersede the minor son of Noureddin himself, but did not succeed until after his death (1174), when he was recognised sultan of Syria and Egypt by the caliph of Bagdat. The great object both of his religion and his politics was how to expel the Christians from Palestine, and to recover the city of Jerusalem. An atrocious massacre of Mohammedan pilgrims by the French lord du Chatillon, added still more to his ardour; and his vow of revenge against the perpetrator he was enabled to make good by his famous victory on the plain of Tiberias, in 1187, where he captured Guy de Lusignan with the chieftain Chatillon (whom he cut down after the battle with his own scimitar), and many more. The fruits of this victory were the towns of Acre, Said, and Barout; after which he laid siege to Jerusalem, which yielded (1187), in a capitulation, to the articles of which Saladin faithfully adhered. He then proceeded against Tyre, but failed, in consequence of the destruction of his fleet by the Franks. The intelligence of the loss of Jerusalem reaching Europe, produced the crusade under the emperor Frederic Barbarossa (see *Frederic*), whose death inspired the Mussulman with hopes which were soon damped by the arrival of the forces of Richard Cœur-de-Lion of England, and of Philip Augustus of France. The recovery of Acre by the two kings took place in 1191; upon which event Philip returned to France, and Richard, after twice defeating the sultan, took Cæsarea and Jaffa, and spread alarm as far as Jerusalem. At length a truce was concluded between Richard and Saladin, by the terms of which the coast from Jaffa to Tyre was ceded to the Christians, whilst the rest of Palestine remained to the sultan. The departure of Richard freed Saladin from his most formidable foe. This active and able prince soon after died at Damascus (in 1193), in the fifty-sixth year of his age. Though chargeable with unjustifiable means of acquiring power, Saladin employed it, when obtained, usefully for his subjects, whose burdens he lightened, whilst he benefited them by many useful works and establishments. Magnificent in his public undertakings, he was frugal in his personal expenses. In religion he was zealous for his creed almost to fanaticism, but faithful to his engagements. A lasting proof of the terror which his name inspired, was given by the Saladin Tenth, imposed by the authority of pope Innocent X. on clergy and laity, for the support of the holy war. Saladin left a family of seventeen sons and one daughter, and was the founder of the dynasty of the Ayoubites.

SALAMANCA; capital of a province of Spain, in the southern part of the kingdom of Leon. It is in a picturesque and agreeable situation on the Tormes, which is here crossed by a stone bridge, half of which is of Roman workmanship; lat. 41° 5′ N.; lon. 5° 10′ W.; one hundred and twelve miles north-west of Madrid; population, 13,920, exclusive of the students and religious. It is badly built, with narrow, crooked, and dirty streets, but has some handsome squares, of which the *Plaza Mayor*, where bull-fights are exhibited in June, is one of the finest in Spain. There are here twenty-five parish churches and thirty-seven convents. The numerous churches, with their works of sculpture and painting, are described in Ponz's *Viage de Espana*. The cathedral is a magnificent Gothic edifice, begun in 1513, and completed in 1734: it presents great inequalities and disproportions. The old church, built in the twelfth century, has several interesting monuments; and in a chapel belonging to it, the mass is said according to the Mozarabic manner. The Jesuits' college, built in 1614, is one of the most splendid which the order possessed in Spain, and, since their abolition in 1798, it has been, in part, occupied as a theological seminary. The university buildings consist of two divisions separated by a street, the *escuelas menores*, and the university, properly so called, or *escuelas mayores*, in which are the theological, law, medical, philosophical, philological, &c., lecture rooms. The university was founded in the thirteenth century, by Alphonso IX. of Leon; and, in 1239, Ferdinand III. united with it the Castilian university of Palencia. (See Davila's *Historia de Salamanca*.) Its reputation extended through Europe, and, at the end of the sixteenth century, it had, according to Medina (*Grandezas de Espana*), 7000 students; but with the decline of literature in Spain, in the seventeenth century, it sank to a very low condition. According to Hassel, the number of students, in 1827, was but 418. There are also some other institutions for education at Salamanca. The banks of the Tormes, and the country to the west of Salamanca, were the scene of an engagement between the British under Wellington, and the French under Marmont, July 22, 1812. The French had abandoned the place, on the first attack by the allied Portuguese and British forces, June 16. Meanwhile, Marmont, having received reinforcements, advanced against the British; and, after various movements, the object of which was to cut them off from Ciudad Rodrigo and Salamanca, the battle took place in the narrow space on the Tormes. The French commander had formed his plan of attack judiciously, but incautiously extended his left wing too much—an error

* Messrs Gay-Lussac and Magendie reported very favourably on this memoir to the academy.

of which Wellington promptly took advantage. Marmont himself was so severely wounded, that general Clausel took the command, and prevented the total ruin of the army. The French forces retreated to Burgos, and their communication with the body of troops under Joseph Bonaparte, in the centre of Spain, was cut off.

SALAMANDER (*salamandra*); a genus of reptiles closely allied to the frog, from which it differs in having an elongated body, terminated by a tail, and four feet of equal length. There are no gills in the adult animal, and the tympanum is also wanting. The jaws are armed with numerous small teeth: and there are two longitudinal rows on the palate. The third eyelid is wanting. Together with the frog, this genus is included under the order *batracia*, and is easily distinguished from the lizards by having no nails on the toes, a naked skin destitute of scales, and a heart with a single auricle. The young are born in the shape of tadpoles, are provided with gills, and have their tails vertically compressed. The land salamanders inhabit the water only during the tadpole state, or during the time that they are laying their eggs: they are distinguished by a rounded tail. The aquatic species remain during life in water, and are enabled to swim with considerable briskness by means of their compressed tails: sometimes, however, they quit the water at night, and when unable to regain it, have been found in similar situations with the terrestrial species. They are endowed with an astonishing power of reproduction; and, when mutilated, their limbs, tail, and even their eyes, are restored at the end of two, three or six months, in warm climates, or a longer period in cold ones; and no difference of organization can be discovered on dissection. They may be suffocated in the same manner as frogs, by forcibly holding open the mouth.

The common salamander of Europe (*S. vulgaris*) has been celebrated from antiquity for its supposed power of braving the fiery element. It is almost unnecessary to observe that this quality has been attributed to it without the slightest foundation: still the belief is not entirely eradicated among the common people, and the salamander continues to be an object of superstition in the eyes of many. It is a sluggish, clumsy reptile, six or eight inches long, of a blackish colour, with large, irregular, rounded spots of bright yellow. It is found throughout Europe in moist places, under stones or the roots of trees, near the borders of springs, in deep woods, &c., and passes its life under ground, except during rains or at night, when it comes out, but does not wander far from its place of residence. It lives on slugs, insects, worms, &c., and, when met with, seems stupid, and does not appear to shun the presence of man or other animals. The skin exudes a mucous and acrid secretion in great abundance. It is ovoviviparous.

It would seem that the United States produce a greater variety of salamanders than any other part of the globe. They are, however, far from being well understood; and probably more remain to be discovered. We shall particularize the following, among the land salamanders:—*S. subviolacea;* a large, stout species, seven inches or more in length; blackish, with two rows of large, round, whitish spots on the back, becoming single on the tail; a few similar spots on the legs. It resembles the common salamander of Europe.—*S. faciata;* green; less than the preceding; blackish, with transverse bluish-white bands on the back; found from New Jersey to South Carolina, but rare.—*S. glutinosa;* green; a more slender species, with the tail nearly twice the length of the body; blackish, sprinkled on the upper parts of the body with white specks; length about six inches. It is found in most parts of the United States, and as far north as lat. 43°.—*S. longicauda;* green; whitish, with numerous black specks; the tail longer in proportion than in any other species; total length, six inches. It is found in the Atlantic states, but is more frequently met with in the limestone caves of the west.—*S. bilineata;* green; a small, slender species; above brown, beneath yellow, with two, or sometimes three, indistinct black lines; the tail is longer than the body, and compressed towards the extremity. It inhabits New England and the Middle States, and seems to be more brisk and lively in its motions than the other terrestrial species.—*S. cirrigera;* green; a species somewhat resembling the preceding in the distribution of its colours, but remarkable for having two short, fleshy *cirri* on the snout. It was found in the vicinity of New Orleans.—*S. erythronota* (the most common species); blackish, with a broad red stripe on the back. The young are destitute of the red stripe, and in some full grown individuals a small portion only is observable, or it is even entirely wanting.—*S. symmetrica* (Harlan); reddish, with a row of bright orange ocellated spots on each side; length about three inches. The skin of this animal is rough, and apparently destitute of the mucous secretion common to the other species; the back is elevated, and the tail somewhat compressed. An aquatic species, resembling it precisely except in having the colour of the back browner, and the tail much more compressed, is frequently met with; and perhaps the difference is only sexual.

Among the aquatic salamanders we may particularize, *S. dorsalis* (Harlan); resembling the preceding in size and the general distribution of the colours; but the *ocelli* are irregularly elongated, and sometimes form an almost continuous line; and there is a pale line on the back: the skin is smooth; the tail very much compressed, forming a distinct edge above and below; inhabits South Carolina.—*S. maculata;* green; a stout species; whitish, with numerous round specks of a reddish brown colour; tail about as long as the body, and slightly compressed; grows to the length of five inches or more.—*S. ingens;* green; by far the largest species hitherto known; nearly a foot in length. It was discovered in the vicinity of New Orleans.

This is perhaps the most appropriate place to speak of several very singular North American animals, allied to the salamander:—*Menopoma Alleghaniensis;* an animal of disgusting appearance, with a broad, flattened head, bearing a general resemblance to a salamander, but much larger than any except the *S. ingens.* It appears to be destitute of gills at all periods of its existence. It is found in the Ohio and other western rivers, and is commonly called *ground-puppet, mud-devil, young alligator,* &c.—*Menobranchus lateralis* resembles the preceding in form, but the gills persist during life; an indistinct blackish band on each side. It attains the length of one or two feet, lives in the water, and is very voracious. It is found in the Ohio and the lakes.—*Siren lacertina;* an eel-shaped animal, having external gills, and two small feet, situated at the anterior part of the body. It conceals itself in the mud, but occasionally visits both land and water. It inhabits the Southern States. Two

other species of siren are found in the same districts.—*Amphiuma means;* likewise an eel-shaped animal, but it has four very small rudimentary feet, which have two toes each. It burrows in the mud, in swamps, or in the vicinity of streams, and occasionally visits the dry land. It grows to the length of three feet, and is found in the Southern States. A second species, a *tridactyla*, distinguished from the former by having three toes on each foot, has been discovered in Arkansas.

SALAMANDER. See *Gabalis*, and *Gnome*.

SALAMIS (now Colouri); an island (area, eighty square miles) on the eastern coast of Greece, in the gulf of Argolis, separated from Attica by a narrow channel, about half a mile wide. It is celebrated for the naval victory gained by the Greeks over the Persians (B. C. 480). See *Themistocles*, and the article *Navy*.

SAL AMMONIAC. See *Ammonia*.

SALANGANE, or HIRUNDO ESCULENTA. See *Birds' Nests*.

SALEM. See *Jerusalem*.

SALEM, a seaport of North America, and the capital of Essex county, Massachusetts, is chiefly built on a tongue of land, formed by two inlets from the sea, called North and South rivers, over the former of which is a bridge more than 1500 feet in length, connecting Salem with Beverly; and the South river forms the harbour. Salem is fourteen miles north-east from Boston, 450 from Washington; lat. 42° 34′ N.; lon. 70° 54′ W.; population in 1820, 12,731; in 1830, 13,886. This town is the second in Massachusetts in respect to population, and probably in respect also to wealth; but New Bedford now surpasses it in its amount of shipping, and Lowell and some other towns greatly exceed it in manufactures. The trade of Salem is principally with the East Indies, and it employs a very large capital. Salem is, next to Plymouth, the oldest town in the state, and was settled in 1628. Its Indian name was *Naumkeag*, or *Naumkeak*.

SALEP is obtained from the tuberous roots of one or more species of orchis, and is usually imported from Turkey and other parts of the Levant; though it may be prepared in any part of Europe, from many common species of orchis. The process consists simply in washing the roots, and rubbing off the brown skin, when they are dried, and afterwards ground into powder. This powder, as an article of diet, is esteemed highly nutritious, containing a great quantity of farinaceous matter in a small bulk. The roots are dug up as soon as the flower stalks begin to decay, and the newly formed bulbs, which have then attained their perfect state, are separated. An ounce of this powder and an ounce of portable soup, dissolved in two quarts of boiling water, will form a jelly capable of affording sustenance to a man for a day; consequently, it is of great use in long voyages, or travels by land.

SALERNUM (now Salerno); a city in the province of Picenum, in Lower Italy, remarkable for the *civitas Hippocratica*, or medical institution, called also *schola Salernitana*, which flourished there in the twelfth century after Christ, and was the nursery of all the medical faculties of Europe. This was the principal source of modern practical medicine; and the dietetical precepts of this school were put into verse, and widely diffused. See *Medicine, History of*.

SALESIAN NUNS. The nuns of the order of the visitation of the Virgin Mary are so called from their founder, Francis of Sales, by whom and his friend Chanta this order was established, in 1610, at Annecy, in Savoy, originally as a refuge for widows and sick females. In process of time, however, it was enlarged, and devoted principally to spiritual exercises and the healing of the sick; the occupants were clad in black, and so numerous that, in the eighteenth century, there were 160 convents and 6600 nuns. There are still convents of the Salesian nuns in the principal cities of Italy, particularly in Venice, Trieste and Breslau. They now devote themselves to the healing of the sick and the education of young girls.

SALFORD; a market-town of Lancashire, in the parish of Manchester and hundred of Salford. Though governed by its own borough reeve and constables, it may now be considered an integral portion of Manchester. At the time of Domesday-book it was a royal manor, and, from its having given name to the hundred, was probably of considerable importance. The most conspicuous edifice in the town is the New Bailey prison for the hundred of Salford; it is a handsome, strong, and spacious building, constructed upon Mr Howard's plan, and has contained within its walls at one time 1000 prisoners. The principal attraction of Salford is the crescent, which commands a rich view of rural scenery, through which the Irwell meanders. Population in 1831, 40,786. See *Manchester*.

SALIANS, SALIC FRANKS; a people who first appeared on the island of the Batavi, and, when they were driven thence, among the Chamari, to the south of the Meuse. As long as the Cherusci are spoken of, nothing is heard of the Salii; but as soon as the latter are noticed, the Cherusci disappear, and are no longer mentioned. The Salians probably took their name from that of a river in their former country, and first used it when they emigrated to Batavia, upon which they bordered. From the Salians originated the Salic code of laws, which was probably drawn up in Latin, before the time of Clovis, by four of their most distinguished men—Arogast, Bodogast, Salogast and Windagast. It was in force, in some degree, even as late as the eleventh and twelfth centuries. The sixty-second article of this code is very remarkable, according to which, in Salic estates,—that is, those which the Salic Franks had obtained by conquest in Gaul and modern France,—the daughters were excluded from the inheritance, and the sons alone were considered capable of succeeding to it. Notwithstanding this article had reference only to private estates, the application of it was even extended to the throne; and it is certain that, from the earliest periods of the French monarchy, no princess succeeded to the throne, except by force of some law different from the ordinary usage. The Salic law was first alleged against Edward, in the contests between Philip VI. of France and Edward III. of England, about the French crown, and has, since that time, remained always in force.

SALIC LAW. See *Salians*.

SALIERI, ANTHONY, imperial chapelmaster at Vienna, was born in 1750, at Legnano, a Venetian fortress. He studied at Venice and Naples, under Pescetti, Gassmann, and Gluck. His opera, the Danaides, was at first considered, in Paris, to be chiefly the work of Gluck. Some of his most celebrated works are *Tarare* (introduced on the Italian stage under the title of Axur, king of Ormus),

La Passione di Gesù Cristo, *La Scuola dei Gelosi*, *La Ciffra*, *Palmira* (1795), *Armida*, *Semiramida*, the Fair of Venice, &c. He composed thirty-nine operas, partly German, partly Italian. His death took place, May 7, 1825. Hummel, Moscheles, and others, are his pupils. See Mosel, *On the Life and Works of Salieri* (in German, Vienna, 1827.)

SALII; priests of Mars, whose name is derived from *salire* (to leap, to dance). Numa fixed their number at twelve; Tullus Hostilius increased it. Their origin is thus accounted for by the Romans: In the time of Numa, Rome was desolated by a pestilence, which ceased when the gods let fall from heaven the *ancile* (a shield of a peculiar form). The soothsayers declared that this shield was the sign of the perpetuity of the Roman power, and advised that eleven others should be made similar to it, so that the true *ancile* could not be so easily purloined. This advice was followed, and all the *ancilia* were deposited in the *curia*. On the first of March every year, when the Salii offered sacrifices to Mars, they carried them about the city, clashing them together, executing warlike dances, and singing the Salian hymns—ancient songs in praise of Mars and the other gods, and of distinguished men, particularly of Mamurius, who made the eleven shields. The dress of the Salii was a purple tunic, embroidered with gold, and bound with a brazen belt, and a toga, with a purple border. On their head they wore a high cap, in the form of a cone, with a sword by their side, a spear or rod in their right hand, and an *ancile* in their left. None but patrician youths, whose parents were alive, could be admitted among the Salii.

SALINA; a post-township of Onondaga county, New York, 130 miles west of Albany. It includes Onondaga lake, and the principal salt springs in the state. The water of the lake is salt: and wells dug on its margin, and springs flowing into it, are also salt. Very extensive salt works have been established for several years. From sixteen to twenty-five ounces of salt are obtained from a gallon of water. Besides the muriate of soda, small portions of the muriate of lime, sulphate of lime, oxide of iron, and Epsom salts, are contained in the water; but these are easily separated. More than half a million of bushels of salt are annually produced, and these waters are doubtless capable of yielding a very much greater quantity. The outlet of Onondaga lake communicates with Seneca river, through which is opened an extensive boat navigation. The Erie canal passes through the south part of Salina, and a side cut connects it with the village. There are four considerable villages in the township—Salina, Liverpool, Syracuse, and Geddes. The whole contained, in 1830, 6920 inhabitants.

SALINE; a river of Illinois, which flows into the Ohio, about twenty-six miles below the Wabash. It is navigable for boats thirty miles. The United states have extensive salt works on this river.

SALISBURY, earl of. See *Cecil*.

SALISBURY, or NEW SARUM; an ancient city of England, the capital of Wiltshire, is situated in a valley between the rivers Avon and Bourne, eighty-two miles S. W. by W. from London. The principal streets are regularly arranged and crossed by others, forming a number of quadrangles called checkers, enclosing areas, laid out in gardens and encompassed by houses. Some of the buildings are antiquated, with gabled fronts of timber-work and plaster; but the houses in general are well built of brick, in a modern style. The city is connected with the suburb of East Harnham, by an ancient bridge of ten arches, on which was formerly a chapel dedicated to St John; and there are two stone bridges of six arches, which form a communication with the suburb of Fisherton Anger. Salisbury was founded in the beginning of the thirteenth century, in consequence of the ecclesiastical establishment of the see of Sarum, an ancient city about two miles distant, having been transferred hither by the Bishop, Richard le Poor, who adopted this measure partly to put an end to the inveterate quarrels between his clergy and the garrison of the royal castle of Sarum, and partly in consequence of the great scarcity of water in the old city, which probably was the cause of its being ultimately entirely deserted by the inhabitants. Its name is obviously an alteration, for the sake of euphony, of Sarisbury (Sorbiodunum), an appellation of the ancient city. About 1219 were laid the foundations of the present cathedral church, which is one of the finest in Europe. The whole building may be viewed as composed of the church, the tower, and spire, the cloister and the chapter-house. The church consists of a nave, with two lateral aisles, a bold and lofty porch projecting on the north side, a large transept with an eastern aisle, a choir with lateral aisles, and a second or small transept with an aisle, a Lady chapel at the east end with an intermediate vestibule, or double aisle terminating the choir. On the south side of the church are a cloister, chapter-house, consistory court, and a vestry. The tower, which is built on four massive pillars in the centre of the church, is surmounted by a spire, rising to the height of 400 feet. The bishop's palace is a large irregular building, the work of different periods, the earliest parts being of the same age as the cathedral. The college of matrons, for the widows of clergymen, erected by bishop Ward, is a regular building, with small but commodious gardens. There are three parish churches in the city. In Catholic times, Salisbury contained a great variety of religious establishments, the remains of a few of which may be traced; and the hospital of St Nicholas continues still to maintain a master and twelve poor persons. There are several other hospitals in the city. Salisbury is noted for its manufacture of cutlery. Formerly it was also remarkable for its manufacture of woollens; but that branch of trade is now nearly extinct. Population in 1831, 9876.

Salisbury Plain extends from Salisbury twenty-five miles east to Winchester, and twenty-eight west to Weymouth. Its breadth in some places is near thirty miles. Numerous flocks of sheep are fed here. The famous Stonehenge, and other antiquities, both British and Roman, are found in this plain.—Stonehenge, about six miles north of Salisbury, consists of a great collection of stones of immense size, which, from their being some erect, some reclining, but most of them lying upon the ground, seem to have formed at one time an extensive building. They form a perfect ruin, a confused heap of standing and fallen stones, many of them squared and hewn by art. By comparing their relative situations, the shape and dimensions of the original structure can still be traced, which is supposed to have been a Druidical temple of enormous size. It is an object of great interest to the antiquary, and has excited more inquiry and speculation than any other ruin of the kind in Great Britain. But no important discoveries have been made within it;

and its founders, the date of its erection, and the process by which such enormous masses of stone were conveyed to this desolate spot, and raised into their respective situations, are buried in profound obscurity. The total number of stones of which the structure was composed, appears to have been one hundred and forty.

SALIVA; the fluid which is secreted by the salivary glands into the cavity of the mouth. The secretory organ is composed of three pair of salivary glands. The saliva is continually swallowed with or without masticated food, and some is also spit out. It has no colour nor smell: it is tasteless, although it contains a little salt, to which the nerves of the tongue are accustomed. Its specific gravity is somewhat greater than that of water. The quantity of twelve pounds is supposed to be secreted in twelve hours. During mastication and speaking, the secretion is augmented, from the mechanical pressure of the muscles upon the salivary glands. Those who are hungry secrete a great quantity, from the sight of agreeable food. It assists the spirituous fermentation of farinaceous substances; hence barbarous nations prepare an inebriating drink from chewed roots. Saliva appears to consist, in a healthy state of the body, of water, which constitutes at least four fifths of its bulk, mucilage, albumen, and saline substances. The use of the saliva is, 1. It augments the taste of the food, by the evolution of sapid matter. 2. During mastication, it mixes with, dissolves, and resolves into its principles, the food, and changes it into a pultaceous mass, fit to be swallowed; hence it commences chymification. 3. It moderates thirst, by moistening the cavity of the mouth and fauces.

SALKELD, LITTLE; a hamlet of England, in Cumberland; near which is a circle of stones, seventy-seven in number, each ten feet high. At the entrance is a single one fifteen feet high. These are called by the people *Long Meg and her daughters*. They are probably a Druidical work. Within the circle are two heaps of stones, under which dead bodies are supposed to have been buried.

SALLEE; a seaport on the western coast of Morocco, at the mouth of a river of the same name, formerly the great hold of Moorish piracy; and immense depredations were committed from it upon European commerce. The river, which formerly admitted large vessels, is now choked up with sand. Sallee has a battery of twenty-four pieces of cannon, which commands the road, and a redoubt that defends the entrance of the river. On the opposite side of the river stands Rabat, called often New Sallee. It has been chiefly frequented by Europeans, and contained once numerous factories belonging to them; but by order of the emperor, the trade has been transferred to Mogador. Lon. 6° 40′ W.; lat. 34° 3′ N.

SALLUSTIUS, Caius Crispus, was born at Amiternum, a municipal city in the territory of the Sabines, in the year of Rome 668 (86 B. C.). His gay spirits and his fiery and restless disposition led him into many youthful excesses; yet it is not improbable that he was less corrupt than has been commonly represented. We ought also to take into consideration the prevailing state of morals at that time when we sit in judgment on his faults. His faithful and vigorous descriptions of the moral depravity of the Romans plainly show that he was accurately acquainted with it. Through the favour of Cæsar, he was appointed pretor, and sent to Numidia, where he collected great treasures. When he returned to Rome, he played a conspicuous part, and in the latter part of his life appears to have reflected on the vices of his youth, and to have lived more moderately. His death took place in the year of Rome 719 (B. C. 35). During the period of his retirement, he made the history of his country his principal study. But, unfortunately, we have only a few fragments of the copious history which described the period from the death of Sylla to the conspiracy of Catiline. Two other historical writings of his have come down to us entire; one a description of the wars of the Romans against the crafty Jugurtha, the other of the conspiracy of Catiline. These are distinguished alike for their contents and their style. Sallust appears to have taken Thucydides as a model; but, in the opinion of Quinctilian, he far surpasses him. The style of Sallust is vigorous, pure, and often very eloquent; his thoughts possess dignity, strength, truth and clearness. The principal editions of this author are those of Corte, with a copious commentary (Leipsic, 1724), and Haverkamp (Amsterdam and Utrecht, 1742).

SALLY. In the defence of a place, if particular reasons do not determine to the contrary, frequent sallies are beneficial, in order to keep the enemy at a distance; to destroy the works; to bring in, if possible, the means of subsistence from the surrounding country; to afford an easy entrance to men or arms; or to favour the operations of a friendly force without. Aided by such a force, they are often decisive against the besiegers. They are undertaken to the most advantage after midnight, in cloudy or rainy weather; but they must be so managed as to surprise the enemy, and therefore, must be carried on with great secrecy; therefore the most resolute and faithful men are to be selected, and on going out all noise must be avoided. The object of the sally determines the number of soldiers; they are frequently accompanied by artillery and cavalry; they must in no case separate themselves too far from the fortification, to avoid being cut off, and, on their return, must neither obstruct the defence, nor occasion any confusion which may favour the attack of the enemy. By sallies with a small number of troops, the besieged often endeavour to entice the besiegers within the fire of the fortress, or to harass and exhaust them. A commander of a fortress will make use of sallies as long as he is able, as the best means of defence.

SALLYPORT; a large port on each quarter of a fireship, out of which the officers and crew make their escape into the boats as soon as the train is fired.

SALM. Previously to the French revolution, in 1789, there were two counties of this name, that of Upper Salm, chiefly in Lorraine, and that of Lower Salm, chiefly in Luxemburg. Their possessions having been annexed to France in 1802, they were indemnified from the secularisations beyond the Rhine. The elder house, Obersalm, or Upper Salm, is divided into the three branches of Salm-Salm, Salm-Kyrburg and Salm-Horstmar. The house of Niedersalm, or Salm-Reiferscheid, is divided into three branches, Salm-Krantheim, Salm-Reiferscheid, and Salm-Dyk, with domains in Suabia, the Prussian province of the Lower Rhine, and Luxemburg. All the possessions of both houses have been mediatised. See *Mediatisation*.

SALMASIUS, Claudius (the Latinized name of Claude de Saumaise), distinguished for his profound and extensive learning, was born at Sémur,

in Auxois (now the department Côte-d'Or), in 1588. His father, a respectable magistrate, and a learned man, instructed him in the ancient languages, and then sent him to Paris to study philosophy. His edition of Florus, which was published in 1609, and, according to his own assertion, had already been completed several years, is a remarkable proof of his early erudition. In 1606, he went to Heidelberg, to study law, under the celebrated Gothofredus (Godefroi). The excellent university library there gave him an opportunity to gratify his literary curiosity, and to extend his reputation by the publication of his learned labours. On his return to France in 1610, he began to practise his profession, but soon withdrew from it to devote his whole time to study; and the rest of his life was occupied with critical labours and learned controversies. His mother, a Calvinist, had educated him in Protestant principles; and, in 1623, he married the daughter of a respectable Protestant. Several years later, he passed some time at the country seat of his father-in-law, near Paris, where he completed his great labour on Pliny and Solinus. In 1629, his father was desirous of transferring to him his place, and the parliament of Dijon made no objection, although he openly professed Calvinism; but the keeper of the seals, Marillac, refused to sanction the step. The invitations of the universities of Padua and Bologna were declined by Salmasius; but, in 1651, he accepted the offer of the professorship, which had been held by Joseph Scaliger at the university of Leyden. His friends made several attempts to induce him to return to France, and cardinal Richelieu offered him a pension, on condition of his writing a history of his ministry. But Salmasius declined all these offers. In 1649, Charles II. of England induced him to write a defence of his father *(Defensio regia pro Carolo I.)*, which was answered by Milton's *Defensio pro Populo Anglicano.* (See *Milton.)* The zeal with which Salmasius defended royalty in this work offended his republican patrons in Holland, and he therefore the more readily accepted the invitation of queen Christina to visit Sweden (1650). But the climate of Sweden was so unfavourable to his health, that he returned to Holland the next year, and died in 1653, at Spa, whither he had gone for his health. Although virulent in controversy, Salmasius was remarkably gentle and kind in private, and at home was entirely governed by his wife. The most important of his numerous works are his *Plinianæ Exercitationes in Solinum;* his edition of the *Scriptores Historiæ Augustæ; De Mutuo; De Modo Usurarum; De Fœnore Trapezetico; De Re militari Romanorum; De Re Hellenistica; Observationes in Jus Atticum et Romanum,* &c. All his works display a wonderful variety, extent and depth of erudition, but are less remarkable for taste or judgment. His learning was aided by a powerful memory. Besides the classical and many modern languages, he was acquainted with Hebrew, Chaldaic, Arabic, Persian, Coptic, &c. He laboured with great industry, but used the file sparingly.

SALMON *(salmo salar)*; a celebrated fish belonging to the trout genus, which inhabits the northern seas, and ascends the rivers in spring for the purpose of depositing its spawn. The excellence of its flesh is well known, but it varies somewhat in different waters. In certain districts, the abundance of this fish forms a great source of wealth to the inhabitants, and it often forms a chief article of sustenance. The salmon inhabits the European coasts, from Spitzbergen to Western France, but is never seen in the Mediterranean. On the western shores of the Atlantic it is found from Greenland to the Hudson, but is exceedingly rare in the latter river, and never penetrates farther south. It ascends the St Lawrence to lake Ontario, and enters the tributaries of that lake; but the fall of Niagara presents a barrier to its farther progress into the continent. In the North Pacific the salmon again makes its appearance, and frequents, in vast numbers, the rivers of North-western America, Kamtschatka, and Eastern Asia. A cold climate and clear water seem to be most congenial to its constitution.

The Salmon grows to the length of four, five or six feet, and usually weighs twelve or fifteen pounds. The body is elongated and compressed; the colour silvery-gray, with spots; the head of moderate size, and the upper jaw rather the longest. Almost all parts of the mouth, and even the tongue, are furnished with pointed teeth, as in the other trouts, and, like them, it has an adipose fin upon the lower part of the back. All the trouts are voracious and carnivorous, and in general seek the purest water. As soon as the ice melts, the salmon enter the mouths of rivers, and, as has been ascertained, almost always of those which gave them birth. They swim usually in immense bodies, in the middle of the stream, and near the surface: their progress is slow, and they make a great noise in sporting, if the weather be fine. They are easily frightened, either by a sudden noise or floating timber, and on such occasions sometimes turn aside from their course and return to the sea. When farther advanced, they make the most determined efforts to surmount rapids and cascades, and will leap a fall of twelve or fifteen feet in perpendicular height. If alarmed, they dart away with such rapidity that the eye can scarcely follow them. The velocity of this motion has been proved to equal twenty-five to thirty miles per hour. They penetrate far into the interior of the continents, and deposit their spawn in the lakes, &c., about the head-waters of the longest rivers. When the young are about a foot in length, they descend the rivers and take refuge in the ocean. Late in the following spring or in the beginning of summer, and after the old ones have ascended, the young again enter the rivers, and are then about eighteen inches in length. They again seek the ocean on the return of frosts. At two years old, the salmon weighs six or eight pounds, and requires five or six years to attain the weight of ten or twelve.

The salmon-fishery is one of the most important branches of business in the north of Europe. Immense quantities of this fish are taken every year, and form a considerable accession to the general mass of nutriment. The flesh is bright orange, but, though delicious to the taste, and very much sought after, is difficult of digestion.

SALONICA, or SALONIKI, or SALONICHI (anciently Therma; afterwards called by Cassander Thessalonica); a city of European Turkey, in Macedonia, at the north extremity of a gulf, to which it gives name; anciently Thermaic gulf; 272 miles west of Constantinople; lon. 22° 56′ E.; lat. 40° 38′ N.; population, 70,000; 35,000 Turks, 20,000 Greeks, 12,000 Jews, and 3000 Franks. It is the residence of a pacha of three tails, and of a Greek archbishop, has an excellent commercial position, and, of the towns of European Turkey, is second only to Constantinople in point of commerce.

It is pleasantly situated, being built on the declivity of a hill; and the approach to it from the sea is very imposing. The domes and minarets of mosques, together with other buildings, environed with cypresses, give it an air of splendour, but, like other Turkish towns, its interior by no means corresponds with its external magnificence. It is situated in the vicinity of a fertile district, and exports cotton, tobacco, corn, and wool. The ancient walls are nearly entire, and are five or six miles in circuit; but within them are many void spaces. Of the remains of antiquity the most remarkable are the *propylæa* of the ancient Hippodrome. The whole sculpture is in marble, and is considered among the finest pieces of art which have escaped the ravages of time. To the early Christians in this city, St Paul addressed two epistles.

SALOP, COUNTY OF. See *Shropshire*.

SALSAFY (*tragopogon porrifolius*). This plant, which is often cultivated in gardens for culinary purposes, is sometimes called *vegetable oyster*, from a similarity in the taste of the root to the flavour of that fish. It belongs to the *compositæ*, and is allied to the endive and dandelion; the root is long, white, tapering, and fleshy; the stems upright, two or three feet high, smooth, striated, hollow, and branching; the leaves are alternate, embracing the stem, narrow, and long; the flowers are solitary and terminal, situated upon swelling peduncles; the involucre or common calyx consists of several lanceolate, very acute and equal leaflets, much longer than the corollas; the corollas are violet purple. It grows wild in the south of Europe. The roots form a light and wholesome aliment, and are cooked in various manners. The mode of cultivation is, in every respect, similar to that of the carrot. Many prefer the root of the *scorzonera Hispanica*, a plant somewhat resembling the former, but with yellow flowers. The root of this last is carrot-shaped, about as thick as one's finger, tapering gradually to a fine point, and thus bearing some resemblance to the body of a snake; hence the name of *viper's grass*. The outer rind being scraped off, the root is steeped in water in order to abstract a part of its bitter flavour, and is then boiled or stewed in the manner of carrots or parsneps. The roots are fit for use in August, and keep good till the following spring. Its culture is the same as that of the salsafy, and it is a native of the same part of the globe.

SALSETTE; an island on the western coast of Hindostan, formerly separated from Bombay by a strait 200 yards wide, across which, in the year 1805, a causeway was carried. It is eighteen miles long by fourteen broad, and is well adapted for the cultivation of sugar, cotton, hemp, indigo, &c.; but it has hitherto been kept in a state of nature, for the purpose of supplying Bombay with wood, charcoal, and sea salt, of which there is a considerable manufactory. Salsette is remarkably rich in mythological antiquities; and the remains of reservoirs, with flights of stone steps round them, and the ruins of temples, &c., indicate a former state of prosperity and extensive population.

SALT. This term was originally employed to denote *common salt*, but was afterwards generalized by chemists, and employed by them in a very extensive and not very definite sense. They understood by it any body which is sapid, easily melted, soluble in water, and not combustible; or a class of substances midway between earths and water. Many disputes arose concerning what bodies ought to be comprehended under the designation, and what ought to be excluded. Acids and alkalies were allowed by all to be salts; but the difficulty was, to determine respecting earths and metals; for several of the earths possess all the properties which have been ascribed to salts, and the metals are capable of entering into combinations which possess saline properties. In process of time, however, the term *salt* was restricted to three classes of bodies, viz. *acids*, *alkalies*, and the *compounds* which acids form with alkalies, earths, and metallic oxides. The two first of these classes were called *simple salts*; the salts belonging to the third class were called *compound* or *neutral*. This last appellation originated from an opinion long entertained by chemists, that acids and alkalies, of which the salts are composed, were of a contrary nature, and that they counteracted one another; so that the resulting compounds possessed neither the properties of acids nor of alkalies, but properties intermediate between the two.

Chemists have lately restricted the term *salt* still more, by tacitly excluding acids and alkalies from the class of salts altogether. At present, then, it denotes only the compounds formed by the combination of acids with alkalies, earths, and metallic oxides, which are technically called *bases*. When the proportions of the constituents are so adjusted that the resulting substance does not affect the colour of infusion of litmus, or red cabbage, it is then called a *neutral salt*. When the predominance of acid is evinced by the reddening of these infusions, the salt is said to be acidulous, and the prefix *super*, or *bi*, is used to indicate this excess of acid. If, on the contrary, the acid matter appears to be in defect, or short of the quantity necessary for neutralizing the alkalinity of the base, the salt is then said to be with excess of base, and the prefix *sub* is attached to its name.

In the British chemical schools, it is now common to classify the salts in the following orders:

Order 1st. The oxy-sals. This order includes no salt in which the acid or base, is not an oxydised body. A curious law was observed, by Gay Lussac, to obtain among the salts of this order. Since all the powerful alkaline bases, with the exception of ammonia, are protoxides of an electro-positive metal, one equivalent of an acid will combine with one equivalent of such a base, and form with it a neutral salt. Now, if we divide the order into families, arranged according to the acid, as sulphates, nitrates, &c., it follows that in each family the oxygen of the salt must bear a constant ratio to the oxygen of the base; thus, since one equivalent of sulphuric acid contains three atoms of oxygen, and one equivalent of nitric acid five, we have the ratio of the oxygen of the acid to the base in the neutral proto-sulphates as three to one, and in the neutral proto-nitrates as five to one. Should the base pass into a higher state of oxidation, as to the state of binoxide, then will it be disposed to unite with two equivalents of the acid, that is, twice the quantity of oxygen forming a bi-salt, still preserving the same ratio of oxygen as in the proto salts of the same acid and base. This order of salts comprehends the sulphates, double sulphates, sulphites, hyposulphites, hyposulphates, nitrates, nitrites, chlorates, iodates, phosphates, pyrophosphates, metaphosphates, arseniates, chromates, borates, and carbonates.

Order 2nd. The hydro salts. This order includes no salt the acid or base of which does not contain hydrogen. In this order the hydrochlorides

are not included, since the action of the hydrochloric acid acts upon metals and oxides of metals through the agency of the chlorine. The same remark holds with the hydriodic and other hydracids. The only salts included in this order are in fact compounds of the hydracids with ammonia and phosphuretted hydrogen. In some other salts where hydracids are found, the hydracid acts rather as an electropositive ingredient or base than as an acid, and such salts are therefore placed under a different order.

Order 3d. Sulphuric salts. This order includes no salt, the electropositive or negative ingredient of which is not a sulphuret. The salts of this order are double sulphurets, such as the hydrosulphurets of potassium, sodium, calcium, &c.

Order 4th. The haloid salts. This order includes no salt the electropositive or negative ingredient of which is not *haloidal*. The salts of this order are double salts, and one or other of the ingredients must be analogous to sea salt, such as the hydrogochlorides, aurochlorides, oxychlorides, double iodides, silica fluorides, &c.

As almost every acid unites with every base, and sometimes in several proportions, it follows that the number of salts must be immense. Several thousands are already known, although not above thirty were believed to exist fifty years ago. The early names of the salts, so far as these bodies were known to chemists, were wholly destitute of scientific precision. At present, however, they are universally designated according to the nomenclature of Morveau. The name of each salt consists mainly of two words, one generic, the other specific. The generic word precedes the specific, and is derived from the acid; the specific comes from the base. For example, a salt consisting of *sulphuric acid* and *soda*, is spoken of generically under the name of a *sulphate*, and specifically, by adding the name of the base; thus *sulphate of potash*. The termination *ate* corresponds with the acid whose termination is in *ic*, and the termination *ite* with the acid whose termination is in *ous;* thus *sulphuric* acid gives *sulphates; sulphurous* acid, *sulphites*. There are some acids containing less oxygen than those that terminate in *ous:* in such case, the word *hypo* is prefixed; thus we have *hypo*-sulphurous acid, *hypo*-nitrous acid, giving also salts that are called *hypo*-sulphites, and *hypo*-nitrites. When the salt is a compound of one atom, or proportional of acid with one of base, it is distinguished simply by the words denoting the acid and the base, without the addition of any prefix. If the salt contains *two* atoms of acid united to *one* atom of base, the Latin numeral adverb *bis* or *bi* is prefixed. Thus *bisulphate of potash* is a salt composed of two atoms sulphuric acid and one atom potash. Were there three, four, &c., atoms acid, the numeral adverbs *ter*, *quater*, &c., would be prefixed. Thus *quater-oxalate of potash* means a compound of four atoms oxalic acid and one atom of potash. When two atoms of base are combined with one atom of acid, this is denoted by prefixing the Greek numeral adverb *dis*. Thus *diphosphate of potash* means a compound of two atoms potash with one atom phosphoric acid. The prefixes *tris*, *tetrakis*, &c., indicate three, four, &c., atoms of base with one atom of acid. Salts of this description were formerly termed *sub-salts;* at least in those instances where an alkaline reaction was produced upon test-liquors from the excess of base.

We have stated above that salts are at present understood to be compounds only of acids and bases. The discoveries of Sir H. Davy, however, require us to modify this generally received definition. Many bodies, such as common salt and muriate of lime, to which the appellation of *salt* cannot be refused, have not been proved to contain either acid or alkaline matter, but must, according to the strict logic of chemistry, be regarded as compounds of chlorine with metals. Such compounds, possessing, for the most part, the properties of solubility in water, and sapidity, are to be included under the general name of salts. They are denominated *chlorides*, *iodides*, and *bromides*, of the metals, according to the particular constitution of each. Thus the compound of chlorine and calcium, formerly known as muriate of lime, is called the *chloride* of calcium. The solubility of salts in water is their most important general quality. In this menstruum they are generally crystallized; and by its agency they are purified and separated from one another, in the inverse order of their solubility. The determination of the quantity of salt which water can dissolve, is not a very difficult process. It consists in saturating the water exactly with the salt, whose solubility we wish to know, at a determinate temperature, weighing out a certain quantity of that solution, evaporating it, and weighing the saline residue. We shall give the results of some experiments upon the solubility of a few salts.

Sulphate of Soda.

	Salt soluble in 100 parts of water.	
Temperature.	Anhydrous.	Crystallized.
0,00°	5,02	12,17
11,67	10,12	26,36
17,91	16,73	48,28
28,76	37,35	161,53
30,75	43.05	215,77
32,73	50,65	322,12
40.15	48.78	291.44
50,40	46,82	262,35
59,79	45,42	
70.61	44.35	
84,42	42.96	
103,17	43,65	

Hence it appears that the solubility of sulphate of soda follows a very singular law. After having increased rapidly to about the temperature of 33°, where it is at its maximum, it diminishes to 103,17°; and at that point it is nearly the same as at 30,5°.

Solubility of Chloride of Potassium.

Temperature.	Salt dissolved in 100 water.
15,64°	43,50
49,31	55,63
74,69	65,51
105,48	77,89

Solubility of Chloride of Sodium (common salt).

Temperature.	Salt dissolved in 100 water.
13,89°	35 81
16 90	35,88
59,93	37.14
109,73	40,38

Solubility of Sulphate of Magnesia (Epsom salt).

Temperature.	Salt dissolved in 100 water.
14,58°	103.69
32,96	178.34
49,08	212,61
64,35	295,13
97,03	644.44

Solubility of Nitrate of Potash (Nitre).

Temperature.	Salt dissolved in 100 water.	Temperature.	Salt dissolved in 100 water.
0,00°	13.33	45.10	74,66
5,01	16,72	54 72	97,05
11,67	22 23	65,45	125,42
17,91	27,31	79.72	169.27
24.94	38.40	97,66	236,45
35,13	54,82		

For the chemical, natural, historical, and economical history of the most important salts, see the articles upon their respective bases, as *Lime*, *Soda*, &c.

SALT, HENRY, born in Litchfield, and educated in the grammar-school of that town, was sent to London, and placed under the tuition of an artist, but had not been long with him, before lord Valentia made him an offer to take him, on his projected journey to India; and Mr Salt accompanied him to India as his draftsman. During his travels in that country, and up the Red Sea, and through Abyssinia back to England, they were absent four years; and, on their return, lord Valentia published his travels, in three volumes quarto, splendidly ornamented with plates, from the pencil of Mr Salt. The Account of Abyssinia was written by Mr Salt, who was employed to carry presents to the emperor of Abyssinia. Mr Salt, on his return, published twenty-four Views taken in India, the Red Sea, Abyssinia, &c., folio (1809); and, in 1814, an account of a Voyage to Abyssinia, and Travels in the Interior of that Country, quarto. This was the narrative of a second journey which Mr Salt made to that country, on his return from which he was appointed English consul-general in Egypt, where he engaged in active researches into the antiquities of that country. He died, near Alexandria, in 1827.

SALTCOATS; a seaport town in Ayrshire, Scotland, situated about 32 miles from Glasgow. About two hundred years ago, Salt-cots, or Saltcoats, consisted of only four little cottages or cots, inhabited by as many families, who gained a livelihood by making salt in kettles; but at the beginning of the last century, a harbour being erected for shipping coal from the great coal tract which pervades the neighbourhood, the little hamlet began to assume the appearance of a village, but it is only in recent years that it has risen to any note. About the year 1700, the place becoming the property of Sir Robert Cunningham, he erected the harbour to facilitate the export of coal; and he further built several large pans for the manufacture of salt, of which a very great quantity has been made here. The trade of ship-building was carried on also with success; and in the twenty-six years, ending in 1790, there were built no fewer than sixty-four vessels of the aggregate tonnage of 7095, value upwards of £70,000 sterling. Since that period the trade of the port has considerably increased. The exportation of coals to Ireland forms a chief branch of commerce; and there are some hundreds of looms in the town employed in weaving for the Paisley and Glasgow manufacturers. Population in 1821, 3413; in 1831, not specified.

SALTPETRE. See *Potash*.

SALT-WATER BATHS; those which are taken in the water of the salt-springs, approach in virtue to the sea-baths. They are used chiefly in scrofulous and cutaneous disorders, inveterate gout and syphilis, lameness, rheumatism, tendency to catarrhs, &c. The daily repeated inspiration of the air near the salt-works is also beneficial in some complaints of the lungs. Even the drinking a small quantity of the brine, if not too strong, is of some use in the above mentioned complaints. These baths may be easily established wherever there are inland salt-works. There are several in Germany, much frequented. See John C. Reil, *On the Use and Application of the Brine-Baths* (Halle, 1809), and Tolberg's *Experiments on the use of Brine-baths* (Madgeburg, 1811), both in German. For *Sea-bathing*, see that article.

SALUTATION; the signs which custom has rendered common, for expressing to others, in our intercourse with them, our esteem, love, submission, or good will. Greeting (in German, *gruss*, *grussen*), is derived from the Low German *groten*, to make great: thus God greet you, means, God make you great—bless you. Salutation sometimes consists of certain gestures. Sometimes an express assurance, or wish is added to these mute signs of feeling. The difference in the forms of salutation often extends so far, that one nation considers that a mark of rudeness which another esteems a mark of civility In most German countries, it is an act of politeness to kiss the hands of ladies; but, in Italy, this is regarded as a mark of familiarity, which is permitted only to the nearest relations. On the contrary, the Russian ladies allow not only the hand to be kissed, but even the forehead, and would consider themselves insulted by the omission of this ceremony. Instead of the customary salutation in the Protestant countries of Germany,—Good morning, Your servant, &c.,—the German Catholic salutes in the manner prescribed by the pope Benedict XIII. (1728),—Praised be Jesus Christ; to which the answer is, For ever, amen. The miner's salutation is, Good luck to you (*Glück auf.*) The military salutations which were introduced among the Germans in the beginning of the sixteenth century, consist in touching the hat or cap, lowering the standards and the sword, or raising the musket. Vessels, when meeting, salute each other by a discharge of cannon, by striking the flag, or by the cheers of the sailors, &c. If we express our esteem for persons of distinction, by bowing, and uncovering our heads, the Russian throws himself on the ground before his master, clasps his knees, and kisses them. The Pole bows to the ground, and the Bohemian kisses at least the gown of any one for whom he wishes to express his profound respect.

Mutual contact is regarded among almost all nations as the expression of friendly sentiments. The pressing of hands, embraces, and kisses, are among other nations also, as well as those of Europe, marks of esteem and love. Some nations, in saluting, touch other parts of the body. The Laplanders, for instance, press their noses firmly together. In one of the larger Cyclades, persons reciprocally moisten each other's hair; and the Franks are said to have pulled out a hair and presented it to the person saluted. The Turk crosses his hands, places them upon his breast, and bows. The salutation of the Hindoos in Bengal consists in touching the forehead with the right hand, and bending the head forwards. They first place the right hand on the breast with a profound inclination, then touch the ground, and finally the forehead with the same hand. At the same time, they call themselves the most humble slaves of him whom they salute. The inhabitants of the Manillas bend the body profoundly, place their hands upon their cheeks, raise one leg, and bend the knee. The inhabitants of Lamurzec, in the Pelew islands, seize the hand, or even the foot of the person whom they wish to salute, and rub their face with it. In the island of Sumatra, the saluting person bows, begs the left foot of him whom he addresses, kneels on the ground, and applies this foot to his crown, forehead, breast and knee: finally, he touches the ground with his head, and remains for some moments stretched out on his belly.

The salutations in the East generally bear

stamp of a slavish mind. The very ancient custom of throwing one's self on the ground before persons of distinction, and repeatedly kissing their feet, has continued to the present time. At an entertainment in Persia, the host goes a considerable distance to meet his guests, bids them welcome with the most respectful compliments, then returns hastily to the door of his house, and waits their arrival to repeat the same demonstrations of respect. In China, if two persons meet on horseback, the inferior in rank dismounts from his horse before the superior, and remains standing until he has passed. Some salutations are also peculiar to men, and others to women. When acquaintances meet, they join their hands upon their breasts, or above their heads, bend their head a little, and say *Tsin, tsin*—a compliment without any particular signification. In saluting persons to whom they owe more respect, they clap their hands, then raise them, and finally let them sink down to the ground. Friends who meet after a long separation, fall repeatedly upon their knees, and bend their heads to the ground, exclaiming, at the same time, *Na fo?* (Has all passed happily?) or, *Yung fo* (Happiness is painted upon thy countenance). Women salute each other with the words *Van fo* (May all happiness be with you); but they are not allowed to salute men. Children fall on their knees before their parents, and servants before their master or mistress. In Japan, the inferior of two persons saluting takes off his sandals, puts his right hand into his left sleeve, permits his hands, thus crossed, to sink slowly upon his knee, passes the other person with short, measured steps, and a rocking motion of the body, and exclaims, with a fearful countenance, *Augh! augh!* (Do not hurt me!) In Siam, the inferior throws himself on the ground before his superior. The latter then sends one of his attendants, who are very numerous in the case of persons of distinction, to examine whether he has eaten, or carries with him any thing of an offensive smell. If this is the case, he receives a kick from the superior, and is compelled to retire immediately; if otherwise, the servant lifts him up. Women, even when advanced in age, are saluted with the names of the most beautiful and most precious objects, but not without the additional word *young;* as "young diamond," "young gold," "young heaven," "young flower," &c. If friends wish to express their mutual attachment, they scratch their hand slightly, and reciprocally suck a drop of blood from the wound. In Ceylon, when persons salute, they raise the palm of the hand to the forehead, and make a low bow. Before a superior they throw themselves upon the ground, continually repeating his name and dignity, while the superior very gravely passes on, and hardly deigns to utter a word of reply. The greeting of the common Arabian is *Salâm aleikum* (Peace be with you),—a salutation which has been long in use among the Jews. At the same time, he places his left hand upon his breast, as a sign that this wish comes from his heart. The reply is, *Aleikum essdlam* (With you be peace). But Arabians of distinction embrace each other two or three times, kiss each other's cheeks, and inquire two or three times after each other's health; at the same time, each kisses his own hand. The Arabians of the Desert shake hands six or eight times. In Yemen, persons of distinction, after a long refusal, allow their fingers to be kissed. The Abyssinians and other nations fall on their knees, and kiss the ground. Several negro nations take each other's hands, and pull the fingers till they crack. The negroes of Sierra Leone bend the right elbow, so that the hand touches the mouth; the person saluted does the same; they then put their thumb and fore-finger together, and withdraw them slowly. Other negroes snap their fingers in meeting each other, pull the comb out of their hair, and replace it. In Lower Guinea, the saluting person seizes the fingers of the saluted, brings them into a particular position, presses them, cracks them hastily, calling, *Akkio, akkio* (Thy servant, thy servant). On the Gold coast of Upper Guinea, friends embrace each other, join the fore-fingers of their right hands until they crack, bend their heads, repeating *Auzi, auzi* (Good day, good day). Persons of distinction, after cracking the fingers, exclaim, *Bere, bere* (Peace, peace). If the Mandingoes salute a female, they take her hand, raise it to their nose, and smell it twice. Mr Snellgrave, an Englishman, with his companions, was saluted by a messenger of the king of Dahomey, attended by 500 negro soldiers, in a very novel manner. The officers of the corps approached their English guests with drawn swords, which they brandished over their heads with curious gesticulations and motions. They then placed their swords upon their bodies, and, after a repetition of these ceremonies, the messenger presented them his hand, and drank to their health. In Morocco, foreigners are saluted by the Moors, on horseback, in a manner which may well startle those not accustomed to it. The Moor rides full speed towards the stranger, as if about to run him down; he then suddenly stops, and discharges his pistol over the head of the person. Persons of equal rank salute each other nearly in the European way. They shake hands, and kiss each other's face and beard, particularly if they are friends. The Egyptians extend their hands, place them upon their breast, and bend their heads. The greatest act of politeness is to kiss their own hand, and afterwards place it upon their heads. They only kiss the hand of men of distinction, not of women. Inferior officers hold the stirrup of their superiors, mounting on horseback. In the divan, the inferior takes off the slipper of the superior, places it by his side, and receives the same salutation from the latter. In other countries of Africa, people take off their clothes, fall on their knees, bend their heads to the ground, and cover their head and shoulders with sand. The Ethiopians seize the right hand of him for whom they wish to show respect, and raise it to their mouth. They even take his sash and tie it round their waist, so that he remains for some time half naked.

The salutations between the different tribes in the north-west of America are very ceremonious. If two hordes of these savages meet, they stop at the distance of twenty or thirty steps, throw themselves on the ground, and remain for some moments in this position. The two eldest of each party then advance and relate very circumstantially the dangers they have encountered. As soon as they have finished their relations, they all begin to sigh. These sighs are finally changed into a horrible yell, in which the young girls, particularly, endeavour to surpass the others of the tribe. With these affecting manifestations of sympathy both parties approach, but each sex separately. Tobacco pipes are handed about, and their affliction is soon changed into merriment. The manner in which the inhabitants of South America salute each other; is short. Their address is, *Ama re ka* (Thou), and the answer, *A* (Yes). The savage of Louisiana

territory, when saluting a person of distinction, begins a loud howl. In the hut he repeats the salutation, holding his hands above his head, and howling three times. He returns thanks with another howl, when the superior invites him, with a low sigh, to sit down. In Otaheite, and particularly in the Society and Friendly islands, persons touch the ends of each other's noses. This salutation is returned by each rubbing the hand of the other on his own nose and mouth. The Otabeitan presents a person whom he chooses for a friend, sometimes with a part of his dress, sometimes with the whole. The inhabitants of New Guinea cover their heads with leaves. This action is also regarded as a sign of peace.

SALUZZO; formerly a marquisate, which, after a long dispute between France and Savoy, was finally confirmed to the latter (1601), in exchange for Bresse and Bugey. It lay between Dauphiny and Nizza, and now forms a province of the Sardinian monarchy. The capital, of the same name, lies near the Po, and has a population of 10,150. The house of the marquises of Saluzzo was celebrated in the middle ages, and there are at present branches of it in France (Saluces), Naples, and Austria.

SALVADOR, ST, OR BAYAMO; a town of Cuba, near the southern coast, 520 miles south-east of Havana, on the right bank of the river Bayamo, which forms a port at its mouth. The town is about twenty miles distant from the port. Lon. 76° 55′; lat. 20° 23′. Population, 7486; 2875 of which are whites, 3139 free persons of colour, and 1472 slaves.

SALVADOR, ST. See *Bahia*.

SALVAGE; a recompense allowed by law for the saving of a ship or goods from loss at sea, either by shipwreck or other means, or by enemies or pirates. See *Prize*.

SALVATOR ROSA. See *Rosa*.

SALVI, GIAMBATTISTA. See *Sassoferato*.

SALZBURG; a city of Austria, on the Salza, sixty-three miles south-east of Munich, the chief place of the circle of the same name; lat. 47° 48′ N.; lon. 13° 1′ E. It contains, besides the cathedral, sixteen other churches, six hospitals, and several literary institutions. The principal article of manufacture is hardware. The cathedral is more remarkable for solidity than elegance. The university was converted (1809) into an academy. The most striking feature of the place is its romantic situation amidst lofty mountains. The citadel stands in a bold and commanding situation, and one of the gateways is cut through a solid rock, being 300 feet in length, thirty feet in height, and twenty-four in breadth. Population, 13,000.

SALZMANN, CHRISTIAN GOTTHILF, a distinguished teacher at Schnepfenthal, was born, in 1744, in the territory of Erfurt, where his father was a Protestant preacher. He himself was a clergyman in Erfurt, when the works of Rousseau and Basedow directed his attention more particularly to the education of his own children. In 1778, he published Entertainments for Children, and Friends of Children, and, in 1780, his excellent *Krebsbüchlein*, in which he exposes, with keen irony, the prevalent mistakes in education. Basedow invited him, in 1781, to take part in his *Philanthropin*, an establishment for education, at Dessau. He published his Sermons, &c. at this institution, from 1781 to 1783, in 4 small vols. In 1783, he began, and in 1788 finished, his novel *Karl von Karlsberg*, or, *on Human Misery*, in 6 vols. In 1784, he established in Schnepfenthal (in Gotha), his own institution. His prudent management, and the zealous co-operation of able assistants, made it prosper. He began with his own children, and a few others; but pupils were soon sent to him, not only from all parts of Germany, but also from many foreign countries. Some of these pupils were of very high rank. In 1797, he published his Heaven on Earth, which gained him the favour of many parents. In 1803, the number of his pupils was sixty-one. In 1788, he began to publish the Thuringian Messenger, a journal which was much read. A number of books on education, by him and his associates, contributed much to the changes which took place in education. His institution was distinguished, moreover, for the health of the pupils, and the development of their physical powers, which was owing to its salubrious situation, to the attention paid to diet, and to the gymnastics introduced there by Guts-Muths. (q. v.) Six of his associates became his sons-in-law, and two of his sons were among his associates. His daughters also taught. The wars in Europe, and the increasing number of similar institutions, reduced the number of his pupils, so that, in 1807, he had but thirty-six children under his care. Salzmann died in 1811, having effected much good as an instructor and a popular author. Clearness and simplicity, piety and practical good sense, are the prominent features of his writings. He was distinguished for firmness, sagacity, and unceasing activity, and was honoured by thousands whom he had trained in the ways of virtue and wisdom. His institution continues under his son, Charles Salzmann.

SAMARCAND; a city of Bucharia, situated in a fertile and delightful region, 200 miles east of the city of Bucharia; lat. 39° 30′ N.; lon. 68° 50′ E. Its population is about 50,000. It is surrounded with a double wall, contains numerous fountains, 250 mosques, with forty madrases, or religious schools (see *Mosques*), a palace, several bazars, &c. Samarcand has been, for two centuries and a half, one of the great marts of the Asiatic inland commerce. It was anciently called *Marakanda*, and was the capital of Sogdiana, which lay on the northern frontiers of the Persian empire. Alexander is thought to have pillaged it. It was taken by Gengis Khan in 1220, and, under Timour, or Tamerlane became the capital of one of the most extensive empires in the world. Tamerlane, towards the end of the fourteenth century, established a Mohammedan university here, and Samarcand became the seat of Asiatic learning. See *Bucharia*.

SAMARITANS. After the fall of the kingdom of Israel, the people remaining in its territory, consisting of the tribes of Ephraim and Manasseh, mingled with some Assyrian colonists, were called by the Greeks Samaritans, from the city of Samaria, around which they dwelt. When the Jews, on their return from captivity, rebuilt the temple of Jerusalem, the Samaritans desired to aid in the work; but their offers were rejected by the Jews, who looked upon them as unclean, on account of their mixture with heathens; and the Samaritans revenged themselves by hindering the building of the city and temple. Hence the hatred which prevailed between the Jews and Samaritans, which, in the time of Jesus, when the latter were confined to a narrow strip of country between Judæa and Galilee, prevented all intercourse between them, and still continues. Having never become in-

pendent, the Samaritans have shared the fate of the country which they inhabit, and have suffered so much from the oppression of the Turks, that not only the colonies of them in Egypt (which were in a flourishing condition in the seventeenth century) are now extinct, but the number of them in Naplousa (the ancient Sichem), and in Jaffa, the only places which contain Samaritans, was, according to De Sacy, not more than 200 in 1811. In their religious opinions and usages, they resemble those Jews, particularly the Caraites, who reject the Talmud, and differ from the rabbinical Jews, in receiving only the Pentateuch and book of Joshua, and in rejecting all the other portions of the Bible, as well as the Talmud, and rabbinical traditions. In their manners, rites, and religious ceremonies, they adhere strictly to the Mosaic law. Instead of the temple at Jerusalem, they worship on mount Gerizim, in Samaria, where, in more prosperous times, they celebrated their festivals, and offered sacrifices. The worship of one God, circumcision, the purifications, and feasts (except the Purim and the feast of the dedication), they have in common with the Jews. They believe in the existence of angels, in a resurrection, and future retribution, and expect the coming of a Messiah, in whom they look only for a prophet. Their priests are of the tribe of Levi, and are treated as superiors. On account of their poverty, their only sacrifice is a lamb, on the feast of Pentecost. In the synagogue, the Aramaic Samaritan dialect is used, but they generally speak Arabic, and they are distinguished by a white turban. They support themselves by mechanical labour and by money dealings. They avoid any connexions with other sects, and marry only among their own nation. Each man is allowed two wives on his first marriage; but on the death of one of them, he cannot marry again. In case both of them die, he is suffered to have one wife. This remnant of a declining race possesses one of the oldest, if not the oldest manuscript of the Pentateuch known to be extant. See *Bible*.

SAMIEL. See *Simoom*.

SAMNITES; the inhabitants of the ancient province of Samnium, in Lower Italy, bordering on the country of the Peligni, Marsi, Campanians, Lucanians, and Apulians. In early times, they occupied the largest part of that country. They are described in Roman history as a people fond of war and of liberty, who were brought completely under the Roman yoke, after long and bloody wars, which continued, with a few interruptions, nearly seventy years. The first hostilities between the two states commenced in the year of Rome 411, when the Campanians, oppressed by the powerful Samnites, sought the aid of Rome. Valerius Corvus, the Roman consul, marched against the Samnites, and forced them to retreat, after a bloody engagement, to their own borders. At the same time, another Roman army had invaded the country of the Samnites, and, after a doubtful contest, gained the victory by the heroic decision of the young Publius Decius Mus. The vanquished nation was obliged to sue for peace; but maintained it only till they recovered from their defeat. For in the year 426 a new war broke out, more bloody than the preceding, which was prosecuted the more obstinately, as the other states in Lower Italy came to the aid of the Samnites. Though the Romans were generally victorious, yet in the year 433, their army becoming involved in a narrow pass near the city of Caudium, and being surrounded on every side by the forces of the enemy, was obliged to submit to the disgrace of passing under the yoke. The senate, however, rejected the peace concluded with the enemy by the captive consuls, delivered up the authors of it to the Samnites, and sent other commanders to prosecute the war. The valiant Papirius Cursor succeeded in revenging the disgrace which his countrymen had suffered by inflicting a similar ignominy upon the enemy. The war was still prosecuted with fury; for the Samnites were vigorously supported by their neighbours, who feared the power of Rome; and even Pyrrhus, the warlike king of Epirus, at the entreaty of the afflicted city of Tarentum, took up arms against the Romans. But the consuls, Papirius Cursor, Q. Fabius Maximus, Pub. Decius Mus, Curius Dentatus, Caius Luscinius Fabricius and others, triumphed repeatedly over the enemy, who fought with desperation; and, after the most fatal defeats, and the entire devastation of their country, the Samnites, together with the other nations which had assisted them, found themselves obliged to sue for peace. In 482, they obtained it. When the Italian allies of Rome revolted against her, in the time of Sylla, the Samnites once more rose against their oppressors, and fought with desperation. But Sylla entirely subdued them, and commanded that every Samnite should be put to death. Three days after the battle he ordered 4000 of them, who had been taken prisoners, to be put to death, on the Campus Martius. The few that remained lived from that time scattered in villages. The Samnites cultivated various arts and manufactures; for the proximity of the refined Greeks in Lower Italy had a very beneficial influence upon them. Even their laws and constitution were borrowed in a great degree from the Greeks. Their form of government was democratic. At the commencement of a war they were accustomed to choose a common general.

SAMOGITIA; a country of Europe, bounded by Courland, Prussia, and Lithuania, formerly a province of Poland, now forming the government of Wilna, in Russia. It was the first of the Polish provinces incorporated with Russia, that raised the standard of insurrection in 1831. See *Russia*.

SAMOIDES. See *Samoyedes*.

SAMOOM. See *Simoom*.

SAMOS, a Grecian island in the Archipelago, opposite to the ruins of Ephesus and the promontory of Mycale, the birth-place of Pythagoras, as is generally supposed, was the most important and powerful island of the Ionians. From the reign of Polycrates, 566 B. C., this island is celebrated in history for the worship of Juno, who was born here, and was also distinguished for its skilful seamen and enterprising merchants, who even sailed as far as the mouth of the Guadalquiver through the Pillars of Hercules (now the straits of Gibraltar). The fleets of the rich Samians often made the Persians tremble. At Samos were first cast statues in bronze. Samos lost the last shadow of republican freedom under the reign of the emperor Vespasian (70 A. D.). In the middle ages, this island was alternately governed by the Arabs, Venetians, Genoese, and Turks: to the latter it finally became tributary, under an aga of the capudan pacha. It is 175 square miles in extent, very fruitful and mountainous, and besides the capital city, Cora, near which the ancient Samos and the temple of Juno (Heræum) lie in ruins (now called the *Columns*), it contains three other cities, Vahti, Carlovassi, and

Fournis. During the Greek revolution, owing to the many refugees from Natolia, Scio, Ipsara, and other places, the island contained about 50,000 Greek inhabitants (where there were formerly only 12,000). Near Samos lies the island of Icaria (Nicaria), inhabited by 300 Greeks. This island is celebrated as being the place near which Icarus, the son of Dædalus (q. v.), fell into the sea, and where his dead body floated on the shore; whence the name. In 1821, the inhabitants of Samos took up arms at the report of the execution of the patriarch. They fortified the harbour on the Little Bogas, to guard against an attack from the coasts of Natolia, and soon collected about 10,000 men. From that time the Samians continually attacked the neighbouring coasts of Asia, and Scala Nuova in particular. July 16, 1821, the island was attacked by the Turks, but without success. The Turks, in August, 1824, again made a more furious attack; but the Greek fleet, commanded by Miaulis, repulsed the Turkish. Samos has lately been visited by an earthquake of an extraordinary nature, that produced a large opening in one of the highest mountains of the island, from which suddenly issued an enormous torrent of water, overflowing the country, and making its way to the sea. By degrees, the inundation subsided, and terminated in forming a river, which has its source at the opening formed in the mountain.

SAMOTHRACE; an island in the Ægean sea, not far from Lemnos, on the coast of Thrace, opposite the Trojan territory, and celebrated for its mysteries, the priests of which were at first the Cabiri, and afterwards the Dioscuri. An initiation into these mysteries was supposed to have efficacy in preserving persons from dangers by sea; and it is related of the Argonauts, that, at the suggestion of Orpheus, who was one of the initiated, they were landed at Samothrace. Over these mysteries there rests an impenetrable obscurity, which also extends to the deities that were revered. It appears certain that the Egyptian and Phœnician religious rites and ceremonies were afterwards united and mingled with those of the Greeks, and that, still later, the religious worship of the Samothracians was introduced into Etruria, although the names of the divinities were changed. Nevertheless, out of respect for its mysteries, this island enjoyed, even under the Roman dominion, a certain degree of freedom; and, even after the birth of Christ, these long celebrated mysteries still enjoyed reputation.

SAMOYEDES, or SAMOIDES; a nomadic people traversing the immense frozen deserts which extend along the ocean forming the northern boundary of European and Asiatic Russia. They extend from the river Mezen, on the European side, nearly to the Lena on the Asiatic; lon. 40 to 120 E., upwards of 2000 miles; in breadth the territory varies from 300 to 600. The population of this cold, dreary and barren country is not supposed to exceed 20,000. The Samoyedes call themselves Khasova, and are divided into three tribes—the Vanoites on the Petchora and Oby, the Tysia-Igoley on the Mezen, and the Khirutches in the interior of Siberia. They are of small stature, usually between four and five feet: have a flat, round, and broad face, thick lips, wide nose, little beard, black hair, in small quantity. They live by hunting, are extremely superstitious, and generally peaceable. As they are unacquainted with the art of writing, their traditions are imperfectly preserved only in their songs. When the victorious Russians first became acquainted with them, they had already been chased from their native seats by the Tartars, and separated from their kindred tribes. Their original country is unknown, but they appear to have come from the south. Their principal wealth consists in herds of rein-deer, which supply them with food, clothing, tents, utensils, &c.

SAMP. A word borrowed from the North American Indians, to denote maize, broken coarsely, boiled, and mixed with milk.

SAMPHIRE *(crithmum maritimum)*; an umbelliferous plant, remarkable for its lanceolate, fleshy leaflets, which grows wild along the sea-coast of Europe. Where it abounds, it is used by the inhabitants as a pickle, as an ingredient in salads, or as a potherb. It can be cultivated in gardens upon beds of sand and rubbish, or in pots; and it is useful to furnish the stocks with a supply of salt; for, like other maritime plants, it posseses the power of decomposing sea-water and retaining the soda. The seed is very similar to a grain of barley.

SAMSON, judge of Israel, son of Manoah, a Danite, was born, according to Usher, about 1155 B. C., and was educated, from his birth, according to the commands of an angel, a Nazarite. At the age of eighteen years, he fell in love with a young Philistine girl, whom he married. At the wedding-feast, Samson, who had formerly torn a lion in pieces, and afterwards found a swarm of bees in the carcass, proposed a riddle to the guests, wagering thirty shirts and as many suits of clothes that they could not guess it in seven days: "Out of the eater came forth meat, and out of the strong came forth sweetness." The secret of his riddle being betrayed to them by his bride, Samson reproached them with ploughing with his heifer; but went to Askalon killed thirty Philistines, and gave their clothes to his guests. His wife having, during his absence in his own country, married again, he caught 300 foxes, and, tying them together, tail to tail, with a fire-brand between them, let them loose in the fields of the Philistines. His own countrymen having afterwards delivered him up bound into the hands of his enemies, he snapped the cords asunder, and killed 1000 Philistines with the jaw-bone of an ass. From this period Samson was judge of Israel for twenty years. While he was on a visit to Gaza, the gates of the city were watched by the Philistines, with the intention of killing him as he went out in the morning; but he rose by night, and carried off one of the gates of the city to a distance of twenty or thirty miles. Not long after he fell in love with Delilah, to whom he foolishly revealed the secret of his strength. By cutting off his hair, which was a violation of his obligation as a Nazarite, she deprived him of his peculiar powers, and betrayed him to his enemies, who put out his eyes, and set him to work in a mill with slaves. At a great festival in honour of Dagon, Samson was brought out to furnish sport to the Philistines. But his hair had grown again; and, his vigour having returned with it, he took vengeance on his enemies by pulling down over their heads the building in which they were assembled, and under the ruins of which he also perished with them. Milton has made his death the subject of a drama—Samson Agonistes.

SAMUEL; a prophet, and the last of the judges of Israel. From his youth he was marked out as destined by God to reform the dissolute and irreligious practices of his nation. He grew up devoted to the temple service; and, sensible of the fault-

of his countrymen, he exhorted them, when they were hard pressed by the Philistines, to fear God, and worship him, as their only means of deliverance. His prayers and sacrifices obtained for them the victory; and the office of judge was conferred on him. He governed the people twelve years; and his administration was distinguished by the restoration of the neglected worship of Jehovah. He also gave new vigour to the theocratical institutions of Moses, by the establishment of schools of the prophets. (See *Prophets*.) In his old age, the corruption of his sons, to whom he had transmitted the office of judge, excited discontents among the Hebrews, who demanded a king. Samuel reluctantly yielded to this revolution, but at the same time anointed the king of the general choice, imposing upon him such restrictions as should preserve the old constitution, and reproving him freely when he was guilty of injustice or impiety. But when Saul attacked the priestly office and privileges, Samuel anointed a new king, David. He did not live to see the contest between David and Saul decided; but, even after his death, his spirit, evoked by the witch of Endor, threatened the latter with the divine vengeance. The books of Judges and Ruth, and part of the first book of Samuel, have been attributed to him, but are probably by a later hand.

SAN CARLOS, Joseph Michael de Carvajal, duke of, descended from the old kings of Leon, was born in Lima, in 1771, went to Spain at the age of sixteen, began his military career as colonel in the second regiment of Majorca infantry, of which his uncle was colonel-proprietor, was in the campaign of Catalonia, in the war of 1793, and a volunteer in the Toulon expedition. On the death of his uncle he was appointed chamberlain, and subsequently governor to the prince of Asturias, afterwards Ferdinand VII. His system of education was, however, not suitable to the views of Godoy, whose influence deprived the duke of that post. In 1805, he was invested with the office of major-domo to Charles IV., and in 1807, was appointed to the viceroyship of Navarre. Three months after he had taken possession of his viceroyalty, he received orders to consider himself a prisoner in the citadel. This arrest arose out of a report, that the duke had recommended to the prince to remove the queen-mother from all influence in the affairs of the kingdom, in case of the king's death, who at that time was very ill, and also to bring the prince of peace before the tribunals of his country. During the affair of the Escurial (see *Ferdinand VII.*), he was subjected to various severe scrutinies; and, though liberated at the same time as prince Ferdinand, he was ordered to remove sixty leagues from Madrid, and was prohibited from fixing his residence in Navarre. He resided at Alfaro when the French armies entered Spain. In the mean time, the insurrection in Aranjuez broke out, and prince Ferdinand being placed on the throne, he immediately called the duke about his person, and appointed him grand-master of the household and member of his privy-council. He arrived in Madrid some days before the prince's departure for Bayonne, and accompanied him in that journey. The duke had several conferences with Napoleon on the subject of exchanging the crown of Spain for that of Etruria, and invariably assured him that the prince would not consent to any treaty without enjoying his liberty and being sanctioned by the cortes. The subsequent arrangements, however, which the prince was compelled to enter into, did not detach the duke from his service: he remained with him at Valençay, till, by the order of Napoleon, he was called, with Escoiquiz, to Paris. Suspicions, however, being entertained of the duke and Escoiquiz's influence over Ferdinand, they were separated from that prince; the duke being confined at Lons-le-Saulnier, and Escoiquiz at Bourges. The duke, in his retirement, cultivated his taste for botany, but above all for history, politics, and general literature. When it was determined by Napoleon to reinstate Ferdinand on the throne of his kingdom, he fixed upon the duke of San Carlos as best suited, by his counsels and knowledge of all parties in Spain, to conciliate their regards. He was therefore called to Paris in November, 1813, and afterwards went to Valençay, where long discussions ensued, which ended in the duke's setting out for Madrid, to obtain the consent of the regency to the treaty. He arrived January 16, 1814; but the arrangements made in France were not approved by the regency. In answer to applications for the return of the king to Spain, the duke of Bassano at length consented to the measure, and his majesty set out under the name of count de Barcelona. The duke was the only minister who accompanied the king. The affairs of Spain were at that time under the direction of the regency; and under these circumstances it was deemed prudent to go to Saragossa. The cortes, however, decided not to give up the reins of government, and the king and the duke proceeded to Valencia in April. May 3, San Carlos was appointed, by the king, first secretary of state; and the next day he signed the infamous decree by which a despotism was established. General Freyer, who had been nominated to the ministry of war, declined the place, and the duke accepted it, in conjunction with that of minister of the king's household: the former office he shortly after resigned to general Eguia. The duke set about introducing a system of economy into the kingdom; established a junta of ministers, over whom he presided; took measures for repairing roads, increasing the number of canals, reviving the credit of the national bank; and instituting several academies for the cultivation of the arts and sciences. Notwithstanding these benefits, his enemies were numerous; and, finding them increase in November, 1814, he demanded permission to resign, which the king granted, and don Pedro Cevallos was appointed to succeed him. He was nominated minister to Vienna, in the month of October, 1815; and in 1817 he was recalled and sent to the court of Great Britain in the same quality. In consequence of the troubles in Spain (1822—23), the duke retired to the court of Lucca, by which he was sent ambassador to Charles X., in 1825. He was subsequently named ambassador extraordinary of Spain to the same court, and continued in that station till his death, July, 1828.

SANCTION, PRAGMATIC;

1. The ordinance of Charles VII. of France, drawn up at Bourges, in 1438, conformably to the decrees of the council of Basle, and on which rest the liberties of the Gallican church

2. The decree of the German diet, at Mayence, in 1439, which sanctioned the same decrees of this council. Both limited the power of the pope, but were altered by subsequent concordates.

3. The instrument by which the German emperor, Charles VI., being without male issue, endeavoured to secure the succession to his female

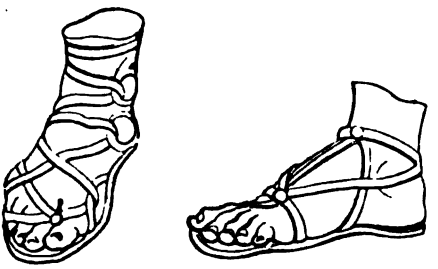
descendants. He soon induced most of the monarchs of Europe to guarantee it; but the elector of Bavaria, Charles Albert, the next heir to his dominions, refused. This caused the Austrian war of succession, after the death of Charles in 1740. In the peace of Füssen, April 22, 1745, Bavaria acknowledged the pragmatic sanction.

4. Charles III. of Spain, when he ceded the throne of Naples to his third son, and his posterity, in 1759, called the law of succession, which he prepared for this branch of his family, *sanctio pragmatica*.

SAND, Charles Louis, a student of theology, who murdered Kotzebue, was born October 5, 1795, at Wunsiedel, in the Fichtelgebirge, where his father held a judicial office. In 1812, Sand was sent to the gymnasium of Ratisbon. In 1814, he entered the university of Tübingen, and, in 1815, joined the Bavarian army as a volunteer against the French; but his corps was never brought into action. After peace, he continued his studies in Erlangen, where, in 1817, his most intimate friend was drowned before his eyes, without his being able to render him any assistance. In the autumn of 1817, he went to the university of Jena, where he was a member of the *Burschenschaft* (see *Universities*), but of no other secret or public society. His whole soul was animated by that love of country and liberty, which, ill defined, indeed, in some cases, was then the predominant sentiment of all the noble-minded youth of Germany. Their excitement was great, as, soon after the peace, most of the German governments had shown a decided reluctance to perform the promises which they had made of improving the political condition of their subjects. Besides this, the idea of a union of the German states, so natural to every German who reflects on the quarrels which have torn to pieces his unhappy country, took possession of the minds of the young, and especially of the students: at least, in them it was manifested more openly. The ideas of young men at a university, on the mode of effecting such political changes, must, of course, have been crude, ignorant as they were of life and of political affairs; but their desires were ardent; hundreds burned to do something towards obtaining these ends; and many were ready to sacrifice even their lives in the cause. These young men, we may be allowed to say, were inspired with as true a love of country as ever existed; but the men of mature age, who ought to have regulated their ardour and guided their efforts, were wanting to their duty, and occupied themselves merely with speculations, in which religion and politics were confusedly mingled, and which were founded on erroneous conceptions of ages gone by. At this time, some writers attacked the prevailing excitement with severe ridicule; and, among these, Kotzebue distinguished himself. In free governments, such ridicule would have been little regarded; but in this period of enthusiasm for liberty, kindled by political oppression, it was felt with bitterness. Kotzebue was discovered to be acting at the instigation of the Russian government, which, of course, added to the exasperation. Sand looked upon Kotzebue as an enemy of his country, and a criminal of the blackest dye, whom the political condition of Germany rendered it impossible to punish according to the forms of law, and who was therefore to be regarded as at open warfare with the true lovers of their country, who had a right to destroy him, as the only means left them for protecting their own rights. Having come to this conclusion, he took the deed upon himself, perfectly conscious, at the same time, that he violated the rules of social order, and willing to endure the punishment which was to be expected for such a deed. He was not, however, "made for murder," as he justly said of himself, and could not easily resolve to act on his own conclusions. He struggled for months against his own convictions, and prayed for guidance: at last he resolved that it was cowardly to defer what he deemed an act of duty. On the afternoon of March 9, 1819, he went to Kotzebue's residence in Manheim, delivered a letter to him, and, while he was reading it, pierced him with a dagger, exclaiming, "Here, thou traitor to thy country." Having given him two more blows, he went down stairs; handed a paper, inscribed "Death-blow to Augustus von Kotzebue," to a servant; went into the street, knelt down, and having cried aloud, "Long live my German fatherland!" pierced his own breast, with the words, "I thank thee, O God, for this victory." The attempt at his own destruction is the only part of the transaction which he ever regretted, and never tried to excuse. Kotzebue died soon after. Sand was executed near Manheim, May 20, 1820, aged twenty-four years, after having suffered much from the wounds which he had given himself, and from an operation which had been performed in consequence. He died with perfect calmness. The testimonies of his conduct at all periods of his life, given by his teachers, parents and friends, show that he was always strictly moral, and modest, and of uncommon purity of life. His character was mild and affectionate. He was a good scholar, although not of a rapid or penetrating understanding. His feelings were stronger than his reason. He was a warm and faithful friend, and uncommonly attached to his parents and brothers and sisters, so that his struggle, before he could resolve to commit murder, was intense. Sand's deed is a remarkable phenomenon in the moral world. As the spirit for the regeneration of Germany had manifested itself most strongly among the students and in the newly established gymnasia, on account of the many young men collected there, the latter, in many German states, were closed; and the governments, believing that Sand was merely the instrument of a secret society, commenced active inquiries to discover these secret societies; but they could not be found. It showed, moreover, a very incorrect appreciation of Sand's deed, to suppose that he was but the agent for executing an order. A comparison between him and other persons, whom history records as urged by a mistaken sense of duty to commit murder, as Ravaillac, Charlotte Corday, Staps, would be interesting.—See *Vollständige Uebersicht der gegen Sand geführten Untersuchung* (Stuttgard, 1820)—the publication was not allowed until 1823;—also *Actenauszüge aus dem Untersuchungsprocess über K. L. Sand* (Altenburg and Leipsic, 1821), and Eight more Contributions to the History of Aug. von Kotzebue and C. L. Sand (Mühlhausen, 1821).

SANDA; a small island of Scotland, in the county of Argyle, and on the coast of Kintyre, about a mile and a half long, and half a mile broad. Paterson's Rock, a dangerous sunken reef, lies to the south-east of Sanda.

SANDAL; a kind of covering for the feet, used among the Greeks and Romans, and which we find to be of the highest antiquity.



It consisted of a thick cork sole, covered above and beneath with leather, and neatly stitched on the edge. It left the upper part of the foot bare, and was fastened on by means of straps, crossed over and wound round the ankle. In later times, sandals became articles of much luxury. The higher Catholic clergy wear a costly embroidered sock, which is called *sandal*. A kind of vessel employed in the Mediterranean sea for the purpose of unloading large ships, is also called *sandal*.

SANDAL WOOD (*santalum album*); a low tree, much resembling the privet in its leaves and flowers, but differing widely in its botanical characters. The leaves are opposite, petiolate, smooth, about two inches in length, oblong, and somewhat obtuse at each extremity: the flowers are small. This tree produces the white and yellow sandal woods of commerce, which were formerly thought to be obtained from different trees; but in India, as in a certain degree in all countries, most trees, when large and old, become coloured towards the centre; and this takes place in the sandal tree, the centre of which, with age, acquires a yellow colour as well as great fragrance and hardness. This is the only part of the trunk that is used, being in universal esteem for its fragrance. It is manufactured into light articles of cabinet furniture; and no insect can exist, or iron rust (it is said) within its influence. The dust of this wood is used by the Brahmins to form the pigment with which they give the tilac, or frontal mark, to the god Vishnu; and the oil used in their ceremonies is obtained from the shavings, or at least scented by them. The true sandal wood grows chiefly on the coast of Malabar, and in the East Indian islands.

SANDARACH; a gum resin, which oozes spontaneously from the old trunks of the common juniper (*juniperus communis*), and which is used in considerable quantities in the preparation of varnish, particularly of one kind, employed by cabinet makers and painters, called *vernix*. In its powdered form, it is known under the name of *pounce*. See *Juniper*.

SANDEMAN, ROBERT, in whom the sect called *Sandemanians* originated, was born at Perth, in Scotland, in 1723. He studied at Edinburgh, and afterwards engaged in the linen trade. On marrying the daughter of the reverend John Glass (founder of the Glassites), he became an elder in his congregation, and soon after published a series of letters, in which he endeavours to show that a justifying faith means nothing more than a simple assent to the divine mission of Christ. This position caused much controversy, and those who adopted it were called *Sandemanians*, and formed themselves into church order, in strict fellowship with the church of Scotland, but holding communion with no other. The chief opinions and practices in which this sect differs from others, are their weekly administration of the Lord's supper, washing each other's feet, &c. In 1764, Mr Sandeman accepted an invitation to New England, where he died in 1771. His sect still subsists in Great Britain. He was author of some other theological tracts besides his Letters on Theron and Aspasio.

SANDPIPER (*tringa*); a genus of shore-birds, allied to the snipe, plover, curlew, and godwit, and included by Linnæus under the order *grallæ*. The bill is as long as the head, or longer, straight or slightly curved, rounded, slender, soft and flexible, without a cutting edge, and enlarged and obtuse at the extremity: it seems to perform many of the offices of a probe, and enables these birds to search in the soft mud for insects, small shells, or worms, which form their accustomed food. Their nostrils are linear, and situated in a groove of the bill. Their tongue is filiform and pointed. The legs are destitute of feathers for some distance above the knee, and the toes are short and incapable of grasping; hence these birds do not perch, but frequent the borders of ponds, rivers and marshes, especially in the vicinity of the ocean, and are often seen coursing rapidly along the strand, following the flux and reflux of the waves. Their wings are long, and their flight powerful. Some species prefer the interior and the vicinity of fresh water, and others almost exclusively inhabit the shores of the ocean. They build their nests in the grass, and the young at birth immediately follow their parents in search of food. At the approach of winter, they all quit the land of their birth, and migrate, in flocks more or less numerous, to warmer climates. They moult twice a year, and their winter plumage is very different from the summer.

SANDRART, JOACHIM VON, a German painter and engraver, chiefly esteemed in the latter capacity, was born in 1606, at Frankfort, and died in 1688. He wrote a work called the German Academy of Architecture, Sculpture, and Painting (1675, seq.)

SANDSTONE is in most cases composed chiefly of grains of quartz united by a cement, which is never very abundant, and often, indeed, is nearly or quite invisible. These grains are sometimes scarcely distinguishable by the naked eye, and sometimes are equal in size to a nut or an egg, as in those coarse sandstones called *conglomerate*, and sometimes pudding-stone or breccia. The cement is variable in quantity, and may be calcareous or marly, argillaceous or argillo-ferruginous, or even siliceous. When siliceous, the mineral often much resembles quartz. The texture of some sandstones is very close, while that of others is so loose and porous as to admit the passage of water. Sometimes, indeed, this rock is vesicular. Some varieties are so solid as to give fire with steel, while others are friable, and may be reduced to powder even by the fingers. Its fracture is always granular or earthy, although it may be at the same time conchoidal or splintery. Some sandstones have a slaty structure, arising from scattered and insulated plates of mica, and have been called *sandstone slate*. Its most common colour is gray or grayish-white, sometimes with a shade of yellow-brown or green, and sometimes it is reddish or reddish-brown. In some cases, the colour is uniform, in others, variegated. In addition to quartz, some sandstones embrace grains of feldspar, flint and siliceous slate or plates of mica. The mica is sometimes in considerable quantities in those friable sandstones which accompany coal. Some sandstones are so ferruginous as to form a valuable ore or iron, containing either an oxide or the carbonate of iron. Sandstone, although decidedly a secondary rock,

has been formed at different periods, under different circumstances, and is hence associated with different rocks. Red sandstone is sometimes connected with coal. Sandstone, more particularly in the older formation, sometimes contains metallic substances disseminated through the mass, or in beds or veins. Among these are sulphurets of iron, mercury, lead and copper, pyritous copper, and arsenical cobalt. Various organic remains occur in sandstone, among which are reeds, impressions of leaves, trunks of trees, and shells, both fluviatile and marine. Sandstone, in some of its varieties, is very useful in the arts, and is often known by the name of *freestone*. When sufficiently solid, it is employed as a building stone. In most cases, it may be cut equally well in all directions; but some varieties naturally divide into prismatic masses. Some varieties are used as mill-stones for grinding meal, or for wearing down other minerals, preparatory to a polish. These stones, while rapidly revolving, sometimes burst with a loud and dangerous explosion. When the texture is sufficiently porous, sandstone is employed for filtering water. Some varieties are used for whetstones. Some sandstones absorb moisture, and, by exposure to the changes of the atmosphere, are gradually disintegrated; others become more solid by much exposure. Pudding-stone, or conglomerate, is only a very coarse sandstone. It is composed of siliceous pebbles of quartz, flint, siliceous slate, &c., united by a cement, which is usually siliceous, sometimes both siliceous and ferruginous, and sometimes a little argillaceous. These pebbles vary in size from that of a pea to that of an egg. They are ordinarily rounded or oval; and it is, in fact, chiefly by the more or less rounded form of these pebbles that puddingstone is distinguished from breccia. It is sometimes employed for mill-stones, and some varieties receive a good polish. All true conglomerates must of course be composed of fragments of previously existing rocks. They have, however, been formed at very different periods. A breccia is an aggregate of angular fragments of the same mineral, or of different minerals, united by some cement. Sometimes, however, a few of the fragments are a little rounded.

SANDWICH, a cinque-port and market-town in Kent, sixty-eight miles east by south from London. The town is situated on the river Stour about two miles from the sea, and near the commencement of the Watling Street of the Romans; the streets though irregularly built, are well paved and lighted, and the inhabitants are supplied with excellent water from the river and also from a spring which rises near Eastry, and is brought to the town by a canal three miles long, called the Delf, cut in the reign of Edward I. The river, which is navigable for small vessels only, is crossed by a bridge of two arches, with a swing-bridge in the centre, to allow them to pass without lowering their masts; this bridge connects the town with Stonar and the Isle of Thanet. The port extends from the North Foreland, to the north-east, six miles from the shore in eleven fathoms of water, and to the south as far as the head of Goodwin Sands continuing along for five miles to Sandown Castle; and in a south-west direction to the quay at the mouth of the Gestling. It includes within its jurisdiction as a cinque-port, Fordwich, Sarr, Ramsgate, Deal, Walmer, and Stonar. The foreign trade of Sandwich, is for the most part with Norway, Sweden, and the Baltic, in timber, iron, &c.; and the home trade consists in exporting corn, flour, hops, and seeds, malt, fruit, and ashes. Ship building and rope-making are carried on to a certain extent, but the silk-weaving and woollen manufactures introduced by the Flemings, have dwindled away. Population in 1831, 3136.

Sandwich gives the title of Earl to the Montague family; at the coronation of kings it sends three barons to assist at the solemnity, and when there is a queen, six. The modern term *Sandwich*, applied to a lunch of bread and ham, is said to have arisen from an eccentric or penurious earl of the name having been in the habit of providing himself with one in his pocket, to avoid dining in town.

SANDWICH ISLANDS; a cluster of islands in the North Pacific ocean, discovered by captains Cook and King in 1778, who gave them their present name in honour of the first lord of the admiralty. The group consists of ten islands, of which eight are inhabited, and extends from lat. 18° 50′ to 22° 20′ N., and from lon. 154° 53′ to 160° 15′ W., lying about one third of the distance from the western coast of Mexico to the eastern coast of China. The population of the whole group was estimated by captain King at 400,000, but, according to Ellis, does not at present exceed 150,000, the diminution being owing partly to the desolating wars of Tamehameha's reign, and partly to the ravages of a pestilence, brought in by foreign vessels, which has twice prevailed in the islands. The total superficial extent is about 6000 square miles. The principal islands in extent and population are Hawaii (Owhyhee), 4000 square miles, 85,000 inhabitants; Maui (Mowee), 600 square miles, 20,000 inhabitants; Oahu (Woahoo), 520 square miles, 20,000, containing the town of Honolulu, the residence of the king, of the foreign functionaries, and twelve or fourteen merchants, chiefly Americans, with about 7000 inhabitants: Tauai (Atooi), 525 square miles, 10,000 inhabitants. The latter island and Nihau (Oneehow) are distinguished for the cultivation of the yam, and are much resorted to by ships for supplies of that article. Most of the islands are volcanic and mountainous. In some places, the volcanoes are in activity. Several of the summits are of great height. The loftiest, Mouna Roa, and Mouna Kea, are estimated at about 15,000 feet. The climate is warm, but not unhealthy, the winter being marked only by the prevalence of heavy rains between December and March. A meteorological table gives as the greatest heat during the year, 88° of Fahrenheit, as the least 61°. The only quadrupeds originally found in these islands were a small species of hogs, dogs, and a sort of rat. There are now large herds of cattle in Hawaii, and many tame ones in the other islands, goats, sheep, and horses. There are no poisonous reptiles, excepting centipeds, which are neither large nor numerous. There are an abundance of sea-fowl on the coasts, and in the interior a species of parrot and a kind of woodpecker, with which the images of the gods were formerly adorned. The vegetable productions are taro (*arum esculentum*), yam, bread-fruit, cocoa-nut, and strawberry. Oranges, grapes, and other tropical fruits, have been introduced, and thrive well, and some culinary vegetables are cultivated for the shipping which resorts thither. The situation of the Sandwich islands renders them important to vessels navigating the Northern Pacific, partly for repairs and provisions, and partly in commercial respects. After the visit of Vancouver (1792), they were not much

visited, except by traders from the United States, who, having discovered among them the sandal wood, conveyed large quantities of it to China, where it is burnt in the temples. The independence of the Spanish colonies, and the prosecution of the whale-fishery on the coasts of Japan, have greatly increased their importance.

The natives are, in general, rather above the middle stature, well formed, with fine muscular limbs, and open countenances. Their hair is black

or brown, and frequently curly; their complexion a kind of olive, and sometimes reddish-brown. Their language is a dialect of that spoken by the inhabitants of the Society islands. They are of a mild and gentle disposition, inquisitive and intelligent; but previously to the abolition of their idolatrous religion, the practice of sacrificing human victims prevailed among them. Since their adoption of Christianity, they have made a no less wonderful progress in the arts of civilized life than in moral character. They have many convenient and handsome houses, neat and comfortable clothing, &c. Stewart, who visited the islands in 1829, after an absence of four or five years, gives a striking description of the change which had taken place in that interval. After the visit of captain Cook, who was killed at Hawaii in 1779, the islands were involved in a series of destructive wars between several rival chiefs, for the undivided sovereignty. The result of these struggles was the ascendancy of Tamehameha, chief of Hawaii, a sagacious, enterprising, and ambitious prince. He built a navy, armed his guard in the European manner, fortified his palace with cannon, encouraged commerce, and introduced various mechanical arts among his subjects. On his death in 1819, he was succeeded by his son Rihoriho; and about the same time idolatry was abolished and the idols burnt. During the last year of his reign, Tauai and Nihau, the only islands of the group not subdued by Tamehameha, submitted to his government. Rihoriho, with his queen, died in England in 1824, and his brother and successor, Kauikeaouli, is at present (1837) about twenty-five years of age. The regency has been in the hands of the queen-mother, Kaahumanu. In 1820, a mission was established at Hawaii by the American Board of Foreign Missions. The missionaries fortunately arrived just after the abolition of the national idolatry, and their efforts have been attended with great success. Not only have they introduced the arts, comforts and usages of civilized society to a great extent, but the Christian religion has been embraced by nearly the whole population. Printing presses have been established, books printed in the native language, an alphabet of twelve letters (five vowels and seven consonants) invented, schools established, and churches built. The Missionary Herald for January, 1832, states the whole number of schools in the islands to be above 900, with 50,000 learners. Missions have been established in Oahu, Hawaii, Maui, Taui; and in 1830, a band, consisting of seven persons (three missionaries), and in 1831, another of nineteen persons (eight missionaries and a printer), sailed for the same destination. See Ellis' *Tour through Hawaii* (3d ed. 1827); lord Byron's *Voyage to the Sandwich Islands* (1827); Stewart's *Residence in the Sandwich Islands*.

SANDWICH LAND; a barren desert, and frozen island in the South Atlantic ocean, discovered by captain Cook in 1775; lat. 58° 35′ S.; lon. 26° 44′ W. Seals, whales, and other *cetacea*, penguins, and other sea-birds, are the only animals found here.

SANDY HOOK; a small island on the coast of New Jersey, in the township of Middleton, seven miles south of Long Island, and twenty-five south of New York. It was formerly a peninsula. Sandy Hook, or Point, forms a capacious harbour. Here is a light-house on the north point of the Hook, in lat. 40° 26′ N,, lon. 72° 2′ W.

SANDYS, George; second son of the archbishop of that name, was born in 1577. In 1589, he was placed at Oxford. In 1610, he commenced his travels through the Levant and other parts of the Turkish empire, returning home through Italy, and staying some time at Rome. This journey occupied him upwards of two years. On his return to England, he published, in 1615, an account of the countries through which he had passed. This work was followed by several poetical productions, the first of which, a translation of Ovid's Metamorphoses, originally printed in London in 1627, with the first book of the Æneid annexed, is highly spoken of by Dryden, who styles the author "the best versifier of the last age." He also wrote a Paraphrase on the Psalms, and upon the Hymns dispersed through the Old and New Testament (London, 1636; reprinted in folio, 1638), and some other works. He died in 1643.

SANGALLO, Antonio, an eminent Italian architect of the sixteenth century, was born in the environs of Florence, and was intended for the business of a carpenter; but, happily visiting Rome, where he had two uncles who were architects, he was instructed by them in their art, his knowledge of which he perfected under Bramante, whom he succeeded, as architect of the church of St Peter. He was much employed under the popes Leo X., Clement VII., and Paul III., both in fortifying places and in the construction of public buildings, the grandeur and solidity of which have been much admired. He died in 1546.

SANGIAC (Turkish *horsetail*) signifies, in the Turkish army, an officer who is allowed to bear only one horsetail, the pachas having two or three. The sangiac is also commonly the governor of a smaller district of country than a pachalic, thence called *sangiacat*, of which there are three or four in each pachalic. See *Turkey*.

SANGIACAT. See *Sangiac* and *Turkey*.

SANGRAAL, or SANGREAL. See *Round Table*, and *Romance*.

SANGUINARINA; a vegetable alkali, dis-

covered by Mr A. A. Hayes, of Roxbury, in the root of the *sanguinaria Canadensis*, or blood-root. It is obtained as follows: Digest the bruised root in three parts of cold diluted sulphuric acid (water ten, acid one): after twenty-four hours, decant the fluid, and repeat the operations twice, using water but slightly acidulated; mix the liquors, and filter, and to the clear red liquor which passes, add a solution of ammonia, so long as it occasions precipitation; decant the fluid after subsidence, and wash the brown precipitate in cold water; it is sanguinarina combined with extractive and colouring matter, and mixed with some earths. Dissolve the soluble part in warm alcohol, and wash with the same; distil the clear fluid from a glass retort; when the solution becomes turbid by concentration, it must be decanted, while hot, into cylindrical vessels, one half filled with pure cold water; the alkali is precipitated in the form of a yellowish-white bulky powder, mingled with a substance insoluble in diluted acids, and resembling resin; by dissolving the soluble part in muriatic acid with ten of water, precipitating by ammonia, and treating as above, the alkali is obtained pure. It is a soft white powder, destitute of odour, but having a bitter acrid taste. It renders blue vegetable colours green; when heated, it melts into a brown, transparent, and brittle substance. It dissolves in most acids, and forms along with them neutral salts of a pure scarlet-red colour. The salts are soluble in water to which they communicate their red colour. They are inodorous; but their powders produces great irritation in the nostrils. They are all precipitated by infusion of galls, and are decomposed by alkalies and alkaline earths. The medicinal virtues of the salts of sanguinarina are chiefly deobstruent, acrid-narcotic, and emetic. The efficacy of the blood-root is attributable solely to the presence of this alkali.

SANHEDRIN (*Syriac*), or SYNEDRIUM (*Greek*); literally a *council*. The highest ecclesiastical and secular court of the Jews, which was established for the decision of their internal differences, and the settlement of their affairs, was called *Sanhedrin*. It consisted of seventy-one members, of the rank of priests, elders, and interpreters of the law (those skilled in biblical knowledge, or scribes), under the direction of the high-priest. Besides this high council, which had its seat in Jerusalem, there were also inferior courts in the country towns, composed of persons of the same classes. In Jerusalem there were two of these inferior courts. These national tribunals were limited, by the Roman procurators, to the affairs of religion, and the settlement of questions relating to the observance of the Mosaic law; and they could not, even in such cases, inflict the punishment of death arbitrarily. After the destruction of Jerusalem by the Romans, these courts were annihilated, with the Jewish state. The great sanhedrin assembled at Paris, in 1806, by Napoleon, was only an occasional expedient, in order to regulate the civil relations of the Jews in the French empire.

SAN MARINO. See *Marino*.

SANNAZARO, Jacopo, a distinguished Italian poet, who wrote both in Latin and Italian, was born at Naples, in 1458. He received his education in the school of Giuniano Maggo, and the academy of Pontanus, in which, according to the custom in the Italian academies, he adopted the name of Attius Sincerus. An early passion for Carmosina Bonifacia, whose praises he sung under the names of Harmosina and Phillis, unfolded his poetical talents. In the hope of conquering his love by separation, he went abroad, but yielding to the impatience of his passion, returned to Naples, where he found his mistress dead. During his absence he wrote his Arcadia, a series of idyls, which, although like his other Italian poems, the work of his youth, still retains its reputation. His poetry attracted the notice of king Ferdinand and his sons Alphonso and Frederic, who made him the companion of their journeys and campaigns. Frederic, who ascended the throne in 1496, gave him the delightful villa of Mergellina, with a pension of 600 ducats. But in 1501, his benefactor was obliged to abdicate the throne, and flee to France; and Sannazaro was too faithful to desert him in his reverses. After the death of Frederic, he returned to Naples and died there in 1533. He was buried in the church Santa Maria del Parto, which he had built at his villa. Sannazaro wrote sonnets and *canzoni* in Italian, several Latin poems, elegies, eclogues, epigrams, and a longer poem, *De Partu Virginis*, in three books. His elegance of expression, no less than the poetical beauty of his thoughts, gave him a distinguished place among the modern Latin poets.

SANQUHAR; a royal burgh in Dumfries-shire, is situated on the border of the county, and on the banks of the river Nith, at an equal distance of fifty-six miles from Edinburgh and Glasgow, twenty-seven from Dumfries, and thirty-two from Ayr. This place was made a burgh of barony, by charter, in 1484, previously to which, according to the charter, it had been a burgh of the same kind from time immemorial. It was, in 1596, erected into a royalty by James VI., at the solicitation of Robert Crichton, Lord of Sanquhar. Before 1777 large quantities of woollen stockings (Sanquhar hose) were made here; but this manufacture having declined, in consequence of the American war, it has been partly superseded by carpet making. The parish of Sanquhar is about fifteen miles in length, and from nine to ten in breadth; and the surface is in general rugged and mountainous, especially the tract called the Lowthers, or Lothiers, hills rising gradually towards the north to the height of 3000 feet above the level of the sea. The soil is unfruitful, except on the borders of the Nith and its tributary streams, where it consists of a light loam, and is tolerably productive when properly cultivated. But the hills, though externally barren, contain immense subterraneous treasures. Besides most extensive quarries of limestone and coal, there are mines of lead ore worked with great advantage, especially at Wanlockhead. Southeast of the town are the ruins of the ancient castle of Sanquhar, which was a strong square building with towers at the angles. It was taken by the English in the reign of Edward I., and retaken by Sir William Douglas of Douglasdale, who put the garrison to the sword. The castle and barony now belong to the marquis of Queensberry. Population of burgh and parish in 1831, 3268.

SANSCRIT, or SAMSCRIT (that is, the *perfect*), also DEVA-NAGARA (that is, the *divine*); a Brahminical language (because it is understood now by the Brahmins alone), the present dead language of the Hindoos, in which the books of their religion and laws, besides many other works of different sorts are written. The remarkable similarity between the Sanscrit and the Greek languages reminds one of Gibbon's opinion, "that some, perhaps much, of the knowledge possessed by the Indians,

originated from the Greeks of Bactriana." Francis Bopp has published a Complete System of the Sanscrit Language (Berlin, 1825, 4to.). A. Langlois, also, in his *Monuments litteraires de l'Inde, ou Mélanges de Littérature Sanscrite*, &c. (Paris, 1827), has presented a popular view of the Sanscrit literature. See also, *Indian Languages*, and *Oriental Literature*.

SANS-CULOTTES (i. e. without breeches); the name given in derision to the popular party, by the aristocratical, in the beginning of the French revolution of 1789. Like the epithet *gueux* (q.v.) bestowed on the patriot party in the Netherlands, and like that of *Methodists*, bestowed on the friends of Wesley, it was adopted by those to whom it was first applied by way of contempt. At the time when the most exaggerated principles of democracy prevailed, *sans-culottism* became a term of honour. In the French republican calendar, the *jours complémentaires* were at first called *jours sans-culottides*. See *Calendar*.

SAN SEBASTIANO, or RIO JANEIRO. See *Rio Janeiro*.

SANS-SOUCI (French, *without care*); a palace near Potsdam, where Frederic the Great was fond of residing; hence he is sometimes called the *philosopher of Sans-souci*.

SANTA CRUZ. See *Cruz, Santa*.

SANTA FE; capital of New Mexico; a territory of the Mexican republic, in the northern part of which it is situated, not far from the Rio del Norte; lat. 36° 12′ N.; lon. 109° 33′ W.; 1500 miles NN.W. of the city of Mexico. The population is between 3000 and 4000. It is the centre of a considerable overland trade between the northern part of Mexico and the western states of North America. See *Mexico, New*, and *Texas*.

SANTA FE DE BOGOTA. See *Bogotá*.

SANTA FE DE GUANAXUATO. See *Guanaxuato*.

SANTA HERMANDAD. See *Hermandad*.

SANTA MARTHA. See *Martha, Santa*.

SANTA MAURA. See *Leucadia*.

SANTANDER, NEW. See *Mexico*.

SANTANDER (*S. Andero*); a small province of Spain (*Las montanas de Santander e de Burgos*), on the southern coast of the bay of Biscay, consisting of steep mountains and deep valleys. It is rich in iron of the best quality, and there are cannon founderies and manufactories of cast steel established in the mountain villages La Cavada and Liergams. The coast has some excellent harbours. The principal town, Santander (10,000 inhabitants), has a safe and commodious and easily accessible harbour, and was formerly one of the privileged ports (*puertos habilitados*) which were allowed a free trade with South America. Its commerce with the north of Europe, to which it exports much wool, is considerable. It is the see of a bishop.

SANTEE; a river of South Carolina, formed by the union of the Congaree and Wateree. It flows into the Atlantic by two mouths, twenty miles below Georgetown. It affords good navigation, at some seasons, nearly 300 miles, to Morgantown, in North Carolina. It is connected with Cooper river by a canal. The main branch in North Carolina is called Catawba.

SANTIAGO, the capital of Chile, is situated in a pleasant plain on the Mapocho, thirty leagues distant from the Pacific ocean, and seven from the Andes, fifty-five miles south-east of Valparaiso; lat. 33° 26′ S.; lon. 70° 44′ W. The population of the city and environs is about 40,000. Among the principal buildings are the mint, the cabildo, government house, cathedral, and other churches, and several convents. The private houses are mostly built of clay baked in the sun; the churches and other principal buildings of brick or stone. The streets are straight and regular, and the city contains a number of handsome squares. See *Chile*.

SANTIAGO, or ST JAGO. See *Jago, St*.

SAP. See *Botany*.

SAP GREEN. This pigment is prepared by mixing the juice of the ripe berries of the buckthorn (*rhamnus catharticus*) with alum. The juice of the unripe berries has the colour of saffron, and is used for staining maps or paper, and if the berries be gathered late in the autumn, the juice is purple. The buckthorn is a large shrub, with inconspicuous greenish flowers, somewhat resembling the privet when in fruit, which grows wild throughout Europe. The bark affords a beautiful yellow dye. The berries are small, globular and black, and possess purgative properties, but are chiefly employed in colour-making, and sometimes in dyeing; they enter into commerce under the name of *French berries*.

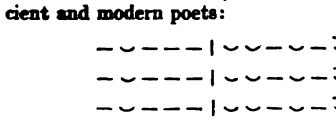
SAPPARE (*cyanite; disthene; rhætizite*). The primary form of this mineral is a doubly-oblique prism, of which the terminations are nearly rhombs. The angles of the prism are 106° 15′ and 73° 45′; of the terminal pane of the prism, in one direction 100° 50′ and 79° 10′, and in the other 93° 15′ and 86° 45′. It ordinarily occurs in four or eight sided prisms of considerable length, and destitute of regular terminations. The cleavage is highly perfect, parallel with the broader faces of the prism, but less distinct in the direction of the narrower lateral face, and that of the terminal plane. Lustre vitreous; colour generally some shade of blue, occasionally very intense berlin-blue; it is also green, gray, and white; streak white, transparent or translucent; hardness not inferior to that of feldspar; on the solid angles, equal to quartz; specific gravity 3·6. The massive varieties consist of large, broad, columnar individuals; sometimes straight lamellar, often curved, variously aggregated; having their faces of composition, in most cases irregularly streaked. Three varieties of the present species analyzed, the first by Saussure, the second by Laugier, the third by Klaproth, have yielded—

Alumine,	54·50	55·50	55·50
Silica,	30·62	38·50	43·00
Lime,	2·02	0·50	0·00
Magnesia,	2·20	0·00	0·00
Oxide of iron,	6·00	2·75	0·50
Water,	4·86	0.75	0·00
Potash,	0·00	0·00	a trace.

It is not altered on being exposed to heat, and is infusible even in very high degrees of temperature. It is entirely soluble in borax. Some crystals exhibit positive, others negative electricity, on being rubbed. It occurs in crystals, or massive, imbeded in rocks of gneiss and mica slate, and is frequently accompanied by staurotide. Crystals and large cleavable varieties are found at St Gothard in Switzerland, the Zillerthal in the Tyrol, the Sau Alps in Carinthia, at Chesterfield in Massachusetts, and Litchfield, Connecticut, in the United States. The variety of a white colour in fine, interlacing prisms called *rhætizite*, comes only from Pfitsch in the Tyrol. Thin laminæ of sappare are sometimes employed as a support in blow-pipe experiments, with minerals. Blue transparent varieties are cut and polished, and then sometimes sold as an inferior kind of sapphire.

SAPPHIRE. See *Corundum*.

SAPPHO, a distinguished Greek poetess, was born at Mitylene, on the island of Lesbos, and flourished about 600 B. C. Alcæus, like her, a lyric poet, and a native of the same island, is said to have loved her; but his passion was not returned. The brilliant fame which she enjoyed seems to have subjected her to calumny, and even to persecution, on account of which she left Lesbos. She is particularly accused of unnatural love to her own sex; hence the expression *Sapphic love*. She must not be confounded with a later Sappho, also a native of Lesbos, the place of whose birth was Eresus, famous for having thrown herself from the Leucadian rock in despair, on account of her unrequitted love for a youth named Phaon. Ovid, however, confounds the two.—See Welker's *Sappho vindicated against a prevailing Prejudice* (Göttingen, 1816). The ancients ascribe various poems to the elder Sappho, —hymns, odes, elegies, epigrams,—of which only fragments have come down to us; these display deep feeling, glowing imagination, and a high finish. She is said to have invented several metres; at least one still bears her name, and has been used by ancient and modern poets:



SARABAND a dance, said to be derived from the Saracens. The tune is written in $\frac{3}{4}$ or $\frac{3}{8}$ time, and consists of two parts. Its character is grave and expressive. It originated in Spain, where it was formerly danced to the castanets.

SARACENIC STYLE OF ARCHITECTURE. See *Architecture*.

SARACENS (*Orientals*); the name adopted by the Arabs after their settlement in Europe, as the term *Arabs* (people of the West), which indicated their geographical situation in Asia, was improper in Europe.

SARAGOSSA (in Spanish, *Zaragoza*); a city of Spain, capital of Arragon, lying in a fertile plain on the Ebro, one hundred and seventy-five miles north-east of Madrid; lon. 1° 42′ W.; lat. 41° 38′ N. It is an old town, built on the site of the ancient Roman colony Cæsar Augustus, of which the present name is a corruption. The streets, with the exception of the long and wide Cozo, and a few others, are narrow and crooked. There is a fine stone bridge, six hundred feet long, over the Ebro. Previous to 1808, it had 55,000 inhabitants, eighteen churches, and forty monasteries. Among the churches, that of Our Lady of the Pillar (*Nuestra Senora del Pilar*) is celebrated for its miraculous image of the virgin, to which pilgrimages are made from different parts of Spain. The canal of Arragon, nearly a hundred miles in length, which affords Navarre and Arragon a communication with the Mediterranean, approaches the city. The present population of the city is 45,000.

Saragossa has gained celebrity by the two sieges which it sustained in 1808 and 1809. The adjoining provinces of Catalonia and Navarre were overrun by the French troops; Saragossa contained not more than two hundred and twenty regulars, and was unfortified; and the public treasury was empty. When the people were seeking for a leader, the rank of Palafox, and the favour which he was known to have enjoyed with Ferdinand, directed their choice to him, and, accordingly, May 25, 1808, he was proclaimed by them governor of Saragossa, and of all the kingdom of Arragon. He was then in his eight and twentieth year, and had but a scanty portion of military knowledge. He immediately called into service all the half-pay officers, formed several corps, composed, in part, of the students of the university, took other measures to sustain a siege, and, May 31, declared war against the French, in a proclamation remarkable for its energy. This paper was hardly issued, before a French corps of 8000 men marched to attack Saragossa. The French general was, however, met by the Spaniards, and, after a hard struggle, was compelled to retire. Palafox took advantage of this to quit the city for a while, in order to collect troops, and organize the defence of the rest of the province. He returned with about 1500 men, who had retreated from Madrid, and was soon invested by the French, who had received powerful reinforcements, and a train of artillery. The besiegers carried the post of Torrero and some other exterior works, not without great loss, pushed forward their attacks against the gates of El Carmen and El Portillo, began to bombard the city, July 22, and, August 4, forced their way into the place, by the gate of Santa Engracia, and, at length, made themselves masters of nearly half of Saragossa. The French general now summoned Palafox to surrender. His summons was contained in the following laconic sentence: "Head-quarters, St Engracia, capitulation." With equal laconism, Palafox instantly replied, "Head-quarters, Saragossa. War at the point of the knife." August 5, the brother of Palafox had opened a passage into the city, with 3000 regular troops. A council of war was now held, in which it was resolved that the remaining quarters of the city should be contested inch by inch, and that, should they be lost, the people should retire across the Ebro into the suburbs, destroy the bridge, and defend the suburbs to the last man. This resolution was unanimously applauded by the Saragossans. They did not, however, content themselves with resting on the defensive. They fell upon the besiegers with unequalled and irresistible fury. The struggle continued for eleven days, almost without intermission. Every day the people gained ground, till, at last, the enemy held only a narrow space within the walls. Convinced that there was no longer any hope of success, the French general abandoned the siege, which had lasted sixty-one days, and cost him several thousand men. Palafox availed himself of the breathing-time thus obtained to increase his force, and construct additional works. He was not allowed a long respite. To reduce Saragossa to submission was, on many accounts, an object of great importance to the French. In November, therefore, a large army, under marshals Mortier and Moncey, marched to recommence the siege. Palafox was defeated at Tudela, and again under the walls of Saragossa, and the place was invested. Being summoned to surrender, he replied and acted with the same energy as before. The approaches were vigorously carried on by the French, and a furious bombardment was incessantly kept up. Almost hourly combats took place between the besiegers and the besieged, in which the latter displayed a desperate valour. At length, January 27, a general assault was made, and the French established themselves on the breaches. Once more they penetrated, by degrees, into the

city, and once more they met with the most obstinate and sanguinary resistance. Old men, women, and children, all took a part in endeavouring to stop the progress of the besiegers. Not only street by street, but house by house, and even room by room, was contended for, like the outworks of a fortress, and frequently lost and recovered. The besiegers finally resorted to mining to win their way, their progress by open force being bought at too dear a rate. In this way they became masters of about one fourth of the surface of the city. Saragossa, however, would long have resisted all their efforts, had it not been assailed by a force more terrible than the besiegers. An epidemic fever raged in the place, and spread destruction among the ranks of the Saragossans, there being neither hospitals, nor medicines, nor even shelter for the sick. Palafox himself was attacked by it, and, February 20, was obliged to give up the command to general St Marc, by whom the capitulation was signed on the following day. The garrison was reduced to less than 12,000 men, who, when they marched out of the city, had more the appearance of spectres than of human beings. During this second siege, 54,000 of the besieged perished, of whom a fourth were soldiers. See *Spain*.

SAR LOUIS. See *Saar Louis*.

SARATOGA; a post-township of New York, in Saratoga county, on the west side of the Hudson, thirty miles north-by-east from Albany; population in 1830, 2461. Saratoga is memorable as the place where general Burgoyne surrendered the British army, consisting of 5791 men, to general Gates, October, 1777. In 1819, Saratoga township was divided, and the western part was named *Saratoga Springs*.

SARATOGA SPRINGS is an incorporated village, containing celebrated mineral waters, and is situated seven miles north-east of Ballston Spa, and thirty-two north of Albany; population in 1830, 2204. Here are extensive establishments for the accommodation of the numerous invalids and people of fashion, who resort hither during the summer season. The surrounding country has very few charms. The springs are very numerous, and several of them are very large. The *Congress Spring* is the most celebrated, and great quantities of the water are bottled and sent to all parts of North America.

SARCOLATRÆ. See *Apollinarians*.

SARCOPHAGUS (from σαρξ, flesh, and φαγω, I eat); originally a species of lime stone, found in the neighbourhood of Assor, in Mysia, which, according to Pliny (*Hist. Natur.* ii, 96, and xxxvi, 17), had the power of destroying, within forty days, the corpses put into it, so that nothing remained entire except the teeth. Hence the name. This quality brought the stone into use for coffins, and thus the name came to be applied to all coffins of stone, though often used for a contrary purpose to that which the name expresses. The ancients, who embellished every thing, soon adorned the *sarcophagi* and often placed them upon the monuments which were originally erected over graves, to protect them against violence (*monumentum*, i. e. *munimentum*). Under the Roman emperors, this custom became more general, and rare species of stone were used. The Egyptian coffins of granite and alabaster served as models. Of the great number of *sarcophagi* which have come down to us, several are known by particular names; thus the sarcophagus of Homer, in the Besborodko gardens at St Petersburg, and that of Alexander, in the British museum, once in the mosque of St Athanasius at Alexandria, taken by the British from the French, during their campaign in Egypt. English archæologists have laboured to prove its genuineness, and it is known that the body of Alexander was removed from the temple of Jupiter Ammon to Memphis, and afterwards to Alexandria, where Augustus and Septimius Severus (202 A. D.) saw it. The tomb, it is supposed, was so magnificent that the Christian destroyers spared it (though not the body), and changed it into a church of St Athanasius. The sarcophagus, it is said, was used as a cistern. The statement of Chrysostom (*Opera* x, 625, ed. Montfaucon) seems to be inconsistent with this opinion, which, however, derives some support from an Oriental tradition. Clarke describes this sarcophagus, which is covered with hieroglyphics, in his Tomb of Alexander (Cambridge, 1805, 4to.). The form of these *sarcophagi* was ordinarily a parallelopipedon, or an oblong square, similar to our coffins. Sometimes the angles were rounded, thus assuming an elliptical shape. Some *sarcophagi* were not intended to contain the whole body, but only an urn.

SARD, or SARDOIN; a variety of carnelian, which exhibits, by reflected light, a dull reddish-brown colour, but by transmitted light appears of a rich blood-red colour.

SARDANAPALUS, or TONOSKONKOLEROS (supposed to be the Esar-Haddon of Scripture), whose name proverbially denotes effeminate softness and wantonness, was the last king of Assyria. He is said to have been a prince of great power and immense wealth, who, according to an inscription on his tombstone, built the cities of Tarsus and Anchiale in one day. Immersed in sensual gratification, he lived inactively and ingloriously, in women's clothes, among his concubines, and thereby excited against him the discontent of his subjects. Arbaces, a Median satrap, and Belesis, a Babylonian priest, together raised an army against him; whereupon Sardanapalus marched out to meet them, and overcame them in three battles. In the belief that he was perfectly secure, he returned anew to his pleasures, and prepared a splendid banquet for his victorious army. But Arbaces, aided by the Bactrians, attacked his camp by night, gained a great victory, and pursued the fugitives to the very gates of Nineveh. Here Sardanapalus defended himself for two years, while all his provinces in the mean time revolted. An inundation of the Euphrates at length destroyed a part of the city walls, and thereby rendered it impossible to continue the defence of Nineveh. In this desperate state of affairs, Sardanapalus set his palace on fire, and consumed himself, together with all his wives, servants and treasures, in the twenty-first year of his reign. His destruction is usually considered as having taken place in the year 888 B. C., but, according to Volney, it should be placed in the year 717.

SARDES, or SARDIS; the ancient capital of Lydia, on the river Pactolus, not far from the mount Tmolus. Under the Persians, it was a magnificent city, and a great market for slaves, on the commercial route from Asia to Europe. The Greeks conquered and burned it 500 B. C. An earthquake again destroyed it, but Tiberius rebuilt it. A small village stands at present on its site, and considerable ruins still attest its ancient grandeur.

SARDINIA; an island in the Mediterranean sea, having the title of kingdom, with a superficial area of 9100 square miles, and a population of 490,050. It contains nine towns, fifteen villages, and 377 hamlets, and is separated from Corsica on the north by the straits of Bonifacio. The soil is fruitful, yielding corn, wine, oil, figs, and other southern fruits. There is an abundance of wood on the mountains, but, on account of the want of good roads, the seaport towns are supplied from Corsica; on the same account Sardinia has no posts. The horses, which, in some parts, run wild, and the horned cattle, are small, but well made. The fisheries are important. Large quantities of salt and cheese are manufactured, and the latter is exported. The causes of the small population of this fertile island are to be referred to the accumulation of the landed property in a few hands, and the absence of the great proprietors (there are in Sardinia, 376 fiefs, half of which belong to Spanish families), the privileges of the nobility and clergy, and the practice of private revenge (1000 murders have been committed in the space of one month). The interior exhibits an astonishing degree of barbarism; the peasants are clothed in leather or undressed skins, and the mountains are infested with banditti. The principal towns are the capital, Cagliari and Sassari (20,000 inhabitants). Sardinia was probably settled by Pelasgian colonies, in the time of the Heraclides, as the *noraghs*, or ancient monuments, found in the island, indicate. The number of these monuments is about 600: those which are entire are fifty feet high, with a diameter of ninety feet at base, and terminating at the summit in a cone. They are built on little hills, in a plain, of different sorts of stones, and in some cases are surrounded by a wall. The island then belonged successively to the Carthaginians, Romans, Vandals, Saracens, the popes, the German emperors, to Pisa, Genoa, and Spain. In 1720, it was ceded to the duke of Savoy, as an indemnification for the loss of Sicily. (See *Sardinian Monarchy*.) The island was mildly governed by a viceroy, and the inhabitants allowed to retain their old usages. Some dissatisfaction, however, arose towards the close of the century, and, in 1793, a rebellion broke out, which was terminated by the concessions of the government in 1796. The revenue from the island is inconsiderable. The inhabitants are Catholics, and speak several different dialects, some of which are a mixture of Spanish and Italian. The better classes speak pure Italian. See Marmora's *Voyage en Sardaigne, de* 1819—1825 (Paris, 1826); Mimaut's *Histoire de Sardaigne* (1825); Smyth's *Present State of Sardinia* (London, 1828); and Petit-Radel's *Notices sur les Nuraghes de la Sardaigne* (Paris, 1826).

Sardinian Monarchy; a kingdom of the south of Europe, composed of the island of Sardinia, and of several countries of the continent. It comprises in the whole an extent of 28,000 square miles, with a population (in 1829) of 4,165,277 (300,000 French in Savoy, 3,865,077 Italians, and 3200 Jews). The population, with the exception of the Jews, and 21,900 Waldenses, is entirely Catholic. The continental parts of which the monarchy is composed are as follows: The duchy of Savoy; the duchy of Piedmont; the county of Nice or Nizza, with the principality of Monaco; the duchies of Montferrat and (Sardinian) Milan; and the duchy of Genoa (see the separate articles); which are divided, for administrative purposes, into eight provinces; Savoy, Turin, Coni, Alessandria, Novara, Aosta, Nizza, and Genoa. The revenue amounts to £202,500; the expenditure to £236.250; debt to £562,500; army, 28,000 men, exclusive of 40,000 militia, on the island of Sardinia. The power of the crown is unlimited: the administration is conducted by three secretaries of state: the succession to the throne is confined to the male line. In the island of Sardinia there are estates, and in Genoa the assent of the estates is necessary for the imposition of new taxes. The nobility is numerous, but not exempt from taxation. The clergy (39 archbishops and bishops, 3996 parish priests, 293 male, and 144 female convents) is not very wealthy. The papal power is limited by a concordate. There are four universities, at Turin, Genoa, Cagliari, and Sassari, but education is in a low state.

The reigning prince, the first of the house of Savoy Carignon, is Charles Emanuel, born 1800, married Theresa, sister of the grand-duke of Tuscany, in 1817, succeeded his uncle Charles Felix, May, 1831. He has two sons, Victor Emanuel (born in 1820), and Ferdinand (born in 1822). The royal title is king of Sardinia, Cyprus and Jerusalem, and duke of Savoy. The crown-prince is styled prince of Piedmont. Former sovereigns, Victor Amadeus II. 1713—30; Charles Emanuel III., to 1773; Victor Amadeus III., 1796; Charles Emanuel IV., abdicated 1802; Victor Emanuel I., abdicated 1821; Charles Felix, died 1831. The nucleus of this monarchy was Savoy, a fragment of several states that had crumbled to pieces (the old kingdom of Burgundy, the Frankish monarchy, the Carlovingian kingdom of Italy, and the kingdom of Arles), which became independent in the beginning of the eleventh century. Rodolph III., last king of Arles, created Berthold count of Savoy in 1016. He was probably the ancestor of the subsequent counts and dukes of Savoy. The counts of Savoy gradually extended their territories, partly by marriages, partly by their adherence to the German emperors, in the disputes between the Guelfs and Gibelines, partly by purchase, and partly by an artful policy in their connexions with the Spanish, French, and Austrian courts. By the marriage of the duke Louis with Anne of Lusignan, daughter of James, king of Cyprus, and the will of the queen-dowager of Cyprus (1482), the house of Savoy obtained claims to the kingdom of Cyprus, which caused the kings of Sardinia, at a later period, to assume the title of kings of Cyprus and Jerusalem.

In the history of the state we may distinguish two periods.

I. From the first settlement of the succession (1383) by the will of count Amadeus VI., which established the indivisibility of the dominions, and the descent in order of primogeniture, until the admission of the Sardinian monarchy into the European family of states, by the peace of Utrecht. In this period, among other acquisitions, the house of Savoy gained possession of the county of Nizza (1399), and count Amadeus VIII. received the ducal title from the emperor Sigismund in 1416; but in the wars between the emperor Charles V. and Francis I. of France, it lost, in the middle of the sixteenth century, the Valais and Geneva, which put themselves under the protection of Switzerland, and the Pays de Vaud, which was taken possession of by Berne. Philibert Emanuel, who had been driven from his territories by the French,

served with so much distinction as the general of Philip II. of Spain, in the war against France, that by the peace of Chateau Cambresis (1559), Savoy and Piedmont were restored to him. Meanwhile Protestantism had crept into the country. At the exhortation of the pope, Philibert determined to convert the Protestants, among whom were many Waldenses, by force; but he was several times defeated by them in the mountains; on one of which occasions he lost 7000 men, and was obliged to grant them freedom of religious worship. This prince encouraged manufactures among his subjects, and laid the foundation for the present extensive culture of silk by the introduction of mulberry trees. He also began the construction of several fortresses, and built the citadel of Turin. In 1476, he acquired the principality of Oneglia by exchange, and the county of Tenda by purchase. In the war for the Spanish succession, duke Victor Amadeus II. acquired possession of a part of Milan (Alessandria, Val di Sesia, &c.) as an imperial fief, and of the duchy of Montferrat, which had been originally (twelfth century) a German marquisate, and which should have devolved to Piedmont by descent in 1631. The peace of Utrecht (1713) added Sicily, with the royal title; but, in 1720, the new king was obliged to receive Sardinia in lieu of that island.

II. The second period, from 1720 to the present time, embraces three distinct divisions in Sardinian history.

1. *The forty-three Years' Reign of King Charles Emanuel III.* (1730—73), who was equally distinguished as a general and a ruler. By the peace of Vienna (1735), as the ally of France and Spain against Austria, he obtained a second fragment of Milan (Tortona and Novara), as an imperial fief, and by the treaty of Worms (1743), during the war for the Austrian succession, a third fragment (Anghiera, Vigevavo, &c.), likewise as fiefs of the empire. In 1762, he was the mediator of the peace between France and England. By the wisdom of his government, the country was placed in a most prosperous condition; and also the new code of laws (*Corpus Carolinum*, promulgated in 1770,) is an honourable monument of his reign. In his disputes with the pope, Charles Emanuel maintained the rights of the state, as acknowledged by the concordate of 1726 (confirmed by Benedict XIV. in 1742), made all ecclesiastical appointments, subjected the clergy to taxation, and made his sanction requisite to give validity to the papal bulls.

2. *The unfortunate Reigns of Victor Amadeus III.* (*died* 1796), *and of Charles Emanuel IV.* (*abdicated* 1802). The former joined Austria against France, July 25, 1792, and was stripped of Savoy and Nizza in September of the same year. The latter entered into an alliance with France against Austria (April 5, 1797); but his territory was nevertheless, invaded by the French directory, which made the complaints of the Sardinian people against the burden of taxes and the privileges of the nobility a pretext, and he was compelled to cede all his continental dominions (Dec. 9, 1798) to France. He retained only the island of Sardinia, whither he was obliged to retire with his family. June 4, 1802, he abdicated in favour of his brother, Victor Emanuel I. and lived as a private individual at Rome, where he died in 1818, having entered the order of Jesuits in 1817. From 1806, Piedmont with Genoa was incorporated with the French empire.

3. *The Restoration and Extension of the Sardinian Monarchy by the Congress of Vienna.* Victor Emanuel returned, May 20, 1814, to Turin, his continental territories having been restored by the peace of Paris. Half of Savoy was left in the hands of the French; which, however, was restored by the treaty of Paris in 1815 (November 20), together with Monaco. On the other hand, Carouge and Chesne, with 12,700 inhabitants, were ceded to Geneva (October 23, 1816). The congress of Vienna was desirous of strengthening the kings of Sardinia, as holders of the passes of the Alps, and Britain wished to establish a commercial intercourse with the court of Turin. Genoa therefore was annexed as a duchy to the Sardinian monarchy, December 14, 1814. Victor Emanuel restored, as far as was practicable, the old constitution, re-admitted the Jesuits, subscribed the holy alliance, and established a rigorous censorship. In 1818, he confirmed the sales of the royal domains made by the French, and appropriated an annual sum of 400,000 lire for the indemnification of the emigrants, who had lost their estates. As an ally of England, he obtained a permanent and honourable peace with the Barbary powers, through the British admiral lord Exmouth. In March, 1821, in consequence of the troubles which resulted in the occupation of the country by the Austrians, he abdicated the crown in favour of his brother, Charles Felix. (See *Piedmontese Revolution.*) The measures which were adopted subsequently to the suppression of the insurrection, were directed to realize the plan of the congress of Vienna in erecting Sardinia into a partition wall between Austria and France. In compliance with the terms of the convention concluded between the Sardinian general della Torre, and the Austrian, Prussian, and Russian ambassadors, Sardinia was occupied by Austrian troops, for which Austria was to receive £281,250 a year, besides provisions. Rigorous measures were taken to extirpate "revolutionary principles," as they were styled. In the universities of Turin and Genoa, and other institutions of education, a strict supervision over the conduct of the students was maintained; the Jesuits were admitted into Savoy and the island of Sardinia; the royal schools were committed to their care, and, in 1823, the provincial college was put under their direction. The Jews were subjected to severe burdens and great disabilities. To protect the Genoese commerce against the Barbary corsairs, the whole navy of Sardinia (consisting of one frigate and eight smaller vessels) was ordered to sea, but effected nothing. Through the mediation of Great Britain, however, a peace was concluded in 1825, Sardinia agreeing to make certain presents to the dey of Algiers and the bey of Tunis. The congress of Verona (1822) provided for the gradual evacuation of the country by foreign troops, which was completed towards the close of 1823; but, at the same time, as apprehensions were entertained from the Piedmontese fugitives in Switzerland, such representations were made to the federal diet as not only to effect their removal, but to impose restrictions upon the Swiss press. Intercourse with Spain was broken even previously to the invasion of that country by the French, and the prince of Carignan (the present king), who had been banished from court on account of his conduct during the Piedmontese insurrection, served as a volunteer under the duke d'Angoulême. Still Sardinia embraced the Austrian politics with more cordiality than the French, both in regard to her domestic administration, and her Italian policy in

general. A royal edict, of 1825, prohibited any person learning to read or write, who had not property to the amount of 1500 lire (about £90), and any one studying at the university who had not as much more in the funds. Translations of the works of Göthe, Wieland, and Schiller, were also prohibited within the Sardinian states. Charles Felix died March 29, 1831, and was succeeded by Charles Albert, prince of Carignan. Some troubles broke out in Sardinia; the Genoese merchants offered the king a large sum of money to induce him to consent to the independence of Genoa; but the offer was rejected, and his majesty was actually besieged in Genoa, until relieved by Austrian troops. See the articles *Italy*, and *Italy, Travels in*, with the works there referred to; see also Manno's *Storia di Sardegna* (Turin, 1825); Mimaut's *Histoire de Sardaigne* (Paris, 1825); and de la Marmora's *Voyage de Sardaigne* (1826).

SARDONYX. See *Chalcedony*.

SARK or CERG; an island in the English channel, situated on the French coast, within six miles of Guernsey, lon. 2° 52′ W; lat. 49° 30′ N. It is about five miles in length, and three in breadth, surrounded by inaccessible rocks, except in one or two places, where the ascent for the carriage is so steep, that Governor Carteret was induced to form a subterraneous passage through the cliff, the entrance of which is secured by a strong gate, and defended by cannon. Here are some remains of a convent dedicated to St Magloire, bishop of Dol, who converted the inhabitants to Christianity in the sixth century. The French seized this island, and retained possession of it till the reign of Mary; and it was afterwards uninhabited till the next reign, when Philip de Cateret, Lord of St Ouen, planted a colony in the island: and it was held by his heirs paying a small quit-rent to the British crown. It is well watered, the climate is pure and healthy, and the soil is productive, affording corn more than is sufficient for the use of its inhabitants. The island abounds with rabbits, wild fowl, and during the season of incubation, with cliff pigeons. The only manufactures are knit stockings, gloves, and Guernsey jackets for sailors; and the inhabitants who are chiefly engaged in fishing, have some trade with Bristol. The islands of Sark and Alderney are under the same government with Guernsey. The islands of Jethou and Arne, belonging to this group, are very inconsiderable. The population of Sark is about 500.

SARMATIANS. The Sclavonians and other nations, who inhabited the northern parts of Europe and Asia, were called by the ancients *Sarmatians*. European Sarmatia comprehended (according to Gatterer, who, however, extended it too far) Poland from the Vistula, Prussia, Courland, Livonia, Russian and European Tartary, together with the Crimea; Asiatic Sarmatia embraced Asiatic Russia, Siberia and Mongolia. The Sarmatians were nomadic tribes. They were probably descendants of the Medes, and dwelt originally in Asia, between the Don, the Wolga, and mount Caucasus. They were allies of king Mithridates VI. of Pontus, even at that time were settled on the west of the Don, and afterwards extended over the country between the Don and the Danube. They were, at times, formidable to the Asiatic kings. Among the most remarkable of them were the Jazyges and the Roxolani. They carried on long and bloody, but for the most part unsuccessful, wars against the Romans. A part of them, with other barbarians entered Gaul A. D. 407; the remainder were conquered by Attila, but after his death submitted to the emperor Marcian, who assigned them a residence on the Don. Here they afterwards united themselves to the Goths, and formed with them one nation.

SARPI, Pietro. See *Paul of Venice*.

SARRACENIA, or SIDE-SADDLE FLOWER. The species of *sarracenia* are among the most singular productions of the vegetable world. They are exclusively North American, and, according to Mr Nuttall, are not found west of the Alleghanies. The leaves have the form of a long tube or funnel, conic or swollen, often containing water, and terminated by an appendage, which varies in form in the different species. The flowers resemble, in size and form, those of the splatter-dock or yellow water-lily (*nuphar*). All inhabit marshy grounds. The *S. purpurea* is the most common species, and by far the most widely diffused, being frequently met with from Hudson's bay to Carolina: the stems are eight or ten inches high, arising from the centre of the leaves, simple, leafless, and are terminated with large flowers, of a green colour mixed with reddish-brown; the leaves have a large heart-shaped appendage, smooth externally, and covered within with scattered whitish horizontal hairs. The other species are confined to the Southern States.

SARSAPARILLA. The roots of the *smilax sarsaparilla*, and doubtless of other species of smilax (for all those plants closely resemble each other in their sensible properties), are very long and slender, with a wrinkled bark, brown externally and white within, and have a small woody heart. They are inodorous, and have a mucilaginous and very slightly bitter taste; they seem to possess no very active principle, although they have enjoyed a very high repute, at different times, as a specific in venereal and scrofulous diseases: they have sudorific and diuretic properties, but only in a slight degree. Sarsaparilla is one of the ingredients of the famous Rob of Laffecteur, as well as of Swaim's Panacea, and various other similar remedies. The species of smilax are very numerous in the United States of America, especially in the southern parts. They are green vines, usually spiny, with scattered leaves, and are very troublesome in the woods, in certain districts, forming impenetrable thickets. They are allied, in their botanical characters, to the asparagus, but differ widely in habit; the leaves are coriaceous or membranous, entire, nerved, and usually more or less heart-shaped; the leaf-stalks are generally provided with tendrils at the base. The flowers are dioecious, chiefly disposed in little axillary umbels, and the corolla is divided into six lobes; the male flowers have six stamens; the fruit is a small globular berry, containing three seeds, or often one or two only, by reason of abortion. The *S. China* grows in China and Japan, and the roots are employed in those countries for the same purposes, and have enjoyed the same reputation as our sarsaparilla. It is, besides, used for food. The true sarsaparilla has smooth, oval, membranous, heart-shaped leaves, and grows in Mexico, Peru and Brazil.

SARTI, Joseph, a composer, was born at Faenza, in 1729, and died in 1802. He was, for a long time, master of the chapel to Catharine II., in St Petersburg, who treated him very liberally. He composed a grand Te-Deum for the taking of Oczakow, the bass of which was accompanied by cannons of different calibre. A piece of music composed by him for Good Friday, was performed by sixty-six singers

and one hundred Russian horns, besides the usual instruments.

SARTO, ANDREA DEL (his proper name is *Andrea Vannucchi*); a celebrated painter, of the Florentine school, born at Florence, in 1488. His teachers were not of a high order, and he cultivated his talents principally by the study of great masters, such as Leonardo and Michael Angelo. Some maintain that he was deficient in invention; whence, in some of his compositions, he made use of the engravings of Albert Dürer, which had then become known. He painted many pieces for his native city. Francis I. induced him, by a considerable salary, to go to France in 1518. But his extravagant wife led him into acts of ingratitude against the prince. He soon went back to Italy, and appropriated to the use of himself and his wife large sums, which had been given him, by his royal patron, to purchase the pictures of great masters in Italy. He repented, it is true, of his faults, but could not recover the king's favour. Among other works, he painted, about this time, the beautiful Sacrifice of Abraham, which has since been placed in the gallery of Dresden. The following anecdote is related of his wonderful skill in imitation.—He copied Raphael's portrait of Leo X. so exquisitely as even to deceive Giulio Romano, who had aided Raphael in the drapery. Among his most celebrated works is a Burial in the palace *Pitti*, and the Dead Saviour with Mary and the Saints, in the gallery of the grand-duke; also a beautiful Madonna, in the church of *l'Annunziata*, called *Madonna del sacco*, and several others in Florence; a Charity, now in Basle; Tobias with the Angel; and several Holy Families; the History of Joseph, in two paintings, in the Paris museum. In 1529, when Florence was taken, the soldiers, on entering the refectory which contained his picture of the Last Supper, were struck with awe, and retired without committing any violence. He died of the plague, in 1530. His colouring in fresco, as well as in oil, was full of sweetness and force: his draperies are easy and graceful. The naked, in his compositions, is excellently designed, but his figures want that force and vivacity which animate the works of other great painters, though they possess correctness, truth and simplicity. Sometimes he is too anxious to produce effect. Giacomo de Pontormo was his pupil.

SARUM, OLD; an ancient and now deserted borough in Wiltshire, two miles north of Salisbury. It was anciently a considerable city, and by the Romans called *Sorbiodunum*, though at present reduced to some ruins and intrenchments. Two members, however, up to the passing of the Reform Bill, continued to be returned to parliament by the proprietors, and the election took place in the field, on the spot where the last houses of the city stood. The present proprietor of Old Sarum (lord Caledon) paid about £60,000 for the small estate on which the borough stands. It was the original situation of Salisbury, and the bishop had a castle here; but the see was removed to the present situation of Salisbury (q. v.), in the year 1219. Before the reformation in England, the most celebrated liturgy in use in that country was that styled *secundum usum Sarum*, compiled by the bishop of Salisbury, in the eleventh century.

SASSAFRAS. See *Laurel*.

SASSOFERATO; a painter, so called from the place of his birth, a town in the duchy of Urbino, [illegible] of the Church. His true name was *Giambattista Salvi*. He was born in 1605, learned the elements of his art from his father, and afterwards studied under Domenichino, Guido and Albani. His works resemble those of the latter, and are executed with the same care. His paintings were chiefly the Madonna and Child, the latter sleeping. His heads are expressive and lovely.

SATAN. See *Devil*.

SATE; an Egyptian goddess. See *Hieroglyphics*.

SATIN; a soft, closely-woven silk, with a glossy surface. In the manufacture of other silken stuffs, each half of the warp is raised alternately; but in weaving satin, the workman only raises the fifth or the eighth part of the warp; thus the woof is hidden beneath the warp, which, presenting an even, close and smooth surface, is the more capable of reflecting the rays of light. In this way satin acquires that lustre and brilliancy which distinguish it from most other kinds of silks. The chief seats of this branch of manufacture are Lyons in France, and Genoa and Florence in Italy. From the East Indies are imported those light stuffs called Indian or Chinese satins. They are either plain, damasked, striped, open-worked, or embroidered. Both in lustre and execution, they are far inferior to the Lyonese satins; they, however, possess this peculiar property, that, even after scouring, they retain their original gloss.

SATIN-SPAR; carbonate of lime, in delicate, almost compact, white fibres. See *Lime*.

SATIRE; in the widest sense of the word, pungent ridicule or cutting censure of faults, vices or weaknesses; hence the phrase a "satirical person." In a narrower sense, in which it is more commonly used, it is a poem, of which ridicule and censure are the object and chief characteristic. This species of poetry had its origin with the Romans: the name is derived from *satur* (by no means from *satyr*), and refers, originally, to the mixture of subjects treated, and of metres used, in the earlier productions of this kind. Satire is one of the latest branches of poetry cultivated, because it presupposes not merely much natural wit, but also acute observation, and much variety of life and manners to call this wit into exercise. In fact, it is only in an advanced state of society, where folly and vice force themselves on the public eye, that a taste can exist for this species of production. As the object of satire is always castigation, it is distinguished from mere wit, which may occupy itself simply with the ludicrousness of particular relations. The form of satire is very varied. It may be in the shape of epistles, tales, dialogues, dramas (as with Aristophanes), songs, epics, fables, &c. The most common form of satire, however, is that of a simply didactic composition. The ancients wrote their satires in iambic and dactylic verse. The moderns generally use the iambus, sometimes the Alexandrine, sometimes the iambic verse of five feet, the latter sometimes with, sometimes without rhyme. The proper didactic satire originated, as we have said, with the Romans; and its inventor was Lucilius: Horace, Juvenal and Persius developed it. Vulpius, Casaubon and König have written on the Roman satire. Of the modern satirists, we may mention, among the Italians, Ariosto, Alamanni, Salvator Rosa, Menzini, Dotti, Gasparo Gozzi, Alfieri, &c.; among the Spaniards, Cervantes, Quevedo and Saavedra; among the French, Regnier, Boileau, and Voltaire, &c.; among the Germans, Seb. Brand, Ulr. Hutten, Fischart, Haller, Rubener, Lichtenberg, Falk,

Wieland, &c.; among the English, Donne, Rochester, Dryden, Butler, Pope, Swift, Young, Churchill, Johnson, Peter Pindar (Wolcot), Gifford, Mathias; among the Poles, Krasiczky. The Greeks had not the proper satire. The poem of Archilochus, and that of Simonides, were more properly lampoons; and the *silli* had probably a didactic form, but were of the nature of parody. Entirely different from the satire was the *drama satyricon* of the Greeks, invented by Pratinas—a mixture of tragic, at least heroic action with comic. These dramas served as interludes and after-pieces, and had a low comic character. We possess only one —the *Cyclops* of Euripides.—See Eichstädt, *De Dramate Græcorum comico-satyrico*, &c., and Herrmann and Pinzger on the same subject.

SATRAPS, in the Persian empire; the governors of the provinces which were called *satrapies*. The term *satrap* is sometimes used to signify a petty despot.

SATURATION. A fluid, which holds in solution as much of any substance as it can dissolve, is said to be *saturated* with it. But saturation with one substance does not deprive the fluid of its power of acting on, and dissolving some other bodies; and in many cases it increases this power. The word *saturation* is also employed in another sense. The union of two principles produces a body, the properties of which differ from those of its component parts: when the principles are in such proportion that neither predominates, they are said to be *saturated* with each other; but if otherwise, the most predominant principle is said to be *subsaturated*, and the other *supersaturated*.

SATURDAY (*Saturni dies*, Saturn's day,) so called from the planet Saturn; the seventh day of the week; the *Sabbath* of the Jews. It is called by the Italians, *Sabbato*; by the French, *Samedi*; and by the Germans, *Sonnabend* (Sunday eve), or in High German, *Samstag*, a corruption of *Sabbathstag* (Sabbath day); and in Lower Germany, *Saterdag*, of the same origin as the English. See *Week*.

SATURN; originally an old Italian divinity, who was afterwards confounded with the Kronos (Κρονος) of the Greeks. Uranus and Gæa (Terra) were the parents of the six Titans. The youngest of these Titans was Kronos (Time), who, when Uranus imprisoned his children, and thereby brought upon himself the anger of their mother, was instigated by her to vengeance, armed himself with a sharp knife, or sickle, and, as Hesiod says, cut off the privities of his father, whereupon Uranus was deprived of his sovereignty. The Titans set free their imprisoned brothers, and the government fell into the hands of Kronos. He then married Rhea, who bore him several sons and daughters. But, as he well knew that he should be dethroned by one of his sons, he devoured the children that were born to him. Jupiter alone, whom Rhea concealed in Crete, where Terra promised to educate him, was preserved. Rhea presented Kronos with a stone, in swaddling clothes, which he swallowed instead of the new born infant. By means of an emetic, administered to him by Terra and Metis, he threw up the stone, as well as all the children whom he had swallowed; by the assistance of whom, Jupiter made war upon him and the Titans, and dethroned him, after a contest of ten years. Kronos was, together with the Titans, confined in the dungeons of Tartarus; whence, however, according to the later poets, they were released; according to Pindar, Jupiter recognised Kronos as the lord of the Fortunate Island in the western ocean. The unknown Hesperia was considered as the land where Uranus, and the succeeding Titans, reigned. But when this land became more accurately known, Kronos, and the golden age, were transferred to Italy. Kronos now becoming blended with Saturn, Saturn was represented as dethroned, cast out from his kingdom, and flying before his son; and as having selected a place of refuge in Italy, and concealed himself in Latium (from *latere*). There the aged king Janus shared with him his throne, and Saturn built upon the Saturnian mount (afterwards the Capitoline hill) the city of Saturnia. His temple stood in the Roman forum, and in it were preserved the public treasures of the city. The Saturnian period was the golden age, which poets vied with each other in celebrating. At that time, the years rolled tranquilly away, and every moment offered an abundance of untroubled enjoyment. Saturn has also been made the father of Chiron, the Centaur.

SATURN. (See *Planets*.) The thickness of the ring of the planet Saturn has lately been estimated by the German astronomer Bessel, at $29\frac{7}{10}$ German miles (15 to a degree), $128\frac{4}{10}$ English geographical miles.

SATURNALIA; a feast among the Romans, in commemoration of the happy period under the reign of Saturn, when freedom and equality prevailed, when truth, confidence, and love, united all, and violence and oppression were unknown. It continued, at first, one day; then three; afterwards five; and finally, under the Cæsars, seven days, viz. from the 17th to the 23d of December. The festival began as soon as the woollen bands which had bound the feet of Saturn's statue through the year were removed. At the commencement of this festival, a great number of wax tapers were lighted in the temple of Saturn, as a sign that no more human victims were to be sacrificed. The slaves were freed from restraint during this season, wore caps as badges of freedom, and went about dressed in tunics, adorned with purple, and in white togas. Masters and slaves changed places; and while the servants sat and banqueted at the tables, they were waited on by their masters and their guests, who, if they did not do this, were obliged to submit to all sorts of ridiculous punishments. Jests and freedom every where prevailed; and all ceased from their various occupations. In the last days of the festival, which were added in later times, presents were sent from one to another, particularly little images of the gods, *sigilla* (seals), &c.; whence these days were sometimes called *Sigillaria*, and persons were greeted with the acclamations of "*Io Saturnalia! bona Saturnalia!*" Some prisoners were also set free, who dedicated their chains to Saturn.

SATYRS. The Greek mythology includes, under the name of *Satyrs* (σατυροι, σατυροι), as well as under those of *Sileni*, *Fauns*, and *Pans*, a species of beings who approach, more or less, to the nature of brutes, and particularly to the form of the goat. They were, originally, Peloponnesian wood-gods. The development of the idea of these beings is due to the Attic drama, and the *drama satyricon* in particular. The early Greeks pictured them as long-eared, bald-headed, and as having small protuberances behind their ears. Later artists made them like Pan, giving them horns and goats' feet. (See Voss's *Mythological Letters*, 2d

vol. page 30.) In the representation of them by some artists, the brute characteristics, such as goats' feet, a tail, pointed ears and horns, predominate. Others mainly preserve the human form, and resemble the brutes only by their goats' ears and tails, and sometimes by the introduction of little horns, in the first stages of their growth. To this we must add, however, the general cast of the face, the cheek-bones, the beard, and the flesh hanging down upon the neck from the ears. At other times, the brute characteristics are softened into a mere clownish, rude, and awkward human form. The common difference made between the Fauns and Satyrs is, that the former are represented with pointed ears and short tails; the latter, on the contrary, appear with goats' feet. The Sileni are considered to be the old Fauns. This is, however, erroneous. The Satyrs of the Greeks were, in fact, equivalent to the Fauns of the Romans. The whole race of Satyrs, Sileni, Fauns, and Pans, were generally regarded, among the ancients, as divinities of the woods and rural places, and grew up from different notions. The Satyrs and Sileni were the attendants of Bacchus, the signification of which cannot be determined, as the origin of these representations was early lost. Perhaps the idea of them arose from men dressed in the skins of beasts; or perhaps they were only symbolical, and intended to represent man in a rude state. The parents of the Satyrs were considered, by some, to be Mercury and the nymph Iphtime; but, according to others, they were Bacchus and the naiad Nicæa. They were wanton, and were extremely fond of music; and, at the festival of Bacchus, always appear dancing and playing on musical instruments.

SAUCISSE, in the military art, is a long train of powder sewed up in a roll of pitched cloth or leather, serving to set fire to mines. To every mine there are generally two, that if one fail the other may take effect. Their length is determined by circumstances.

SAUCISSION, in fortification, a kind of fagot made of thick branches of trees, bound together, to cover the men while exposed to the enemy's fire, when on some hazardous employment. It is also used to repair breaches, stop passages, and make traverses over wet ditches.

SAUKS, OR SACS. See *Indians, American.*

SAUL. See *Paul.*

SAUL; king of Israel about 1050 B. C. He was descended from an humble family of the undistinguished tribe of Benjamin, but was noted for his personal beauty and courage, and, when the people became dissatisfied with the theocratico-republican constitution, was selected by Samuel for their king. He was not acknowledged by the whole people until after he had gained a victory over the Ammonites. Repeated successes over the Philistines, Edomites, Moabites, Ammonites, and even over a king beyond the Euphrates, confirmed his authority. But Samuel, who had reluctantly parted with the supreme power, continued to keep up a party in the nation, and, being offended by the encroachments of the king on the privileges of the priesthood, and by his disobedience to the commands of Jehovah in a war against the Amalekites, secretly anointed David as king. Saul discovered his rival, and his hatred against him was increased by the reputation which the latter acquired by his warlike exploits. A civil war, which broke out between the partisans of David and those of Saul, was terminated by the death of the latter, who, after the defeat of his forces by the Philistines, fell upon his own sword. The history of Saul's frenzy has furnished Alfieri with the subject of one of his masterpieces—Saul, a lyric Tragedy.

SAUMAISE. See *Salmasius.*

SAUNDERSON, NICHOLAS; a celebrated blind mathematician, born at Thurlston, in Yorkshire, in 1682. When a year old, he entirely lost his eyesight through the small-pox. Notwithstanding this privation, he acquired a knowledge of Latin and Greek, and, having pursued his studies for some time, with the assistance of friends, he was, in 1707, sent to Cambridge. He took up his residence at Christ's college, and soon commenced giving lectures on optics. He became acquainted with sir Isaac Newton, and was chosen mathematical professor. He died in 1739. His treatise on algebra was published after his death, at Cambridge (1740, 2 vols.). He left other works in an imperfect state, among which were comments on Newton's *Principia*, which were published at the end of his posthumous treatise on Fluxions (1756, 8vo.).

SAURIN, JAMES, a French Protestant preacher, was the son of a lawyer at Nismes, and born in 1617. Upon the revocation of the edict of Nantes, in 1685, his father retired with his family to Geneva, where the subject of this article made a considerable progress in learning, but quitted his studies, and went into the army. When the duke of Savoy, under whom he served, made peace in 1696, he returned to Geneva, with a view to engage in the ministry. In 1700, he visited England, where he preached nearly five years to his fellow refugees in London. He subsequently became pastor to a congregation of French refugees, who assembled in a chapel belonging to the prince of Orange, at the Hague. He died in 1730, at the age of fifty-three. This eminent preacher possessed great talents, and a fine address: his voice was strong, clear and harmonious, and his style pious, unaffected and eloquent. He had the happy art of adapting his arguments, with great skill, to the understanding of the audiences before whom he spoke, and was persuasive and pathetic, or plain, clear, or argumentative, as best suited his subjects or his hearers. His principles were those of moderate Calvinism. He was the author of twelve volumes of Sermons (8vo.), selections from which were translated into English, and published, between 1775 and 1784, in five volumes, by Mr Robert Robinson (with a Memoir), a sixth being added, in 1796, by doctor Henry Hunter. Among his other works are Christianity in France (8vo.); Compendium of Christian Divinity and Morality; Discourses on the most Remarkable Events of the Old and New Testaments. Of this, his most considerable work, he nearly completed three volumes folio; to which Roques added a fourth on the Old Testament, and Beausobre two more on the New Testament.

SAUSSURE, HORACE BENEDICT DE, a celebrated naturalist, was born at Geneva in 1741, and distinguished himself so much at the age of twenty-two by his proficiency in the mathematical and physical sciences, as to be appointed professor of philosophy in his native place. He continued to discharge the duties of this office, for twenty-five years, with reputation. The leisure which his duties left him was occupied in scientific journeys to the volcanic region of France, to the south of Italy, and to England. A favourite object of his investigations was the structure and height of

mountains; and to him we are indebted for the invention of several philosophical instruments; as, for instance, an electrometer, a hygrometer, heliothermometer, &c. In 1779 he had ascended the Alps fourteen times in eight different places, and in 1787 he ascended Mont Blanc, and determined its height by barometrical measurements. Saussure died in 1799. Among his writings, his *Essais sur l'Hygrométrie*, and his *Voyages dans les Alpes* (4 vols., 1779—96,) are the most valuable.

SAUSSURITE is a massive or compact mineral found in large masses in the Monte Rosa; in Corsica; in the Bacher mountain in Lower Stiria, and in Bayreuth. In certain varieties, traces of cleavage parallel to the sides of a prism of 124°, and to the shorter diagonal of such a figure, are observable. Fracture uneven, splintery; lustre pearly, inclining to vitreous; colour white, passing into mountain-green; streak white; brittle; frangible with much difficulty; specific gravity 3·25. It consists of silex 49, alumine 24, lime 10, magnesia 3·75, oxide of iron 6·50, and soda 5·50.

SAVAGE, Richard, an English poet of the last century, celebrated for his genius, irregularities and misfortunes, was born in London, about 1698. The singular story of Savage, adorned as it is by the pen of his intimate friend, doctor Johnson (Lives of the Poets), has acquired great celebrity; but there is reason to believe that a great part of it is utterly fictitious. Savage was probably the son of a woman who had been employed to nurse a natural son of the countess of Macclesfield by earl Rivers. That lady always asserted—and there is no good cause for doubting it—that her child died while quite young, and that Savage was an impostor. Johnson's account, taken from Savage himself, is, that no sooner did he see the light, than a most unnatural hatred took complete possession of his mother; that he was placed with a woman in the lowest state of indigence, with directions that he should be brought up in ignorance of his birth, and in the meanest condition; that the interference of his maternal grandmother, lady Mason, a little alleviated his lot; and through her kindness he was placed at a grammar school in the neighbourhood of St Alban's, during which period earl Rivers died, revoking a bequest he had made him, on being assured by the countess that her child had been some time dead; and that his mother endeavoured to have him kidnapped and sent as a slave to the plantations. He was an apprentice to a shoemaker (this is true), when the woman, whom he had been taught to consider his mother, dying suddenly, some of lady Mason's letters, among her papers, discovered to him, as he pretends, the secret of his birth; or, as appears probable, suggested to him the plan of assuming to be the child of lady Macclesfield, whom his mother had nursed, and to whom these letters really related. He now became an author for the means of bodily subsistence. His first work was a pamphlet on the Bangorian controversy, which was followed by two comedies, Woman's a Riddle, and Love in a Veil, which procured him the acquaintance of Sir Richard Steele and Mr Wilkes. In 1723, his tragedy, on the subject of Sir Thomas Overbury, was brought out; the author himself performed the principal character, but with little success; the profits of the piece, however, appear to have amounted to about £200. The poet was now rising in reputation, when, in 1727, in a broil in a house of ill fame, he killed a Mr Sinclair; and, being tried for murder, a verdict of guilty was pronounced against him. Through the influence, however, of lady Hertford, the king's pardon was granted him. Soon after, lord Tyrconnel received him into his house, and allowed him two hundred pounds a year. In 1729, he published his Wanderer, a Moral Poem. A quarrel with his patron once more turned him adrift upon the world, and he now brought ou The Bastard, a poem of merit. A Birth-day Ode, addressed to the queen, procured him a pension of fifty pounds from her majesty, to which he was eventually mainly indebted for his support. A satire against the clergy, entitled the Progress of a Divine, caused a prosecution to be instituted against him; but the information was dismissed. From this period, he appears to have sunk into the lowest misery. The death of the queen, and the loss of his pension, completed his ruin; and, although a few friends raised a subscription, with a view of enabling him to reside in Wales, the same propensity to dissipation induced him not only to squander the money advanced to him, but to incur a debt of eight pounds at Bristol; for which he was arrested, thrown into the county jail, and eventually removed to Newgate, where he died in 1743. Although Savage at one time received an allowance of fifty pounds a year from Mrs Oldfield, and repeatedly extorted considerable sums of money from lady Macclesfield by threats of lampooning her, besides other sums from the admirers of his genius, his extravagance always kept him poor; and it is well known that he was the friend and companion of Johnson at the time when the latter was sleeping in the streets of London, houseless and pennyless. For the true character and history of Savage, see Galt's *Lives of the Players* (London, 1831, 1st vol.).

SAVANNAH; a river which forms the north-east boundary of Georgia, and separates it from South Carolina. It is formed by the junction of the Tugalo and Kiowee, 100 miles by the course of the river above Augusta. The largest vessels come up to Five-fathom Hole, within three miles of the city of Savannah, eighteen miles from the ocean; large brigs come to the wharves; steamboats of 150 tons ascend to Augusta, about 250 miles by water, and 127 by land; and pole-boats ascend 100 miles farther, and then fifty miles on the Tugalo branch. Boats on this branch carry from thirty to sixty bags of cotton, and return with eight or ten tons of merchandise. Tides flow up twenty-five miles.

SAVANNAH; a city of Georgia, and port of entry, in Chatham county, on the south bank of Savannah river. It is built on a sandy bluff point, forty feet high. It was laid out by general Oglethorpe in 1733. The town is regularly built; the streets are wide, and ornamented with the China tree. The chief part of the exports and imports of the state are landed here. In 1829, it contained ten houses of worship, an exchange, a court house, a jail, a poor house, an hospital, a theatre, an academy, two state banks, and a branch of the United States bank. Two of the churches are for Africans; and one of these has more than 2000 members attached to the congregation. Population in 1830, 7303; lat. 32° 2′ N.; lon. 81° 3′ W.

SAVILE, Sir Henry, one of the most elegant scholars of his age, was born in 1549, and, after graduating at Brazen-nose college, Oxford, removed on a fellowship to Merton college, in the same university. In his twenty-ninth year, he made a tour on the continent, for the purpose of perfecting

himself in elegant literature, and, on his return, was appointed tutor in Greek and mathematics to queen Elizabeth. Seven years after, the wardenship of his college, which he held for about six-and-thirty years, the provostship of Eton being added to it in 1596, was conferred on him. In 1619, he founded two professorships, in geometry and astronomy, at Oxford, besides conferring several other valuable benefactions, both in property and books, many of the latter forming still a part of the Bodleian library. Among his works, the principal are his Commentaries on Roman Warfare; *Rerum Anglicarum post Bedam Scriptores; Prælectiones in Elementa Euclidis;* and his edition of the writings of St Chrysostom, in eight folio volumes. Sir Henry Savile was the correspondent of J. Scaliger, Meibomius, Isaac Casaubon, and most of the learned men of his day. His death took place in 1622.

SAVILE, GEORGE, marquis of Halifax, a statesman and writer, was born in 1630. On the death of Cromwell, he distinguished himself by his exertions in favour of the absent king, and on the restoration was raised to the peerage. He was removed from the council in 1675, through the influence of the duke of York (see *James II.*), in consequence of his opposition to that prince's measures in favour of the Roman Catholic religion. But when the bill for excluding the duke from the succession was in agitation, his repugnance to that measure brought him into disgrace with the party with which he had hitherto acted. In 1682, he was created marquis of Halifax, keeper of the privy seal, and president of the council, which dignities he retained in the early part of the succeeding reign, till his opposition to the proposed repeal of the test acts caused his abrupt dismissal. From this moment lord Halifax continued in opposition, till the flight of James II., when he was chosen speaker of the house of lords in the convention parliament, and contributed mainly to the elevation of William III. to the throne. But, soon after the revolution, he resigned the privy seal, and, during the remainder of his life, voted against the court. A mortification in the bowels carried him off in 1695. He was the author of Advice to a Daughter, and of a variety of political tracts, the principal of which are, Maxims of State; the Character of a Trimmer; Character of King Charles II.; Anatomy of an Equivalent; Letter to a Dissenter, &c.

SAVIN. See *Juniper*.

SAVINGS BANKS. See *Banks*.

SAVONAROLA, GERONIMO, an Italian monk, celebrated for his eloquence, and his melancholy fate, was born at Ferrara, September 21, 1452, and was designed for the medical profession. Religious enthusiasm led him, at the age of fourteen, to leave his father's house secretly, and enter the order of Dominicans. Several years later, he began to preach at Florence, but with so little success that he determined to abandon the pulpit; and, retiring to Bologna, he devoted himself to metaphysical and physical studies. The reputation of his talents and learning induced Lorenzo de' Medici to invite him to return to Florence. Here Savonarola began to preach again; and his discourses attracted such crowds that the church could not contain them. His extraordinary sanctity and his powerful eloquence gained him great influence over the minds of the Florentines, and he was emboldened to assume a prophetic tone, and to urge with vehemence, and in public, the necessity of a reform in the church. The multitude looked upon him as divinely inspired, while some ridiculed him as a fanatic, and others denounced him as an impostor. He soon broke off all connexion with his patron Lorenzo, whose character he assailed, with prophecies of his approaching fall. He refused to make the customary visit to that chief, which it was his duty to do as prior of St Marks, and, when Lorenzo went himself to St Marks, refused to see him. Although Lorenzo de' Medici was repeatedly urged to adopt severe measures against him, he refused, either from lenity, or from his respect for the character of the preacher. When Lorenzo lay on his death-bed (1492), Savonarola obtained admission to him, and spoke to the dying man with the dignity of his office. After the death of Lorenzo, and the expulsion of his son Pietro, Savonarola took the most active part in the political affairs of Florence. He put himself at the head of those who demanded a more democratical form of government, asserted that God had commissioned him to declare that the legislative power must be extended to the citizens, that he himself had been the ambassador of the Florentines to heaven, and that Christ had consented to be their king. The newly elected magistrates accordingly laid down their offices, and the legislative functions were intrusted to a council of the citizens, which chose a committee of their own number for the discharge of the duty. Dissensions, however, distracted the new republic; the aristocratical and democratical parties persecuted each other with great fury, the former consisting of the friends of the old order of things, and the latter of the devout admirers of the monk. But the zeal of Savonarola was not content with revolutionizing Florence; he meditated the reform of the Roman court, and of the irregularities of the clergy. The pontificate of Alexander VI. could not fail to supply causes of complaint on both heads. He accordingly wrote, as his eulogists assure us, to the Christian princes, declaring that the church was going to ruin, and that it was their duty to convoke a general council, before which he was ready to prove that the church was without a head, and that the reigning pope was not a true bishop, had never been worthy of the title, nor even of the name of a Christian. Alexander excommunicated him, and the bull of excommunication was read in the cathedral at Florence; but Savonarola despised the thunders of the Vatican, and continued to preach. His influence was still further increased by the failure of an attempt of Pietro de Medici to restore his family authority. But another party had, meanwhile, arisen in opposition to him. His innovations in St Mark's and other monasteries had excited the enmity of the monks, especially of the Franciscans of the strict observance, who denounced him from the pulpit as an excommunicated heretic. Fra Domenico da Rescia, a monk of his convent, offered, in the heat of his fanatical zeal, to prove the truth of his master's doctrines, by passing through fire, if one of his opponents would undergo the same ordeal in defence of their opinions. The challenge was accepted by a Franciscan monk, and Savonarola, with his champion, appeared at the head of a large procession, chanting the Psalm lxviii, "Let God arise, and let his enemies be scattered." The Franciscan also presented himself, the fire was kindled, and Domenico was ready to enter the flames, bearing the host in his hands. But the crowd exclaimed against this sacrilege,

as they termed it; and, as Domenico persisted in his determination, he thus happily escaped the ordeal for which he had offered himself. But this event was fatal to Savonarola. The people loaded him with insults, and he was finally thrown into prison. A spiritual court, under the direction of two papal commissioners, was held for his trial. His firmness and eloquence at first threw his judges into confusion, but, being examined on the rack, he confessed that he had falsely arrogated supernatural powers. He was condemned, with some of his adherents, to be first strangled, and then burnt, and the sentence was executed May 23, 1498, in presence of a large multitude, some of whom considered him as a martyr and a saint. This extraordinary man left, besides letters, a Treatise against Astrology, and several philosophical and ascetical works (*Opera*, Lyons, 1633—40, 6 vols.) His sermons (*Prediche*, Florence, 1496), though wanting in the characteristics of finished discourses, contain powerful and stirring passages. See *Reformation*.

SAVOY (*Savoia*, Italian; *Savoie*, French); a duchy belonging to the Sardinian monarchy (see *Sardinia*), and bordering on France, Switzerland, and Piedmont, with a superficial extent of 3750 square miles, and a population of 501,165. The greatest part of the duchy consists of lofty mountains and forests, alternating with deep and narrow valleys. The Cottian and Pennine Alps belong in part to Savoy, and the Gray Alps separate it from Piedmont. (See *Alps*.) Mont Blanc, the loftiest summit in Europe, is in Savoy. The Iseran, the Little St Bernard, and mount Cenis, over which an artificial road leads from Savoy to Piedmont, are also in this duchy. (See *Alps, Roads over*.) Many of the summits are covered with perpetual snow and ice. Savoy is watered by the Rhone, the Isere, the Avre, which flows through the vale of Chamouni and the Arc. The lake of Geneva is on the borders. The smaller lakes are those of Bourget and Annecy. Near the lake of Bourget is an intermittent spring, called the Miraculous Fountain, which ceases to flow during periods varying from twenty minutes to towards three hours. The climate is very changeable, and in the course of a day the severest cold is often succeeded by a great heat. The soil is mostly rocky, and far from fertile; but where it is susceptible of being brought into cultivation, it yields corn, though insufficient to supply the inhabitants, potatoes, hemp, flax, wine, chestnuts, and orchard fruits. The forests are extensive, and the pastures good; grazing is therefore much attended to. Game, the marmot, chamois, and ibex, are found in the mountains. Among the mineral productions are silver, copper, lead, iron, coal, and salt. The Savoyards speak a mixture of French and Italian. They are honest, faithful, frugal, and industrious, but poor. They are often compelled to quit their ungrateful soil for a subsistence (as porters, pedlars, &c.), but generally return with their earnings to their country. Chamberry, the capital, with 11,991 inhabitants, is the only considerable town. Savoy was anciently inhabited by the Allobroges. It was under the Roman dominion till 400, belonged to Burgundy till 530, to France till 879, to Arles till 1000, when it had its own counts, and, in 1416, was erected into a duchy. In 1792, it was conquered by the French, and incorporated with France, as the department of Mont Blanc. It was partly ceded to Sardinia by the first peace of Paris (1814), and by the second (1815), the remainder was given up to the Sardinian monarchy. See Cribario's *Notizie sopra i Principi di Savoia* (Turin, 1825).

SAW-FISH (*pristis antiquorum*); a fish of the family of sharks, remarkable for having the head prolonged in the form of a long, flat plate, having strong osseous spines implanted like teeth on each margin, the whole bearing some resemblance to a saw. This forms a powerful weapon, with which it attacks whales and other cetaceous animals, towards whom this fish seems to bear an inveterate hostility. The habits of the saw-fish are otherwise, as well as their organization, the same as those of the shark. It grows to the length of twelve or fifteen feet. The flesh is hard, coriaceous, and ill-tasted. Several species of saw-fish are now known. They inhabit all seas, from the polar ice to the equatorial regions.

SAW-GIN. See *Cotton*.

SAXE, Maurice, count de, a celebrated military officer, was the natural son of Augustus, king of Poland, by the countess of Konigsmark. He was born at Dresden in 1696, and even in childhood displayed some presages of his warlike genius. At the age of twelve, he joined the allied army under the duke of Marlborough and the prince Eugene, and was present at the sieges of Lisle and Tournay, and at the battle of Malplaquet. His father then gave him a regiment of cavalry, with which he served in Sweden, and was at the taking of Stralsund. His mother procured his marriage with a German lady of rank, when he was but fifteen; but the inconstancy of his temper occasioned a divorce after a few years. He was with prince Eugene, in Hungary, in the war with the Turks; but, after the treaties of Utrecht and Passarowitz, he withdrew to France, and was permanently attached to the service of that country by a brevet of *mareschal-de-camp*, given him in 1720, by the regent duke of Orleans. He applied himself to study at Paris, and made himself intimately acquainted with professional tactics. In 1726, he was a candidate for the duchy of Courland; and he formed various other schemes of ambition at different periods. On the death of his father, he declined the command of the Saxon army, offered him by his brother Augustus III., and joined the French on the Rhine, under the duke of Berwick. He distinguished himself at Dettingen and Philipsburg, and, in 1744, was rewarded with the staff of a marshal of France. He was employed in the war that followed the death of the emperor Charles VI., and, in 1745, gained the famous battle of Fontenoy, which was followed by the capture of Brussels, and many other places in Flanders. In 1747, he was victorious at Lafeldt, and, in the following year, took Maestricht, soon after which the peace of Aix-la-Chapelle was concluded. Marshal Saxe survived that event a little more than two years, dying November 30, 1750. He wrote a treatise entitled *Mes Rêveries*, on the art of war (2 vols., quarto.) General Grimoard, in 1794, published *Lettres et Mémoires choisis parmi les Papiers originaux du M. de Saxe, depuis* 1733 *jusqu'en* 1750 (5 vols., 8vo.) For a full account of the biography of this distinguished officer, see his life by M. d'Espagnon, in two volumes, 12mo.

SAXE-COBURG, SAXE-GOTHA, SAXE-MEININGEN, SAXE-WEIMAR, SAXE ALTENBURG, SAXE-HILBURGHAUSEN. See the articles *Coburg, Gotha, Meiningen, Weimar, Attenburg, Hilburghausen*, and *Saxony*.

SAXIFRAGE. The species of *saxifraga* are small herbaceous plants, with leaves entire or divided, ordinarily crowded about the base of the stem; the small, delicate flowers are usually disposed in a raceme or panicle. These plants are chiefly confined to cold climates and mountainous situations: many of them contribute largely to ornament the cold and desolate regions near the verge of perpetual snow, or within the arctic circle. The name is supposed to be derived from growing in the clefts of rocks. Many are of easy cultivation, and have long been favourites in the gardens; but the majority are delicate, and are liable to injury from mild and humid weather during the winter months.

SAXO GRAMMATICUS; a learned historian, who flourished in the twelfth century. He is supposed to have been a native of Denmark, of which kingdom, and its dependencies, he compiled an elaborate history, under the auspices of Absalom, bishop of Roschild. This work, which is said to have occupied him twenty years in its composition, has gone through several editions, especially those of Paris, 1514, Basle, 1534, and Sora in Denmark, 1644, folio; of these the latter is by far the most perfect. Saxo was a priest in the cathedral of Roschild, and is said to have been deputed on a mission to Paris, in 1161, for the purpose of inducing some of the monks of that capital to visit his native country, and assist in reforming the discipline of the religious orders there. He died in 1208.

SAXONS, LAND OF THE. See *Transylvania*.

SAXONS, SAXONY. Although the Saxons are first mentioned by Ptolemy, yet it cannot be doubted that they belong to the great northern German races, whose inroads into the Roman territories rendered the name of Cimbrians and Teutones so formidable. In the third century of the Christian era, they were a numerous, warlike, and piratical people, whose devastations on the British and Belgian coasts gave rise to the appointment of a particular officer (*comes littoris Saxonici*) to defend these regions. In the middle of the fifth century, two considerable hordes of Saxons, under Hengist and Horsa, laid the foundations of the Saxon kingdoms in Britain. (See *Britain* and *Anglo-Saxons*.) Those who remained in Germany, the Westphalians, Eastphalians, and Engrians, occupied a great extent of country, of vague and varying limits, which bore the general name of Saxony (*Sachsen*). Charlemagne waged a thirty years' war against the Saxons; and Wittekind, their national hero, with many of his countrymen, submitted to his arms, and embraced Christianity. (See *Germany, History of*.) In 845, mention is made of a duke of Saxony; and in the new kingdom of Germany, the Saxons were the most powerful of the six German nations, viz. the Eastern Franks, Saxons, Frisians, Thuringians, Suabians, and Bavarians. In 919, Henry, duke of Saxony, was elected German king (see *Henry I.*), and transmitted this dignity to his son, grandson, and great-grandson. (See *Otho I.* and *Otho II.*) The duchy afterwards passed (1125) to the Bavarian branch of the Guelf family, of which Henry the Lion (q. v.), celebrated for his contest with the emperor, was a member (1146—1195). After several changes, which it is unnecessary to enumerate here, Frederic the Warrior, margrave of Meissen and langrave of Thuringia, became (1424) duke and elector of Saxony. (See *Elector*.) The union of these three countries rendered the Saxon elector one of the most powerful princes in Germany. After the death of Frederic the Good, son of Frederic the Warrior, Ernest and Albert, sons of the former, divided the family possessions between them (1485), and founded the Ernestine and Albertine Saxon lines, which still exist. The latter received Meissen, or Misnia, and now constitutes the royal Saxon house. (See *Saxony, Kingdom of*.) The former retained the electoral dignity and Thuringia. Ernest was succeeded in the electorate by his sons Frederic the Wise (1486—1525) and John (1525—1532). The former is celebrated as the protector of Luther, the promoter of the reformation and the founder of the university of Wittenberg. But for his prudence, firmness, and personal influence with Maximilian and Charles, Luther would probably have met the fate of Huss. (See *Reformation*.) By the Wittenburg capitulation (May 19, 1547), the electoral dignity was transferred to the Albertine line, in the person of Maurice. (See the following article, and *Maurice*.) The Ernestine house is now divided into the two branches of Weimar and Gotha, the latter of which consists of the three lines of Meiningen, Altenberg and Coburg. (See the separate articles.) Towards the close of the fifteenth century, Germany was divided into circles; and the large tract of country, known vaguely by the name of Saxony, was formed into the three circles of Upper Saxony, Lower Saxony and Westphalia. Upper Saxony was bounded by Poland, Silesia and Lusatia on the east, and by Franconia and Bohemia on the south. It comprised the electorates of Saxony and Brandenburg, the duchy of Pomerania, and a number of small principalities. Lower Saxony had Westphalia and the Rhine to the west, and Sleswick with the Baltic to the north, and comprised the electorate of Hanover, the duchies of Mecklenburg, Brunswick and Holstein, the free cities of Hamburg, Bremen and Lübeck, with several smaller states. By the dissolution of the empire in 1806, the distinction of circles was abolished.

SAXONY, KINGDOM OF, lying in the northeast part of Germany, is bounded on the south by Bohemia, on the east and north by Prussia (the duchy of Saxony), and on the west by the Saxon principalities and Bavaria. It is divided into five circles—Meissen, Leipsic, Erzgebirge, Neustadt and Upper Lusatia—with a superficial extent of 5800 square miles, and a population (1828) of 1,414,528. The capital, Dresden, has 56,000 inhabitants, Leipsic 40,700. Chemnitz (16,000), Freyberg (12,000) and Bautzen (11,000) are the only other places with a population exceeding 10,000 inhabitants. The face of the country is, to a great degree, mountainous. The Erzgebirge, which forms the boundary between Saxony and Bohemia, is more abrupt on the Bohemian than on the Saxon side (see *Erzgebirge*), and most of the hills are green even to their summits. The climate is as mild as that of any part of Europe in the same latitude. The soil is of moderate fertility. The mountainous districts in the south contain extensive forests, which are kept up with care, as the chief supply of fuel for the mines; coal and turf being much used for domestic fuel. In these districts, the valleys only are well cultivated; but in the level districts of the north, tillage is general. The products are wheat, barley, oats, and other grain, some tobacco and hops, and, in a few favourable situations, grapes. The Elbe is the only navigable river. The other rivers are the two Muldas, the two

Elsters, the Queiss, &c. Saxony is rich in minerals; silver, cobalt, lead, iron, copper, zinc, arsenic and quicksilver are among the metallic productions; other minerals are topaz, chrysolites, amethysts, agates, cornelians, garnet, cinnabar, porcelain-clay, &c. The chief mining operations are carried on in the Erzebirge, and are under excellent management. (See *Freyberg*, and *Mine*.) The value of the raw material produced is about 1,100,000 dollars, which, by the processes of industry, acquires a value of 3,000,000 dollars; 10,000 men are employed in mining, and 50,000 in the subsequent processes. Of the domestic animals, the chief attention has been bestowed on the sheep, which constitute one of the chief sources of national wealth in Saxony. The Merino breed was introduced into the country in 1765, and the native breed has been improved to a wonderful degree. The number of sheep in the kingdom is estimated at two millions, yielding annually upwards of 4,500,000 pounds of wool. Hogs are numerous, but not sufficient for domestic consumption. The inhabitants are, with the exception of 2000 Jews and 34,000 Wends, of German origin, and are distinguished for intelligence, industry and honesty. The language is intermediate between High and Low German (See *German Language*); that of the inhabitants of Dresden is the best, though it is an error to suppose that the purest German is spoken there. Saxony was the cradle of the reformation. The Lutherans are 1,348,100; Roman Catholics, 48,000; Greek Catholics, 100; Calvinists, 300; Herrnhutters, 1600. The royal house has been Catholic since 1697. The nobility enjoys exemptions from some taxes, tolls, &c., and some feudal rights and privileges. The peasants are some of them subject to feudal services, and in some instances are serfs. The Saxon peasant is loaded with taxes, and is not allowed to engage in the trades, which are carried on by the citizens or the inhabitants of the towns, who are not nobles. Literary men, preachers, professors and teachers likewise have particular privileges. In no country of Europe is education more attended to than in Saxony, and in no country, of equal extent, is the number of printing and book establishments so great. The university of Leipsic is the principal institution for education. There are common schools in all the parishes, and the lower classes are, very generally, taught to read and write; in some of the larger towns, there are also free schools for the poor. In addition to these, there are two princely schools (*Fürstenschulen*), founded from the revenues of suppressed convents, for the higher branches of education, fifteen gymnasia, two teachers' seminaries, one mining academy, one forest academy, and three military schools. There are also numerous public libraries, among which are that of the university of Leipsic, and the royal library at Dresden, with 220,000 printed books and 2700 manuscripts. The manufactures and trade are of greater extent than in most inland countries. The weaving of linen is an employment of old date, and is carried on in almost every village: woollens are also manufactured in a number of towns; but both of these branches of industry have somewhat declined. Cotton spinning and weaving increased, to a great extent, towards the close of the last century; but the conveyance of the raw material is tedious and expensive. The manufactures connected with the mines are extensive. There are cannon foundries at Freyberg and Dresden; cobalt is made into smalt; blue-dye, verdigris and green-dye are among the articles of manufacturing industry. The exports consist of wool and minerals, in a raw state, and of linen, yarn, woollens and lace. The imports are silk, flax, cotton, coffee, sugar, wine, and sometimes corn. The revenue, which is derived partly from taxes, and partly from the regalia and royal domains, amounts to 4,500,000 dollars; the debt is 12,800,000. The peace establishment of the army consists of 13,300 men; the contingent to the German confederacy of 12,000. The government of Saxony is a monarchy, limited by the privileges of the estates. The margraviate of Upper Lusatia has separate estates. Those of the hereditary lands consist of the prelates and higher nobility, the gentry and the burgesses. The estates have the power of laying taxes and advising on subjects of public importance. The higher offices of administration are intrusted to a privy cabinet, with three cabinet ministers, for foreign affairs, for the home department, and for war; the privy council, the board of finance, the military board, the department of internal administration (*Landesregierung*), the court of appeal for judicial questions, the board of taxes, and the ecclesiastical council and supreme consistory. In June, 1831, a new constitution was promised. The king of Saxony has the fourth vote in the German diet, and four votes in the *plenum*. The present king, Anthony I., born 1755, succeeded his brother in 1827. In consequence of the commotions in Dresden and Leipsic, in September, 1830, he associated his nephew Frederic Augustus (born 1797) in the government, as co-regent, the father of Frederic resigning his claims to the succession in favour of his son. His predecessor was Frederic Augustus, his brother, created king of Saxony in 1806. There are three Saxon orders; that of the Saxon crown (*Rautenkrone*), founded in 1807; that of St Henry (1736), for military merit: and the civil order of merit (1815).

We have already given a sketch of the early history of the country in the preceding article: we shall here continue the sketch from the foundation of the Albertine line, which now occupies the Saxon throne. Maurice, grandson of Albert, was put in possession of the duchy of Saxony and the dignity of elector by Charles V. His brother Augustus (1553—86) made important accessions to the Saxon territories, and introduced many useful changes in the administration of the government. John George, his grandson (1511—56), joined Gustavus Adolphus in the thirty years' war; and the combined Swedish and Saxon forces defeated the imperials, under Tilly, in the battle of Breitenfeld (1631), and, under Wallenstein, in that of Lützen (1632). Misunderstandings between the elector of Saxony and the chancellor Oxenstiern (q. v.) threw the former into the arms of the emperor; and, by the treaty of Prague (May 30, 1635), Saxony obtained from Austria a cession of the two Lusatias, besides other advantages. Frederic Augustus I. (1694—1733) embraced the Catholic religion (1697), to obtain the crown of Poland. But Charles XII. conquered Poland, and occupied Saxony, subjecting it to heavy impositions; while, by the peace with Sweden, the latter country received no indemnification for its losses. (See *Northern War.*) Frederic Augustus II. (1733—1763) also obtained the crown of Poland (as Augustus III.), after a war with France, and took part with Austria in the seven years' war. The peace of 1763 left the country, which had suffered severely

during the war, loaded with a debt of more than twenty million dollars. It now became necessary for the government to renounce its ambitious schemes, and endeavour to lessen the pressure of the public burdens. Frederic Augustus III. (1763—1827) reluctantly took part in the war of 1792, against France, and furnished only his contingent as a member of the empire, when war was declared by the imperial diet (1793). In 1806, 20,000 Saxons were sent to the support of Prussia; but after the battle of Jena, a peace was concluded with France, and the elector acceded to the confederation of the Rhine, with the royal title. Large additions were made to the Saxon territory, 1807 and 1809; but these acquisitions were merely temporary. In the war of 1813, Saxony was the scene of the great struggle between Napoleon and the northern powers. The battles of Lützen and Beautzen, Dresden and Leipsic (see the articles, and *Russian-German War*), stripped the king of Saxony of his newly acquired territories. The king himself was twenty months a prisoner of the allied powers, and his dominions were governed by Russian and Prussian authorities. The fate of Saxony was long a subject of discussion at the congress of Vienna. It was at first proposed to unite it with Prussia; and nothing but the jealousy of Austria seems to have saved it from this fate. Its partition was finally resolved upon, February, 1815, and the king was obliged to cede more than half of his kingdom to Prussia. This cession included the whole of Lower Lusatia, part of Upper Lusatia, the circle of Wittenberg, and parts of those of Meissen and Leipsic, the greater part of Merseburg, &c., 8160 square miles, with a population of 875,578. After the king's return to Dresden, he immediately turned his attention to a system of public credit, and to the establishment of scientific and other useful institutions. By the partition, Saxony lost all its salt works, and its finest grain districts and forests, with some valuable mining districts, but still retains the most populous manufacturing parts of the country, with the rich Freyberg mines. A prudent policy may heal the wounds she has received; but her independence is altogether precarious. See Pölitz's *History of the Kingdom of Saxony*, and Engelhardt's *Description of Saxony*, in German.

SAXONY, THE PRUSSIAN DUCHY OF; a province of the kingdom of Prussia, chiefly composed of the cessions made by the kingdom of Saxony to Prussia, at the congress of Vienna, in 1815, together with other territories north of Anhalt and west of the Elbe and Havel. It is divided into the three governments of Magdeburg, Merseburg and Erfurt, and comprised, in 1828, 9653 square miles, with 1,409,388 inhabitants. It is very productive.

SAXON SWITZERLAND; a name which has been improperly given, for about thirty years, to the eastern part of the circle of Meissen, in the kingdom of Saxony, on the Elbe. It is a group of mountains of sandstone, with valleys and rivers of the most picturesque character, extending from Liebethal to the Bohemian frontier, about twenty-four miles long, and equally wide. Some of the rocks are 1800 feet high. It is one of the most charming spots on earth, and, on account of its vicinity to Dresden, so much resorted to for its treasures of art, attracts many visitors in summer. (See Götzinger's, Hasse's and Lindau's description.) The name is improper, because the region does not resemble Switzerland, even in miniature; and such comparisons lower the object compared.

SAY, JEAN BAPTISTE, a distinguished political economist, was born at Lyons in 1767, and went to Paris at an early period of the revolution, occupying himself with literature. He was subsequently one of the establishers of the *Décade* (*Revue*) *Philosophique*, with which he was, however, connected but a short time. In 1799, he was a member of the tribunate, but being removed by Napoleon, declined subsequent offers of office from him, devoting himself entirely to his literary labours. His chief works are his *Traité d'Economie politique* (5th ed., 3 vols., 1826), translated into English by C. R. Prinsep, and his *Cours complet d'Economie politique pratique* (4 vols., 1829). (See *Political Economy*.) The third edition of his *Catéchisme d'Economie politique* appeared in 1826. One of his most ingenious works is *Le petit Volume contenant quelques Apercus des Hommes et de la Société* (1827). His statistical treatises, *De l'Angleterre et des Anglais* (1815), and *Des Canaux de Navigation dans l'Etat actuel de la France*, are also esteemed. Say died in November, 1832.

SBIRRI. In Italy, particularly in the States of the Church, there were formerly certain police officers, with a military organization, who were called by this name. They were abolished in 1809.

SCABIOUS (*scabiosa*); an extensive genus of plants, belonging chiefly to Europe and the countries about the Mediterranean. The stems are herbaceous, and the flowers are united in heads at the extremities of the stems and branches, and resemble compound flowers. *S. succisa* is remarkable for having the root suddenly truncated, and as if bitten off; whence the name of *devil's bit* is applied to it.

SCÆVOLA. See *Mucius*.

SCAGGERAC (i. e. *Scagen's reef*); a sand-bank, which extends from cape Skagen, on the northern part of Denmark, a great way into the sea, on which account a large coal fire is constantly kept up there in the winter nights, as a mark for ships to avoid it. For this purpose, in the year 1752, a new tower, sixty-four feet high, was erected opposite to this sand-bank, on the spot where the former light-house stood, which had been demolished by the violence of the sea. The Scaggerac sea forms the communication between the German ocean and the Cattegat. See *Baltic Sea*.

SCAGLIOLA; a mixture of fine gypsum and powdered selenite (*pietra specolare*), made into a paste with glue, and serving to form paintings of a stony hardness. The process is as follows:—Upon a tablet of white stucco (consisting of this gypsum paste), the outlines of the work designed are traced with a sharp instrument, and the cavities thus made are filled up with successive layers of paste, of the same composition, but coloured. The application of the different layers is continued until all the varieties and shades of colour required are produced, and the surface of the whole is then polished. Scagliola work has the advantage over mosaic of being susceptible of the greatest possible variety of colouring, and, from the sameness of its material, of forming a more compact mass, so that the painting can receive a higher polish; by which means the colours are better preserved. The invention of this process is ascribed to Guido del Conte, or Fassi (1584—1649), an ingenious mason of Cari, near Correggio, in Lombardy. But we have some ancient specimens (as the Ilian tables) in white stucco; and inscriptions of the middle ages show that the art

was never lost. In Bologna, such works continued to be made from ancient times, with glue prepared from parchment, like that of the ancients. Guido's scagliola is a complete imitation of marble. Annibal Griffoni, his pupil, imitated small pictures, engravings, and oil paintings, in scagliola. Giovanni Gravignani, who represented the rarest sorts of marble intersected with figures, carried the art still further. The true object of these works, however, is the imitation of marble. There are some fine specimens of scagliola in the gallery at Florence, by Paolini.

SCALDS, or SKALDS, like the rhapsodists of ancient Greece and the bards of the Celtic tribes, were at once the poets and historians of the Scandinavian race, the Icelanders, Danes, Norwegians. They sang the praises of the gods, and celebrated the exploits of the national heroes. (See *Northern Mythology*, *Edda*, *Saggas*, and *Scandinavian Literature*.) The scalds were the companions and chroniclers of the chiefs, whom they accompanied to battle, and at whose court they resided in time of peace. A sacred character was attached to them, and they performed the office of ambassadors between hostile tribes. They were often richly rewarded for their songs, and even married the daughters of princes. A regular succession of the order was perpetuated, and a list of 230 of the most distinguished in the three northern kingdoms, from the reign of Ragner Lodbrok to that of Valdemar II., is still preserved in the Icelandic language, among whom are several crowned heads and distinguished warriors of the heroic age. See Wheaton's *History of the Northmen*.

SCALE; a mathematical instrument, containing several lines, drawn on wood, brass, silver, &c., and variously divided, according to the purposes it is intended to serve; whence it receives various denominations, as the plain scale, diagonal scale, plotting scale, Gunter's scale, &c.

SCALE (from the Latin *scala*); the name given at first to the arrangement made by Guido of the six syllables, ut, re, mi, fa, sol, la; also called *gamut*. The word *scale* is likewise used to signify a series of sounds, rising or falling from any given pitch or tone, to the greatest practicable distance, through such intermediate degrees as are determined by the laws of music. See *Tone*.

SCALIGER, Julius Cæsar. The history of this celebrated scholar is involved in some obscurity, through his vanity. According to his own story, he was descended from the celebrated house of the Scaligers (Scalas), princes of Verona, and was born at the castle of Riva, on lake Garda, became a page of the emperor Maximilian, whom he served in war and peace for seventeen years, then received a pension from the duke of Ferrara, studied at Bologna, commanded a squadron under the French viceroy, applied himself to the study of natural law, and in 1525, accompanied the bishop of Agen to his diocese in France, where he settled. This account found credit with some learned men, among whom was De Thou, the friend and admirer of his son Joseph; but others, even in his own day, as, for instance, Scioppius, ridiculed it, and treated it as wholly or mainly fabulous. According to Tiraboschi, Scaliger was the son of Benedetto Bordone, a Paduan, who carried on the trade of a miniature painter in Venice, and received the name *della Scala* either from the sign or the situation of his shop. Scaliger resided in Venice or Padua till his forty-second year, occupied with study and the practice of medicine, and published some works under the name of Giulio Bordone. Either some promise, or the hope of bettering his condition, induced him to remove to Agen, where he passed the rest of his days. In 1528, he appears not to have formed any such design of giving himself out as a descendant of that princely family, for he was then styled, in his act of naturalization, *Julius Cæsar della Scala di Bordone*, doctor of medicine, of Verona in Italy. He must, however, have appeared with some distinction in Agen, as in 1530, he married a young lady of a rich and noble family there. It was from this period that he began to assert his princely descent, without furnishing any proof of the truth of his pretensions. But his name acquired celebrity by his writings, which gave him a high rank among the scholars of his age, although his arrogance made many enemies. The boldness and freedom of some of his works rendered his faith suspected; but he died a good Catholic, Oct. 21, 1558, in the seventy-sixth year of his age. Scaliger was certainly a man of uncommon abilities; and although he was one of the late-learned, yet few men have surpassed him in erudition. He had a powerful memory, and an active mind; he thought boldly, if not always logically. Of his physical works we may mention his *Exercitationum exotericarum Liber quintus decimus de Subtilitate ad Cardanum* (Paris, 1557), Commentaries on the Work of Hippocrates *De Insomniis* (1538), and a work upon the treatises of Theophrastus and Aristotle on Plants, and of the latter on Animals, with a translation. As a philologist he wrote two discourses against the *Ciceronianus* of Erasmus, an excellent work on the Latin language, *De Causis Linguæ Latinæ Libri xviii.* (Lyons, 1540; Geneva, 1580), the first philosophical treatise on this subject. His work *De Arte poetica Libri vii.* (Lyons, 1561 and 1581) gained him much reputation, but displays more grammatical learning than poetical imagination or critical spirit. Modern critics do not accord him the same praise which Lipsius, Casaubon, Vossius, &c., bestowed on him.

SCALIGER, Joseph Justus, son of the preceding, was born at Agen in 1540. In the eleventh year of his age he was sent to Bordeaux, where he studied the Latin language for several years. The plague obliged him to return to his father, who required him to compose a Latin discourse daily, by which means he soon became thoroughly acquainted with that language. After the death of his father, he went, at the age of nineteen, to Paris, where he devoted himself to the study of Greek. Shutting himself up in his chamber, he read Homer and the other Greek poets and prose writers with such industry, that in the course of two years he had read them all. He next studied Hebrew and other Oriental languages, and exercised himself in poetical compositions in the classical languages, having already, in his sixteenth year, written a tragedy in Latin. He then for some time led an unsettled life, of which we have no particular account. His conversion to Protestantism doubtless prevented his advancement in France; but, in 1593, he was made professor of polite literature at Leyden, where he died in 1609. He had the character of a scholar, absorbed entirely in his books, and paying little attention to the common affairs of life, so that he never was rich; yet he refused several presents of money, sent him by distinguished men, out of respect to his talents and learning. He was never married. In regard to pride and arrogance, he was

little inferior to his father, whose tales respecting the origin of his family he endeavoured to confirm. He was also remarkable for his asperity and contemptuous tone towards his adversaries. He boasted that he knew thirteen languages; and he was so entirely immersed in his studies, that he would pass whole days in his chamber without eating. Of his numerous works, the treatise *De Emendatione Temporum* (Paris, 1583; Geneva, 1609) is one of the most important. In this learned work, he gave the first complete and scientific chronological system, and for these labours, and his discovery of the Julian period, deserves to be called the founder of this science. Many errors which were exposed by Petavius and others, he corrected in the *Thesaurus Temporum, complectens Eusebii Pamphili Chronicon* (Amsterdam, 1658). His annotations to Theocritus, Nonnus, Catullus, Tibullus, Propertius, Seneca (tragedies), Varro, Ausonius, Festus, are characterised by an excessive subtilty, and too great freedom in regard to the text of the authors. His *Poemata* have little poetical merit; his *Epistolæ* are more valuable. On the whole, Joseph Scaliger had less genius than his father, but more learning and accuracy.

SCALPING; a barbarous custom, among Indian warriors, of taking off their enemies' scalps with the hair on. These are preserved as trophies of victory.

SCAMANDER; a small stream in Asia Minor, which has acquired celebrity from the songs of Homer, according to whom it was called by the gods, *Xanthus*. It runs through the plains of Troy, and receives the Simois, another small stream mentioned by Homer. The Homeric account, that one of its sources was warm and the other cold, has been confirmed by modern travellers.

SCAMMONY is the inspissated juice of the root of a species of *convolvulus* (*C. scammonia*), which grows wild in Syria, and other parts of the Levant. This juice is obtained, in the latter part of the spring, by making incisions in the upper part of the root, and placing shells or cups to receive the milky fluid which exudes; twice a day the portion furnished by each root is collected and dried in the sun. The purest scammony is procured in this manner, but such is rarely exported. The scammony of commerce is merely the expressed juice of the entire roots, sometimes even mixed with that of the stems and leaves, and evaporated to the consistence of a solid extract. It is of two kinds—the Aleppo, which is the best, and the Smyrna, which is inferior; both collected respectively in the vicinity of those two cities. Scammony has been known from a very ancient period; it is mentioned by Hippocrates, and many peculiar virtues were attributed to it at that time; now it is considered only as an active purgative, and as such is still much in use. The dose varies from two to twelve grains, according to age, sex, or temperament. The root of the plant is thick, fleshy and tapering, three or four feet in length, by three or four inches in diameter; it gives out one or several slender climbing stems, provided with triangular, arrow-shaped leaves; the flowers are large, white, or slightly purplish, disposed, two or three together, upon a common axillary peduncle. Jalap is also the root of a species of *convolvulus*. See *Jalap*.

SCANDALUM MAGNATUM, in English law, denotes a wrong done to high personages of the land, as prelates, dukes, marquisses, earls, barons, and other nobles; and also the chancellor, treasurer, clerk of the privy seal, steward of the house, justice of one bench or other, and other great officers of the realm, by false news, or false messages, whereby debates and discord between them and the commons, or any scandal to their persons, might arise. For slanders of this kind, though such as would not be actionable in the case of common persons, redress is provided by many old statutes.

SCANDERBEG (i. e. *Alexander Bey*), prince of Albania, whose proper name was George Castriotto, son of John, prince of that country, was born in 1404. Being given by his father as a hostage to sultan Amurath II., he was educated in the Mohammedan religion, and at the age of eighteen, was placed at the head of a body of troops, with the title of *sangiac*. After the death of his father, in 1432, he formed the design of possessing himself of his principality; and, having accompanied the Turkish army to Hungary, entered into an agreement with Hunniades to desert to the Christians. This design he put into execution; and having ascended the throne of his fathers, he renounced the Mohammedan religion. A long warfare followed; but, although frequently obliged to retire to the fastnesses of mountains, he always renewed his assaults upon the first favourable occasion, until the sultan proposed terms of peace to him, which were accepted. The Venetians having entered into a war with Mohammed II., induced Scanderbeg to renounce his treaty with the sultan. He obtained repeated victories over the Turkish generals, and saved his own capital, although invested by an army commanded by Mohammed himself. He was at length carried off by sickness, at Lissa, in the Venetian territories, in 1467, in his sixty-third year. His death was soon followed by the submission of Albania to the Turkish dominion. When the Turks took Lissa, they dug up his bones, of which they formed amulets, to transfer his courage to themselves.

SCANDINAVIA; the ancient name of the region now comprehending the three northern kingdoms, Denmark, Sweden, and Norway. The inhabitants were known to the ancient nations of the south of Europe only by vague rumour. Tacitus mentions the Suiones (Swedes) as a naval people. Pliny notices a peninsula called *Nerigon* (Norway, in Swedish, *Norige*, Danish, *Norge*). Many suppose Iceland to be the *Thule* of the classic writers. The name *Danus* is first found in Gregory of Tours, in the sixth century of the Christian era. Sweden, Norway, Denmark, and Jutland were inhabited, in the earliest times, by people of the Teutonic stock, and nomads of Finish descent. According to Rask, Magnussen, Münter, and others, the Scandinavians and the people of south Germany have a common origin with the Indian, Persian, and Pelasgian tribes. B. C. 100, the natives of Jutland and Sleswick became formidable to the Romans, under the name of *Cimbri*. About A. D. 250, commence the fabulous accounts of Odin, Othin, or Woden. Till the middle of the ninth century Scandinavia was little known; but the bold expeditions of the natives into the southern and western parts of Europe, and the diffusion of Christianity among them about the year 1000, shed light on this region. At this period the inhabitants of Scandinavia were divided into hordes, like the Tartars. In the ninth and tenth centuries, these tribes enjoyed a golden age of piracy. By the western historians, they were spoken of under the title of *Danes* and *Normans*; in the English annals of that period, under the name of *Easterlings*; the Russians called them *Varan-*

gians; and the Hispano-Arabic writers, *Mantchoos.* From Sweden, Norway, the Danish islands, from Jutland and Sleswick, the rude adventurers sailed to near and distant harbours, within and without the Baltic, to Novgorod, Kiev, and Plotzk, to England, Scotland, Ireland, Holland, Germany, France, Spain, and Italy; sometimes they only plundered and destroyed, and sometimes founded new states. See Wheaton's *History of the Northmen*, and the article *Normans.*

Scandinavian, or *Old Norse Literature*, includes the literature of the people of Norway, Sweden, and Iceland, before their conversion to Christianity. It goes back as far as the earliest history of the north, and comes down to the period when the last traces of heathenism disappeared. It is of great importance, both to Germany and England; for, as they were converted to Christianity much sooner than the Scandinavians, they retain no literary monuments of their heathen period. The old Norse literature has preserved to us not only the old versification peculiar to all nations of Teutonic origin, and distinct from that of all the other western nations, but also a mythology which, rude as it is, approaches, in the rich invention which it displays, to the mythology of Greece. Not only the poetry, and mythology, but likewise the history, the antiquities, of which the Runic monuments (see *Runes*) are the principal, and the existing collections of laws, afford rich materials for the knowledge of the pagan period of the northern countries. Julius Cæsar, Lucan, and Tacitus furnished some slight hints on the character of the Scandinavian mythology. In the eighth century, native authors appeared, who rescued the traditions of the past from oblivion. The Lombard, Paulus Diaconus, the first of these authors remaining (about the end of the eighth century), gives us, from the traditions of his own countrymen, a dialogue between the deities Woden and Frea (Odin and Freya). A war had broken out, as he relates, between the Winiles and Wandeles. The latter prayed to their god Woden for assistance and victory; Woden replied, that he would give the victory to the party which he should first see on the rising of the sun. But the leaders of the Winiles, Ibor and Ayo (Agio), who by Saxo are called Ebbo and Aggo, had an ingenious mother, named Gambara, who was related to the gods, and whose counsel was esteemed by all the people. She went to Odin's wife, Frea (Freya, or more properly Frigga), and solicited victory for her countrymen and subjects, the Winiles. Frigga advised that all the women of the Winiles should station themselves, at sunrise, with their husbands, opposite to the place whence Odin was accustomed to look to the east; and, in order that he might immediately notice them, she directed that they should draw their long hair over their faces, so as to make it resemble a thick beard. The advice was followed, and the bearded females immediately struck the eye of Woden, who suddenly exclaimed, "Who are those long-beards?" This was what Frigga expected; and, as it was an ancient custom that a person who gave a name to a child, a hero, or a nation, should give them a present, Frigga cried, "They are the Winiles; and, as you have given them another name, it is your duty to give them a present: therefore give them victory." It was agreed; and from that time, the Winiles were called *long-beards* (whence *Lombards*). That the name of the people is founded on their long beards is mentioned by early authors, as Isidorus Hispalensis, who died in the first half of the seventh century, as the general belief. Moreover, the days of the week must have been named in very early times, after the gods Tyr, Woden, Thor, and Freya; for in the time of Charlemagne, their names had became so well settled, that when he gave new names to the months, he did not venture to alter the names of the days of the week. Adam of Bremen (who died in 1076), in his book *De Situ Regnorum septentrionalium*, gives an account of the Swedes, when they were yet, in part, heathens, of the temple of the gods at Upsal, and of the gods Thor, Woden, and Frey (whom he calls *Fricco*). He shows how they are represented, but this is nearly all. Saxo Grammaticus, a Dane, was distinguished, in the second half of the twelfth century. His sixteen books of the *Historia Danica* are a remarkable phenomenon. Using the language of the Roman classics, and skilled alike in verse and prose, he takes a course peculiar to himself. The novelty of his subjects, the obscurity of his sources, the wonderful character of his stories, the charms of his style, produce a great effect. Sämund Frode (died 1133), Are Frode (died about 1148), and Snorre Sturleson (murdered in 1241), are also writers of much merit. Till the invention of the art of printing, little was known of the literature of Scandinavia in the rest of Europe. The first important light shed on it was by Arngrim Jonson's discovery of a parchment manuscript of the prose Edda, that is, of the younger Edda, composed by Snorre Sturleson. In September, 1628, Jonson sent to the celebrated physician Ole Worm (Olaus Wormius) this manuscript, now preserved in the library of the university at Copenhagen, with its appendix, the Scallda. Ten years later, another Icelander, Bryngulf Svenson, discovered a second parchment manuscript of the prose Edda, and also a parchment manuscript of the poetical Edda. (See *Edda.*) Both were placed in the royal library at Copenhagen. In the year 1665, Peter Resen, or Resenius, published specimens of the poetical Edda, and the whole prose Edda. The specimens of the poetical part are entitled *Ethica Othini pars Eddæ Sæmundi vocata Haavamaal, una cum ejusdem Appendice appellata Runa Capitule a multis exoptata, nunc tandem Islandice et Latine in lucem producta est per Petrum Joh. Resenium* (Copenhagen, 1665); 2. *Philosophia Antiquissima Norvego-Danica dicta Woluspa, quæ est pars Eddæ Sæmundi, Eddâ Snorronis non brevi antiquioris, Islandice et Latine publici Juris primum facta a Petro Joh. Resenio* (Copenhagen, A. D. 1665, 4 sheets, 4to), with the variations in the text from the royal and Nolde copy, and a Latin translation, by Stephen Olai, an Icelander. The prose Edda bears the following title: *Edda Islandorum anno Chr. MCCXV. Islandice conscripta per Snorronem Sturlæ, Islandiæ Nomophylacem, nunc primum Islandice, Danice et Latine ex antiquis codicibus MSS. Bibliothecæ Regis et aliorum in Lucem prodit opera et studio Petri Johannis Resenii*, etc. (Copenhagen, 1665). The text is founded chiefly on the manuscript of Stephen Stephanius, who died 1650, collated with other copies. The various readings are drawn from the royal copy and that of Worm. The Latin version is by Magnus Olai (1629), with extracts from a later and more accurate translation, by Stephen Olai, of 1646. Neither of the Latin translations, however, extends further than to the 68th *Dämisaga.* But a Latin translation from the 69th

to the 78th and last *Dămisaga* (ten fables, which comprehend the German tales of the Nibelungen), was prepared afterwards by Thormod Torfäus (born 1636, died at Copenhagen 1719). In the sixty-eight *Dămisagas* is unfolded the entire mythology of the north. The story of the characters and achievements of the gods is introduced by a fiction, relating how Gylfa, the king of Sweden, undertook a journey to the Asers (gods), to learn from their own mouths their nature and laws. He received from the eldest of the gods an account of the beginning of the world, the primitive giant Ymir, and the sons of Bör, the origin of men, the giant Niorwi, the creation of the sun and moon, the celestial bridge of Bifröst, the building of the city of the gods, the dwarfs, the holy places of the gods, and the ash-tree of Ygdrasil, the dwellings of the gods, the origin of the wind, of summer and winter, and finally of all the Asers, and their mysterious history. But this is only the first part of this Edda. The other (*Annar partur Eddu*) treats of the names of the gods, and of all the synonyms and circumlocutions admissible in poetry, in alphabetical order, a genuine northern *Gradus ad Parnassum*. It has since appeared that there is still a third part of this Edda, containing the rules for one hundred different kinds of verse, and entitled *Háttatal, Clavis metrica*. Unfortunately (at least this was the story about thirty years ago), nearly the whole edition of the work of Resen was burnt; only six copies were saved, and the library of the university of Gottingen procured one of them for 100 ducats. But, whether this account is true or not, the Edda of Resen is a great literary curiosity. Notwithstanding these rich materials, to which Thomas Bartholin made extensive additions of old Norse songs, in his work *Antiquitatum Danicarum Libri tres* (Copenhagen, 1689), a century elapsed before this new and wild mythology produced any considerable excitement in Scandinavia and Germany. Before the time of Resen, the lovers of northern antiquities had received from Ole Worm his Runic Monuments, in six books (1643); from Stephen Stephanius, a new edition, and full commentary on Saxo Grammaticus (1644); from Olaus Verelius, the *Hervararsaga* (1672), and the *Runographia Scandica* (1675). Scheffer's *Upsalia Antiqua* (in 1666, about the time of Resen) afforded interesting views of the doctrines and worship of the north, and Rudbeck, in his *Atlantica* (1689), excited surprise for a time. Göranson, a Swede, commenced, in 1746, a new edition of the prose Edda, and, in 1750, of the *Völuspaa*. About the same time, Gottfried Schütze, a patriotic German, wrote Apologies for the ancient Tribes of Germany and the North. The result of Gräter's researches into the manuscripts containing remains of old northern literature in the library of the university at Halle, was a collection called *Northern Flowers* (Leipsic, 1789, by Gräff). His *Bragur* stimulated the learned, particularly of Germany and Denmark, to further investigations. A new spur was given to the study of Scandinavian literature by a *rifacimento* of the *Nibelungenlied*, by Hagen, in 1807, presenting the same matter in a German and Christian form, which the long expected second part of the poetic Edda was to have given in a northern and heathen form; and the appearance, at length, of an Icelandic grammar and a dictionary by Rask. The principal subsequent publications on this subject are the commentary on the collective songs of the Edda—*Den ældre Edda* (1821—23, 4 vols.), by Finn Magnusen, the comprehensive examination of all the historical and poetical traditions of the north, by Erasmus Müller, in his *Sagabibliothek* (1817—20, 3 vols.), and his work On the Rise and Decay of Icelandic Historiography, with an Appendix on the Nationality of the old Norse Poems, translated by Sander (Copenhagen, 1815). The investigation of the Runes (q. v.) have also been of much interest. The old northern sagas, or heroic tales, which were translated into Danish, and published from the Icelandic manuscripts, by C. Chr. Rafn, secretary of the society of Scandinavian literature (Copenhagen, 1821—24, 3 vols.) are of four sorts—mythic, mythico-historical, historical, and romantic. These traditions are mostly of Icelandic origin. They were composed by monks, and written on calfskin, before the sixteenth century. The learned Icelander, Arne Magnusen (died 1730) collected 1554 of these manuscripts, and left by his will a large sum for their publication. This fund led professor Rafn, in connexion with doctor Brynjulfon (who died in 1827), Egilson, and Gudmunsson, of Iceland, to found a society for the publication of old Norse manuscripts, which now includes 145 members. (Professor Rask is the president.) Of the amended text of the *Sagas* there have appeared three editions; one in Icelandic, one in Danish, and one in Latin: the title of the last is, *Scripta historica Islandorum de Rebus Gestis veterum Borealium*. Of this edition, three volumes had appeared in 1827, which contain the *saga* of the Norwegian king Olaf Trygveson, and other short *sagas*. See *Northern Mythology*; also the work of Wheaton, referred to above, and an article on Icelandic Literature, in the 17th number of the Foreign Quarterly Review.

SCANIA. See *Schonen*.

SCANNING in poetry; the measuring of a verse by feet, in order to see whether the quantities be duly observed. The term is chiefly used in regard to Greek and Latin verses. Thus a hexameter verse is scanned by resolving it into six feet; a pentameter, by resolving it into five feet, &c.

SCAPE GOAT, in Jewish antiquities; the goat which was set at liberty on the day of solemn expiation, typically to bear away the sins of the people.

SCAPEMENT. See *Watch and Clock making*.

SCAPOLITE. A mineral which has presented itself under a great variety of aspects, and has hence been mistaken as affording, in its varieties, the foundation of several new species; instances of which are the following: *Meionite, Dipyre, Bergmanite, Wernerite, Gabbronite, Ekebergite*, and *Nuttallite*, all of which are now recognised as coalescing with scapolite. It is often seen in well defined cystals, which are right, square prisms, terminated at one or both extremities by four-sided pyramids. The length of the prism is about double its diameter. It is sometimes truncated on its lateral edges, and thus converted into an octagonal prism; cleavage not very distinct; fracture imperfect, conchoidal, uneven; surface of the prism sometimes longitudinally streaked; lustre vitreous, inclining to resinous upon the cleavage; colour various shades of white, gray, and green; occasionally, also, red or purple; transparent, translucent, and opaque; brittle; hardness between apatite and feldspar; specific gravity, 2·6—2·8. The massive varieties are columnar, granular, and compact. As respects some of the varieties which gave origin to

the names above mentioned,—Meionite contains the purest and most transparent varieties of the species of a white colour; Dipyre occurs in minute crystals, whose form is scarcely discernible, and imbedded in a steatitic rock; Bergmanite is massive, fine-grained, of a grayish, greenish, or reddish white colour; Wernerite is in crystals doubly terminated, of a greenish-gray colour; from which Nuttallite scarcely differs, except that the crystals have a tinge of blue, and are slightly chatoyant. The following results, relative to the chemical composition of scapolite, were obtained, 1. by Stromeyer, from a variety of Meionite from Monte Somma; and, 2. by Nordenskiod, from the scapolite of Finland:—

	(1.)	(2.)
Silex,	40·531	43·83
Alumine,	32·726	35·43
Lime,	24·345	18·96
Potash, and a little soda,	1·812	0·00
Protox. iron,	0·182	0·00
Water,	0·0.0	1·03

In a strong heat, before the blow-pipe, scapolite melts into a vesicular glass, and intumesces considerably; then it assumes the appearance of ice, and does not melt any longer. It is dissolved by borax, with effervescence. Meionite is met with among the minerals ejected by mount Vesuvius. The other varieties of the species are met with in primitive mountains, in beds of iron ore or limestone, and are generally accompanied by augite and hornblende.

SCAPULA, JOHN, the author of a valuable lexicon of the Greek language, published originally in quarto, in 1583, which has since gone through a variety of editions, particularly an excellent one from the Elzevir press, and those by A. & J. Duncan (Glasgow, 1816, 2 vols. 4to.) and Major (London, 1820, 4to.). Henry Stephens (q. v.), while completing his *Thesaurus*, having employed Scapula to correct the press, the latter secretly abridged the work. The dictionary, thus treacherously stolen, ruined the sale of that of his employer.

SCAPULARY (*scapularium*); part of a monk's dress, consisting of two pieces of cloth, of which one covers the breast, the other the back. With lay-brothers, the scapulary only reaches to the knee; with the other religious, to the feet.

SCARABEUS; the beetle (q. v.), which was held in great veneration by the Egyptians. The most celebrated, and that which is alone to be found represented on ancient monuments, is the *scarabeus sacer* of naturalists. This is seen on the Isiac table, and is frequent among hieroglyphics: it passed as the symbol of immortality, and as the emblem of the sun. Another species was consecrated to Isis, and indicated the moon; its two horns resembling the crescent of that planet. According to Caylus, the Egyptians gave the shape of the scarabeus to their amulets or rings. See *Hieroglyphics*.

SCARAMOUCH (Ital. *scaramuccia*); one of the grotesque characters of the Italian stage, which, about 1680, took the place of the old Spanish captain, was dressed entirely in black, a colour commonly worn in Naples by courtiers and magistrates. He represented the swaggerer, who is finally flogged by harlequin. The original scaramouch was a person named Tiberius Fiorelli, a native of Naples, who distinguished himself on the stage by his jests and his skill in mimicry. In France, the scaramouch was used for a greater variety of parts.

SCARBOROUGH; a market and seaport town of England, in the North Riding of Yorkshire, forty miles north-east of York, and 217 north of London. It is a place of considerable trade, and much frequented for its mineral waters, warm baths and sea-bathing. It stands in the recess of a beautiful bay, on the borders of the German ocean, and rising from the shore in the form of an amphitheatre. The town is well built; the principal streets spacious and well paved. The buildings on the cliff are striking, having in front a terrace nearly 100 feet above the level of the sands. An iron bridge of four arches, seventy-one feet span each, supported by stone pillars nearly seventy feet high, connects the terrace with a beautiful promenade, 350 yards in length, leading to the Spa, and in full view of the sea, harbour, town and castle. The plantations and public walks are agreeable; and an elegant assembly-room and a handsome theatre are open in summer evenings. The rides are also varied and romantic. Scarborough has two Episcopal churches, an Independent, Baptist, and Roman Catholic chapel, a meeting-house for Quakers, and two for Methodists. The ruins of the ancient castle form a very picturesque object, and great ornament to the town. The promontory on which they stand rises nearly 300 feet above the level of the sea. The area of the castle contains about nineteen acres. It was built about the year 1136, and became the scene of many important transactions in English history. The harbour of Scarborough is commodious, and of easy access, and has been improved by extensive works. The present prosperity of Scarborough is chiefly owing to its mineral waters, which have rendered the town a place of fashionable resort for health and pleasure. There are two wells, saline aperient, and chalybeate. Population in 1831, 8750.

SCARFING; a particular method of uniting two pieces of timber together by the extremities, the end of one being tapered so as to be set into the other, as in the keel-pieces. But when the ends of the two pieces are cut square and put together, they are said to *butt* to one another; and when another piece is laid on and fastened to both, as is the case in all the frame timbers, this is called *scarfing* the timbers; and half the piece which fastens the two timbers together is reckoned the length of the scarf.

SCARIFICATION, in surgery; the operation of making little cuts or punctures in the skin by means of lancets or other instruments, particularly the cupping instrument.

SCARLATTI, ALESSANDRO, chapel-master at the Neapolitan court, born at Naples, 1658, was educated at Rome under Carissimi, and, after residing some time in Germany and at Rome, passed the last years of his life at Naples, where he died, in 1728. The Italians called him the pride of art and the first of composers. Hasse says, that he was the greatest master of harmony among the Italians, and Jomelli considered his church music as the best of its kind. He composed a great number of motets, and about 200 masses. His opera *La Principessa fidele* is esteemed his masterpiece.

SCARLET FEVER (*scarlatina*), a contagious fever, characterized by a scarlet coloured eruption on the skin, in patches, which, after three or four days, fall off in scales. Some have asserted that *scarlatina* never attacks the same person a second time; more extensive observation has confuted this opinion. It seizes persons of all ages; but children and young persons are most subject to it; and it appears at all seasons of the year, but is more frequently met with towards the end of au-

tumn or beginning of winter, at which time it very often becomes a prevalent epidemic. *Scarlatina*, in its inflammatory form, is not usually attended with danger, although a considerable degree of delirium sometimes prevails for a day or two; but when it partakes much of the malignant character (*scarlatina anginosa*), or degenerates into *typhus putrida*, which it is apt to do, it often proves fatal.

SCARP, in fortification; the interior slope of the ditch with which the fortification is surrounded, and which faces the country or champaign.

SCARPA, Antonio, one of the most celebrated anatomists and surgeons of the eighteenth century, was born in Lombardy, in 1746. His work *Anatomicæ Disquisitiones de Auditu et Olfactu* appeared at Pavia in 1789; previously to which his *Anatomicæ Observationes de Structura Fenestræ rotundæ Auris* (Modena, 1772) had already attracted the notice of the learned. At the time of the revolution in Italy, he was deprived of his professorship in the university on account of his refusing to take the oath required by the Cisalpine republic. He now published his celebrated work On Aneurisms (1804). When Napoleon, after his coronation at Milan, as king of Italy, arrived at Pavia (1805), and received the officers of the university, he inquired after Scarpa. He was informed that he had long ceased to be a member of the university, and was told the reason. "What," said Napoleon, "have political opinions to do here? Scarpa is an honour to Pavia and to any dominions. Let him be honourably restored." Scarpa was the author of several other surgical works, besides those already mentioned. He died in Pavia on the 31st October, 1832. Most of his works have been translated into English and French.

SCARRON, Paul, a comic poet and satirist, was born at Paris, in 1610. His father, a counsellor of the parliament, wished to oblige him to take orders; but the son was averse to such a step. At the age of twenty-four, he travelled into Italy, where he gave himself up, without restraint, to indulgence of every kind, and continued his excesses, after his return to Paris, in such a manner as to bring upon himself the most painful diseases. At the age of twenty-seven, having appeared during the carnival at Mans as a savage, he was pursued by the populace, and threw himself into a marsh. In consequence of this exposure, he lost the use of his limbs. Notwithstanding his sufferings, he never lost his gayety; and, settling at Paris, his wit and social powers gained him the friendship of some of the most distinguished persons in the city and at court. After the death of his father, he had a lawsuit with his mother-in-law, in which although his whole fortune was at stake, he made a humorous defence of his claims, and lost his case. Mad. de Hautefort, his friend, touched by his misfortunes, presented him to the queen. Scarron requested permission to call himself her majesty's valetudinarian. The queen smiled; and Scarron, taking her smile as a commission, styled himself thenceforth *Scarron, par la grace de Dieu, malade indigne de la reine.* He now obtained a pension by his praises of Mazarin, whom, however, he soon after offended by his *Mazarinade* and his *Typhon*, and thus lost his pension. His marriage with Francoise d'Aubigné, afterwards wife of Louis XIV., and marchioness de Maintenon (q. v.), however much it may have increased his happiness, did not improve his fortune; and he lived with so little economy, that he soon became involved in pecuniary difficulties. The comedies, which he wrote as a means of subsistence, were borrowed from the Spanish theatre. His *Jodelet ou le Maitre Valet* had great success. His *Enéide travestie*, and his *Roman comique*, particularly the latter, are among the most esteemed of his works. His works appeared at Paris (1737, 10 vols.)

SCAURUS, Marcus Æmilius. There were two distinguished Romans of this name, father and son. The former was chosen consul B. C. 116, and was afterwards *princeps senatus*. He was likewise celebrated as an orator, and assumed a severity and dignity of manner which gained him great consideration, both with the senate and people, artfully cloaking his ambition and rapacity. He also celebrated a triumph, on account of his victory over the Gauls. Although he allowed himself to be bribed in the war with Jugurtha, he conducted himself with such caution and cunning as to secure his re-election to the consulate, and his election to the censorship.—His son was remarkable for the brilliant display which he made as *ædilis curulis*. He built a large and splendid theatre, and exhibited public games at great expense. Cicero defended him, when he was accused of being guilty of oppressions in the province of Sardinia.

SCENERY; the decorations of a stage, by means of which the different places in which the action of the drama is supposed to go on, are represented. In the theatres of the ancients, the scenes were not changed during the performance; the sidewalls remained unaltered, and were decorated quite simply; perhaps, only painted with some not very bright colour, adapted to any representation and every change of scene. When theatres were established in Europe, in the sixteenth century, these side-walls were not at first provided with movable scenery. When the mysteries were represented on the stage, the actors sat on particular seats along the sides. As soon as the piece commenced, the spectators saw at once all the performers. When an actor was to make his appearance in the piece, he rose from his seat, and took it again at his exit. In later times, there was a space on the side of the stage, in which some spectators were admitted, particularly the critics and wits of the day. They had servants to wait on them, who brought them pipes and tobacco; for they smoked there as well as in other parts of the house. The representation of a tragedy was indicated by black hangings round the stage, and the changes of the scene merely by inscriptions, with the names of the places represented. It was left to the imagination of the spectators to supply the local circumstances. The Italian architect Serlio (died 1540) first placed on the sides of the stage movable scenes, so as to leave intervals between them, affording a free passage. In this way, the stage could be better lighted; for hitherto two chandeliers, suspended above the stage, had been used for this purpose; but the new arrangement permitted the use of lights which were not seen by the spectators, and, besides, the brilliancy of the light could be increased or diminished, according to circumstances. In England, this mode of lighting was first introduced after Garrick's return from France. But a more important advantage of the movable sides was, that they could be varied as occasion required, so as to bring the place and circumstances of the action represented before the eye.

SCEPTICISM (from σκεπτεσθαι, to look at distant objects with the hand held above the eyes, and secondly, to survey, consider). The Greek

philosophers, called *sceptics*, were also called *Pyrrhonists*, from Pyrrho of Elis; also *Aporetici*, i. e. doubters; *Ephectici*, that is, abstaining (from judging). Pyrrho (born 384 A. D.) was a man whose aim, according to Diogenes Laertius, was uprightness of life, unconcerned about philosophical speculation, which, as then pursued, was not favourable to integrity. He wrote nothing himself; but some information respecting him is contained in the extant fragments of the writings of Timon of Phlius in Achaia. He is represented as truly virtuous, hostile to all pride of opinion, and not esteeming mankind very highly. In fact, his scepticism was essentially different from that of a later period.

Ten topics of argument were used in the school of the sceptics, with this reservation, that nothing could be positively asserted concerning either the number or force of the arguments which may be urged in favour of uncertainty. 1. That on account of the variety which takes place in the organization of different animal bodies, it is probable that the same external objects present different images to different animals, and man can have no reason for asserting that his perceptions are more conformable to the real nature of things than those of inferior animals. 2. That even among men, there is a great diversity both of mind and body, which necessarily occasions a great variety of opinions: every man judging according to his particular apprehension, whilst no one is able to determine the real nature of things. 3. That the different senses give different reports of the same thing; whence bodies may have different properties from those which the senses lead us to suppose. 4. That the same thing appears differently, according to the different dispositions or circumstances of the person who perceives it; whence it is impossible for any one man to pronounce that his judgment concerning any object is agreeable to nature. 5. That things assume a different aspect, according to their distance, position, or place; and no reason can be assigned why one of these aspects should agree with the real object, rather than the rest. 6. That no object offers itself to the senses, which is not so connected and mixed with others, that it cannot be distinctly separated and examined. 7. That objects of sense appear exceedingly different, when viewed in a compound and in a decomposed state; and it is impossible to say, which appearance most truly expresses their real nature. 8. That every object being always viewed in its relation to others, it is impossible to determine what it is simply in its own nature. 9. That our judgment is liable to uncertainty, from the circumstance of frequent or rare occurrence; that which happens every day appearing to us in a very different light from that in which the same thing would appear if it were new. 10. That mankind are continually led into different conceptions concerning the same thing through the influence of custom, law, fabulous tales and established opinions. On all these accounts, every human judgment is liable to uncertainty; and we can only say, concerning any thing, that it seems to be, not that it is what it seems.

Besides these topics, the later sceptics made use of some others. They maintained that every proposition requires some prior proposition to support it *in infinitum*, or supposes some axiom which cannot be proved, and is therefore taken for granted without demonstration, that is, may be denied; that, in argument, the point assumed, and that which is to be proved, may often be alternately used in each other's place, both being equally uncertain: and, lastly, that nothing can be understood by itself, as appears from the endless disputes of philosophers concerning the nature of things; nor by means of something else, whilst itself remains unknown. An avoidance of all settled opinion on subjects of knowledge (ἐποχή), and a consequent tranquillity (ἀταραξία) amid all the changes of life, were the beginning and end of this system.

Sextus Empiricus, towards the end of the second century, carried out the system of scepticism with rare erudition and acuteness, and separated the reasoning of the sceptics from the negative dogmatism of the later academy (see *Plato*); and to him we are indebted for our knowledge of scientific scepticism in its maturity. Of modern sceptics, we may mention Francis Sanchez (born 1562, at Bracara, in Portugal, died 1632); Francis de la Mothe le Vayer (born 1586, died 1672; Sorbiere and Foucher were his disciples; he declared his belief in revealed knowledge); Peter Daniel Huet (born 1630, died 1721); Jos. Glanvill (died 1680); and Peter Bayle (born 1647), a man of great acuteness, and the celebrated Hume (born 1711). (See *Hume*.) A limited scepticism was recently taught by G. E. Schulze, of which the chief maxim is, that the origin of our knowledge is inexplicable.—See *History and Spirit of Scepticism*, &c., by Stäudlin (Leipsic, 1794—95, 2 vols.). It is highly necessary to distinguish between that puerile doubting which disqualifies for forming a decided opinion in individual cases, and that scepticism which, in science, is opposed to dogmatism, and is indispensable to keep the mind within due bounds in its eternal striving for a solution of the great riddle of existence, and for a correct understanding of intellect, reality, and the power which pervades and upholds all existence.

SCEPTRE (from *sceptrum*, σκῆπτρον,), originally a staff, the emblem of sovereign power. Some say that it was only a lance, without the metal point, to indicate the continuance of supreme power in time of peace; but in some cases it may have originated from the simple staff—with many tribes the emblem of old age and wisdom. The *baton*, the short sceptre, has always remained a sign of distinction; as in the case of the marshals. In the Greek assemblies, a person who wished to speak received a sceptre from the herald; and the judges also bore it while in the exercise of their authority. Kings swore by the sceptre. By degrees it became the emblem of power alone. Through the Roman emperors it passed to the Western monarchs. The sceptre and ball now form the two most important emblems of royal and imperial power.

SCHAFFHAUSEN; one of the smallest of the twenty-two cantons of Switzerland, in the northern part of which it lies, on the right bank of the Rhine, nearly surrounded by Baden, and separated by the Rhine from the cantons of Zürich and Thurgau, on the south. Its superficial extent is 115 square miles; population, 28,050, in seven towns and thirty five villages, all reformed (Calvinists), except 210 Catholics. (See *Switzerland*.) The capital, of the same name, on the right bank of the Rhine, has a population of 7000 souls. Lon. 8° 37′ E.; lat. 47° 43′ N. It has a castle, a college *(collegium humanitatis)*, with nine professors, a gymnasium, a town library, theological library, town hall, &c., and manufactures of cotton, silk and leather. It is situated about a league above the celebrated cataract of the Rhine, of which the descent is seventy or eighty feet. (See *Rhine* and *Cataract*.) The situation of the town gives it a considerable transit

trade, all goods brought down the river being landed here. There is a wooden bridge here over the Rhine, 120 paces long; but the ingenious hanging bridge, which was built in 1758, was destroyed by the French in 1799.

SCHANDAU; a small town in the centre of Saxon Switzerland, two leagues from the Bohemian frontier, with 1000 inhabitants. It is much visited in summer, on account of its charming situation, the beautiful scenery in its neighbourhood, and its mineral waters.

SCHARNHORST, GEBHARD DAVID VON; born in 1756, at Hämelsee, in Hanover. His father, in consequence of being embroiled in a lawsuit, was deprived of the means of giving him a good education; and young Scharnhorst was sent to a village school, where he remained till his fifteenth year. A few works on the seven years' war, and the Austrian war of succession, and more particularly the narratives of an invalid soldier, inspired him with a passion for the military life. To be at some future period a serjeant in command of an outpost, was at this time his ideal of felicity. At length his father gained his protracted suit, and with it an estate; and young Scharnhorst was received into the military school of count William of Schaumburg-Lippe-Bückeburg. He subsequently entered the Hanoverian service, and soon distinguished himself by several excellent military works. In 1780, he was appointed teacher in the military school at Hanover. In 1793, he was made captain of horse artillery. In 1794, he distinguished himself so much under general Hammerstein, that George III. gave him a sword of honour, and made him major. The duke of Brunswick recommended him to the king of Prussia, who appointed him lieutenant-colonel. In 1804 he was made colonel; in 1807, major general; and, in 1813, lieutenant-general. In the unfortunate battle of Auerstädt he was wounded twice; yet he took part in the battle of Eylau. After the peace of Tilsit, he was appointed president of the committee for the re-organization of the army, and here displayed great talents, giving the whole army a totally new constitution and spirit. He was equally practical and scientific. He infused into the army a truly national feeling. When Prussia rose *en masse*, in 1813, it was chiefly Scharnhorst who contrived, by means of the corps of volunteers, and the *landwehr* (q.v.) as well as by having previously disciplined many more men than the peace of Tilsit authorised Prussia to keep in actual service, to arm all persons capable of doing military duty. In the spring of 1813, he was chief of the staff in the army under Blücher, in Saxony. In the battle of Lützen, his leg was severely wounded; and, not allowing himself necessary rest, but setting out too soon for Vienna, to gain over the emperor of Austria to the cause of the allies, he died, June 28, 1813, at Prague. His statue stands in the King's square, in Berlin.

SCHAUENBURG, OR SCHAUMBURG-LIPPE. See *Lippe*.

SCHEELE, CHARLES WILLIAM, a celebrated chemist, who contributed greatly to the improvement of the science which he cultivated, was born at Stralsund, in Sweden, in 1742, and was apprenticed to an apothecary at Gottenburg. He became his own instructor in chemistry, went to Upsal in 1773, where his abilities introduced him to the notice of professor Bergmann, and was admitted an associate of the academy. He subsequently became director of a pharmaceutical establishment at Kioping, where he continued till the close of his life, in 1786. He discovered the fluoric acid, and the acids of tungsten and molybden; and his experiments on barytes, chlorine, various animal and vegetable acids, on the composition of water, and several other subjects, are in the highest degree important.

SCHEEREN; the rocks on the coast of Sweden and Finland, particularly those situated before Stockholm, which extend from seventy to eighty miles into the sea. The Scheeren fleet protects the entrance into the harbour, and consists of flat vessels, able to sail in shallow water.

SCHEERERITE; a newly discovered mineral species, of a combustible nature, found in a bed of brown coal near St Gall, in Switzerland. It exists in loosely aggregated, whitish, feebly-shining, pearly, crystalline grains and folia. It is rather heavier than water, does not feel greasy, is very friable, and destitute of taste. It melts at 36° R. into a colourless liquid, in which state it resembles a fat oil. It seems to be a mineral naphthaline.

SCHEIK See *Sheik*.

SCHELDT, OR SCHELDE (anciently *Scaldis*, French *Escaut*); a river which rises in the French department of the Aisne, becomes navigable at Condé, and enters the kingdom of Belgium at St Antring. At Ghent it receives the Lys; and it is further increased by two great canals which form a communication between Ghent, Bruges, and Sas. After passing by Dendermonde, where it receives the Dender, Aupelmonde, where the Aupel, formed by the junction of the Dyle and the two Nethes, empties into it, and Antwerp, where it is 1600 feet wide, it divides, eighteen miles below the latter city, into two great branches, the East and West Scheldt. The latter takes the name of Hondt, and empties into the North sea at Flushing. Both arms are connected with the Meuse and Rhine. The principal places on the Scheldt are Cambray, Valenciennes, Condé, Tournay, Oudenarde, Ghent, Dendermonde, Antwerp, and Flushing. In 1784, the navigation of the Scheldt became a subject of dispute between Austria (then in possession of Belgium) and the Dutch republic. The subject was amicably settled by the mediation of the king of France, Austria renouncing her pretensions to the free navigation of the river, in consideration of some cessions, and the payment of a sum of money by Holland. See *Netherlands*.

SCHEMNITZ (Hungarian, *Selmecz-Banya*; Sclavonic, *Stjawnitza*); a royal free city of Hungary, in the county of Honth, eighty miles east of Presburg; lon. 18° 54′ E.; lat. 48° 48′ N.; population, with the suburbs, 20,211. It stands in the midst of the most picturesque scenery, a few miles from the Raab, and contains some good houses, and tolerably wide streets, though irregularly built, on account of the unevenness of the surface. The mines of Schemnitz are the most extensive in Hungary, and are hardly surpassed by any in Europe. In eighteen mines, 8000 workmen are employed. The yearly value of the products is nearly one million dollars. The chief metals are gold, silver, and lead, combined with copper and arsenic. The whole of the mining works are the property of the government. The extent of ground containing the ores is about six miles square, and includes the town, most of which is undermined.—Schemnitz has a castle, one Lutheran, and four Catholic churches, a Lutheran gymnasium, and a mining academy, which has a director, five professors, and about 150 students.

The course of education is completed in three years. The greatest amount of gold was produced in the year 1690, which yielded 1872 marks, or 132,428 ducats. The value of the gold and silver obtained from 1740 to 1773, was thirty million dollars.

SCHENECTADY; a city of New York, on the south-east side of the Mohawk, fifteen and a half miles from Albany. It is regularly laid out in streets and squares. The Erie canal passes through it; and it contains the county buildings, the buildings of Union college, and the usual variety of dwelling houses, school houses, houses of worship, shops, and offices. Population in 1830, 4256. Union college, in this city, was incorporated in 1794. The whole number of alumni in 1831 was 1373.

SCHERZO (an Italian word signifying *joke, jest*), in music; generally applied to a passage of a sportive character in musical pieces of some length; e. g., to symphonies, quartettos, &c. Beethoven has made it a common part of the symphony, and it has taken the place of the minuet. (q. v.)

SCHIAVONE, Andrea, an eminent painter of the Venetian school, whose true name was *Medola*, his surname (the Sclavonian) being derived from his birth place, was born at Sebenico, in Dalmatia, in 1522. His parents, who were in humble circumstances, placed him with a house-painter, at Venice, where, at his leisure hours, he studied the works of Parmegiano, Giorgione, and Titian. The latter took him under his care, and soon after employed him in the library of St Mark, where he is said to have painted three entire ceilings. He was accounted one of the finest colourists of the Venetian school. Two of his compositions are in the church of the *Padri Teatini*, at Rimini, representing the nativity and the assumption of the Virgin. His Perseus and Andromeda, and the Apostles at the Sepulchre, are in the royal collection at Windsor. He died at Venice in 1582.

SCHICHT, John Gottfried, one of the most scientific musicians and composers of sacred music, was born in 1753, near Zittau, in Saxony, and was the son of a poor weaver. In 1776, he went to the university of Leipsic to study law, but soon devoted himself entirely to music. In 1810, he was appointed to superintend the music in the two chief churches at Leipsic. He studied the theory of music with great zeal and success, and composed several beautiful pieces. Among his numerous works is his universal hymn-book, which contains 1285 melodies, including 306 of his own publication, by Härtel, at Leipsic. Several of his compositions are celebrated. He died in 1823.

SCHILL, Ferdinand von, a Prussian cavalry officer, who distinguished himself by his daring expedition against the French, was born in 1773, in Silesia. He was wounded in the battle of Auerstädt, and took refuge in Colberg, where he essentially contributed to save this fortress—the only Prussian one which, in 1806 and 1807, escaped capture. He collected more than 1000 fugitives, and performed the boldest exploits; to reward which, the king made him a major, after the peace of Tilsit. His entry into Berlin, the next year, resembled a triumph: the inhabitants considered it an honour to quarter his soldiers in their houses. Schill burned to meet the French in the field. In 1809, when the Tyrolese rose (see *Hofer*), Dörnberg laboured to excite an insurrection in Hessia; and Schill was secretly instigated (not by the king, nor the government) to rise. He marched, April 28, with his regiment, out of Berlin, as he had done on many previous days, for the purpose of exercise. But this time he did not return. He marched towards the Elbe. Here he found that he had mistaken the disposition of the Saxons. In Halle, he was informed of Napoleon's decisive victories at Tann, Abensberg, Eckmühl, and Ratisbon. Dörnberg's insurrection had miscarried. Schill called his officers together, and they agreed to proceed in their enterprise. May 5, he fought at Dodendorf with the Westphalians. He strove to reach East Friesland. Ten thousand francs were offered for his head, by the king of Westphalia. He now tried to reach the Baltic, probably to obtain support from the British. After some conflicts, he took Stralsund, and fortified it in haste. May 31, Stralsund was taken by Dutch troops after a desperate defence. Schill himself fell, with many of his brave followers, fighting for a long time in the streets. Twelve officers were taken here and at Dodendorf, and shot at Wesel: the men were sent to the French galleys. A part of his troops forced their way into the open country, and compelled the enemy to allow them a free passage to the Prussian frontier, where a Prussian court-martial broke the officers, and sent them to a fortress. Though Schill's enterprise miscarried, it had an electrifying effect on the Prussians.

SCHILLER, John Christopher Frederic von, was born November 10, 1759, at Marbach, a town of Würtemberg, on the Neckar. His father, originally a surgeon in the army, was afterwards a captain, and finally superintendent of a nursery of trees attached to a castle of the duke of Würtemberg. His parents were pious and upright; and if his early education did not afford much opportunity for the development of his genius, by intercourse with men of talents, or by a wide field of observation, it was eminently calculated to awaken that sensibility to the good and the true, which forms so essential a trait in his character; and his early acquaintance with the Bible, making him familiar with the poetical passages of the Old Testament, contributed to develope his poetical genius. The visions of Ezekiel early excited a great interest in him. When a child, he always manifested an affectionate disposition, and was devotedly attached to his parents, and his sister. He loved, at a very early period, to repeat the sermon which he had heard at church on Sunday. He would stand on a chair and preach with great zeal, never omitting the divisions which the minister had made in his discourse. His charitable disposition manifested itself early, and never left him. For a long time, he wished to study theology; although a brilliant tragedy, which he had seen performed on the stage at Stuttgard when he was nine years old, strongly attracted his attention towards the drama. His first poem is said to have been written the day before his confirmation, in 1772. He had, till this time, received instruction at a good Latin school, in order to prepare himself for the university, as his father strove to procure for him the benefits of a good education, though his own had been neglected. At this time, Charles, duke of Würtemberg, having become weary of parade and dissipation, turned his thoughts to an object of a better character, though still a whim of a petty prince, viz. the establishment of a school on a military-monastic plan, where no effort should be spared to give the pupils the best education of which he could conceive. The duke sought for

pupils among the sons of his officers, and offered to take young Schiller. His father could not well refuse such an offer; and, in 1773, Schiller was received into the Charles-school, sacrificing his own inclinations to the interest of his parents. He studied jurisprudence at this institution, in which the pupils were kept so entirely separate from the world, that they were permitted to see no females, except their mothers or very young sisters, who visited them on Sundays. Thus the influences, under which Schiller's talents were developed, were precisely opposite to those which operated on Göthe. The plan of the school was afterwards extended, and medicine allowed to be studied in it; and the school itself was transferred to Stuttgard. Schiller now seized on the opportunity offered, and, in 1775, began to study medicine and Latin zealously. His teachers did not all consider him as possessing uncommon talents; but the duke used to say, "Let that boy alone; he will come to something." When sixteen years old, he published a translation of part of Virgil's Æneid in hexameters, in a Suabian periodical; but poetry was a forbidden fruit for him and his companions, and attracted them, therefore, the more. Some poetical books found their way, by stealth, into the school—the works of Klopstock, Gerstenberg, Göthe, and Lessing. In 1773, Schiller began an epic, the hero of which was Moses; but he destroyed it at a later period. Shakspeare kindled in him a passion for the drama. He undertook two dramatic compositions, which he afterwards burned. Only some passages of one were retained in the Robbers. For two years he studied medicine very ardently, and wrote a Latin treatise On the Philosophy of Physiology, which was never printed. In 1777, at the age of eighteen years, he began to write his Robbers—a composition with many striking faults; but which, nevertheless, awakens a powerful interest. Schiller himself says of it, that "he dared to describe men long before he knew any thing of them within his grated cell;" but, notwithstanding this, it contains some deep views and admirable displays of character. In 1780, when he had finished his studies, he wrote a treatise, entitled Essay on the Connexion of the Animal and Intellectual Nature of Man, printed in 1821, in the *Monatschrift* of Berlin. In the same year, he was appointed physician to a regiment in Stuttgard. Whilst in the school, he had been able to compose only by stealth, and had often reported himself sick, in order to have the use of the lamp in the sick-room, while writing his Robbers, not being allowed a light in his own room. Now he enjoyed, for the first time, some degree of liberty. His Robbers was printed at his own expense, as he could not find any publisher who would take the risk; and, in 1781, he was requested to change the play in certain particulars, so as to adapt it for the stage at Manheim. In 1782, it was performed at Manheim, Schiller having willingly made changes wherever he could be convinced that they were improvements. Not being able to obtain leave of absence, to go out of the limits of the state, he left his regiment without permission, saw his piece performed, and returned with the deepest conviction of the unfitness of his present situation for his talents; particularly as the duke had asked him, after the publication of the Robbers, to show him all his poetical productions, and, upon his refusal, had prohibited him from publishing any thing more, except medical works. In 1783, the Robbers was performed again at Manheim and he again attended the performance, but, this time, was discovered, and put under arrest During his detention, he formed the plan of his *Cabale und Liebe*, and conceived the idea of his Conspiracy of Fiesco. He was now convinced that he must leave Stuttgard, unless he should choose to sacrifice his poetry, the charm of his life; but how could he quit the army, when he had so long enjoyed an education at the public expense? It was not probable that the duke would allow him to go. Some friends proposed to him to propitiate the duke by a panegyrical poem; but, much as he wished to gain his favour, chiefly on account of his beloved parents, he could not bring himself to use these means; besides, he knew that even if the duke should allow him to print poetry again, there was no safety in the exercise of the privilege. Schubart was sighing on Hohenasperg, on account of his *Fürstengruft*, in which he had painted, in strong colours, the burial-place of princes. He now thought of deserting but the feeling of gratitude towards the duke, and the fear that his father, who, with his family, altogether depended upon the duke, would be made to suffer on his account, caused a great struggle in his mind. At last, the impossibility of living without poetry made him resolve to quit his situation. In 1782, he went, under an assumed name, to Franconia, where he was received by the mother of some gentlemen who had studied with him. He lived in great solitude, in a somewhat wild country, in a village called Bauerbach, in order to remain concealed and secure against the possible persecutions of the duke. In this situation he finished his *Fiesco* and *Cabale und Liebe*. In 1783, he went to Manheim, and conceived the idea of Don Carlos and Maria Stuart. During this period, he also composed the Battle, the Infanticide, and poems to Laura. In Darmstadt, he won the favour of the prince by reading to him some scenes from Don Carlos. In 1785, he went to Leipsic; towards autumn to Dresden, where intercourse with men of talents, the charming scenery, the beautiful gallery, and the library, detained him until 1787. Here he became acquainted with the father of the poet Körner. This gentleman has since written a biographical sketch of Schiller. During this period, he studied all the works which he could procure, relating to the history of Philip II., to prepare himself for his Don Carlos; and these studies led to his History of the Revolt of the United Netherlands (Leipsic, 1788, vol. i.) His history of the most remarkable Revolutions and Conspiracies, of which only one volume was published, was also produced at this period. Don Carlos first appeared at Leipsic, 1787. He himself has written the best and severest critique on this piece, in his Letters on Don Carlos. The Ghostseer (Leipsic, 1789) was probably caused by the tales respecting Cagliostro. In 1787, Schiller went to Weimar, where Wieland and Herder received him in a friendly manner. In 1788, he met Göthe, after the return of the latter from Italy. He had seen him but once before, in his boyhood, when Göthe, accompanied by the duke of Würtemberg, visited the academy where he was studying. He did not like him at first: partly through his influence, however, he received, in 1789, a professorship of philosophy at Jena. Schiller entered on his office with the discourse, What is universal history, and for what is it studied? He now devoted himself to history; and the few poetical productions which he wrote at this period are mostly of a his-

torical character, though the Gods of Greece was composed at this time; and he also then formed the idea of an epic poem, the hero of which was to be Frederic the Great. He paid much attention to philosophy, particularly Kant's; and many of his philosophical and æsthetical treatises date from this period. He lectured on history, and began to publish Historical Memoirs from the twelfth Century to the most recent Times (1790); and his History of the Thirty Years' War, which appeared first in the Pocket Almanac for Ladies, from 1790 to 1793. In 1790, he married. The French republic, at the beginning of the revolution, conferred on him the rights of citizenship, and the emperor of Germany ennobled him in 1802. Incessant study, protracted far into the night, and the use of stimulants, undermined his health. In 1793, he visited his parents; on which occasion the duke took no notice of him. The periodical *Thalia* having ceased in 1793, he formed the plan of publishing, with the co-operation of the first writers of Germany, the *Horæ*. He became more intimately acquainted with Göthe, returned with renewed ardour to poetry, and produced, particularly after 1795, the finest lyrical poems which appeared in the *Horæ*, and in his Almanac of the Muses (first number in 1796). In 1797, he produced his first ballads. In 1795, he conceived the plan of a play, to be called the Knights of Malta; but all his other projects gave way to Wallenstein (completed in 1799). Wallenstein's camp is a striking introduction to the parts which constitute the proper tragedy. From 1799, he lived in Weimar, where, in 1800 and 1801, Maria Stuart and the Maid of Orleans were produced. In 1803, appeared the Bride of Messina, and his last dramatic work, William Tell, in our opinion, much the best of his tragedies. Death prevented the completion of his Pseudo-Demetrius. He also adapted Shakspeare's Macbeth, Gozzi's Turandot, Racine's Phædra, &c., for the stage, with which his dramatic works close. Among the numerous criticisms on his merits as a dramatist, we would refer the reader to Frederic Schlegel's Lectures on the History of ancient and modern Literature (2d vol.). After attending a representation of his own Tell at Berlin, where he was received with much honour, he died at Weimar, May 9, 1805, only forty-six years old, mourned by all Germany. Schiller hated nothing so much as the vulgar or mean. He strove perpetually for the noble and the beautiful; hence that melancholy hue which is sometimes spread over his productions. There exist several editions of his works: a very cheap one was published, in 1822, by Cotta, in eighteen small volumes. He left a widow and several children, in narrow circumstances. His correspondence with Göthe is interesting. The correspondence between Schiller and Will. von Humboldt (Stuttg., 1830) is, perhaps, more so; because it gives us more insight into the growth of his mind. The best account of his life is that by madame von Wolzogen, his sister-in-law (Stuttgard, 1830, 2 vols.). The second and third parts of his Wallenstein have been translated into English by Coleridge. His Don Carlos, and his Thirty Years' War, have also been translated.

SCHILLER-SPAR (from the German verb *schillern*, to exhibit a play of colours); a foliated mineral, whose primitive form is unknown. Besides the principal cleavage, there is a second one, less distinct: the inclination of the one to the other is between 135° and 140°: fracture uneven, splintery; lustre metallic, pearly, and eminent upon the perfect faces of cleavage, indistinctly vitreous upon the other faces; colour olive-green and blackish-green, inclining to pinchbeck-brown upon the perfect faces of cleavage; streak grayish-white; hardness about that of fluor; specific gravity 2·69. It frequently occurs intermingled with serpentine. It consists of

Silica	62·00
Magnesia	10·00
Alumine	13·00
Oxide of iron	13·00
	98·00

When exposed to a high degree of heat, it becomes hard, and forms a porcelain-like mass. It occurs at Basta, in the Hartz.

SCHIMMELPENNINK, Rutger Jan, the last chief magistrate of the republic of the United Netherlands, or grand pensionary of the Batavian republic, was born at Deventer, in Holland, in 1761, and educated at Leyden, where he took his degree; on which occasion he published *Dissertatio de Imperio populari rite temperato*. He afterwards practised at the bar with much credit. In 1798, he was appointed ambassador to France, by the Batavian republic, in which post he acquitted himself with satisfaction to his country, and honour to himself. In 1801, he was accredited in the same character, first to the congress assembled at Amiens, and afterwards to England. The war having again broke out, Schimmelpennink resumed his embassy to France. In 1805, he was created grand-pensionary of Holland, but with different powers from those anciently attached to that character. This power, however, ceased in consequence of the elevation of Louis Bonaparte to the throne of Holland, and Schimmelpennink received, in lieu of his office, the grand-cordon of the order of Holland, about that time instituted, and became, by the change in the government, a senator of France, as well as of Holland, the two countries being united. He received also the title of count, with the appointment of grand-treasurer of the Three Fleeces. He filled these offices down to the exclusion of Napoleon from the throne of France, and voted for the creation of a provisionary government in the latter instance. April 14, 1814, he sent in his resignation, and retired into private life. He died at Amsterdam, in 1825.

SCHIRAS; a city of Persia, capital of Farsistan; 160 miles south-east of Ispahan; lon. 52° 44′ E., lat. 29° 37′ N.; population before the earthquake of 1824, 52,000. It is situated between two mountains, on a plain of unrivalled beauty and fertility, the boast of Persia, upwards of twenty miles long, and twelve broad. The environs are laid out in magnificent gardens, the flowers and fruits of which form a favourite theme of Eastern poetry. Hafiz was a native of Schirâs. His tomb, and that of Sadi, are in the neighbourhood of the city. The city is about six miles in circuit, but the walls have been suffered to fall to ruin. The streets are narrow, winding, and dirty, and the houses mean. The most remarkable public building is the great bazar, about a quarter of a mile long, built of yellow burnt brick, allotted to the different traders in the city. The citadel, the residence of the governor, is a fortified square of eighty yards. The royal palace within is far from being an elegant structure. Schiras carries on an extensive commerce, which consists chiefly in receiving from Bushire the spices and cotton goods of India, and transmitting them

to Ispahan and Yezd. The sides of the hills that bound the plain of Schiras, produce a wine, which has the highest reputation of any in the East. Schiras is an ancient city, and has been the capital of the Persian empire, but exhibits no ruins to attest its former greatness.

SCHIRVAN. See *Caucasus*.

SCHISM (*σχισμα*, a fissure) is chiefly applied to separations happening through diversity of opinions among people of the same religion. In the Catholic church, the election of popes has often given rise to schisms, by the division of the Christian world in favour of rival candidates. The longest schism of this kind was the Great Schism, which began in 1378, when Urban VI. and Clement VII. both claimed the papacy. This was finally settled by the council of Constance, which effected the general recognition of pope Martin V., who was chosen by it in 1417. See *Pope*.

SCHLANGENBAD, AND LANGENSCHWALBACH; two watering places in Nassau, near the charming Rheingau. (q. v.) The water (from 79—83 Fahrenheit) contains clay and lime. It feels like soap, softens and renders pliable the fibres of the skin, and is excellent in cases of stiffness and contraction. The slime which floats on the water is used to cure old ulcers.

SCHLEGEL; a name distinguished in German literature, chiefly as that of the two brothers Augustus William and Frederic von Schlegel. John Elias, their uncle, born in 1718, at Meissen, was the first German dramatic writer, after Gryphius, who contributed to the advancement of German belles-lettres. He died in 1749.

His brother John Adolphus, a poet and pulpit orator, was born in 1721, at Meissen. He was the author of several valuable works, and made a translation of Batteux's *Les Beaux Arts reduits à un même Principe*, which he accompanied with notes and treatises of his own (1751, 3d edition 1770). He died in 1753.

John Henry, the third brother, was born in 1724, at Meissen, and died at Copenhagen in 1780. He is the author of valuable works on Danish history, and of some translations from English poets into German.

Augustus William and Frederic are the sons of John Adolphus. The first was born September 8, 1767, at Hanover; and Frederic in 1772, at the same place. The former early manifested a great ability for learning languages, as well as much poetical talent. When eighteen years old, he recited, at the lyceum of Hanover, a piece in hexameters on the birth-day of the king, in which he gave a sketch of the history of German poetry, which was justly admired. He first studied theology at Göttingen, but soon quitted it for philology. At Göttingen, he gained the friendship of Bürger, who, in the preface to the second edition of his poems (1789), consecrated him to the service of the Muses, and prophesied his immortality in one of the finest German sonnets. A. W. Schlegel contributed to Bürger's Academy of Belles-Lettres. In 1787, when in the philological seminary under Heyne, a Latin treatise by him, on the geography of Homer, obtained a prize. After leaving Göttingen, he acted as tutor for three years in the house of a banker in Amsterdam. He returned to Germany, and took part in the *Horæ*, and Schiller's Almanac of the Muses, in which his translations from Dante, with commentaries, attracted particular attention. Until 1799, he was one of the most active contributors to the General Literary Gazette. In 1797, he began his translation of Shakspeare, of which nine volumes have appeared. Tieck has undertaken the revision of them, and the addition of the pieces not yet translated, in a new edition. We know of no translation so perfect as this. It may well be called a German reproduction of the original. It has made Shakspeare a German popular poet to all intents and purposes, on the stage and in the closet. Schlegel had now become a professor at Jena, where he delivered lectures on æsthetics, and, from 1798 to 1800, was connected with his brother in the publication of the Athenæum, a critical journal, which did much to promote a more independent spirit in German literature. The first edition of his poems appeared in 1800, and Schlegel became the second father of the German sonnet. In 1800, he also published his poetic attack on Kotzebue. In 1801, appeared his Characteristics and Critiques, in two volumes; in 1802, the Almanac of the Muses, published by him and Tieck, together, which is pervaded by a mystico-symbolical spirit. Having separated from his wife, he went, in 1802, to Berlin, where he delivered lectures, published in vol. iii. of *Europa*. His *Ion* appeared in 1803. He took an active part in the publication of the Paper for the Fashionable World, which was opposed by Kotzebue's *Freimüthige* (Liberal); and a paper-war began, not very honourable to the latter. In 1803, appeared vol. i. of the Spanish Theatre, containing three pieces of Calderon; vol. ii. followed in 1809. These translations fully satisfied the high expectations which the public had formed from his translation of Shakspeare. In 1804, he published his Nosegays of Italian, Spanish, and Portuguese Poetry. In 1805, he travelled with madame de Staël, and lived with her at Copet, in Italy, France, Vienna, and Stockholm. In his elegy on Rome, he celebrates his generous friend. He wrote many critiques during this time, partly in the Jena Literary Gazette, partly in the Heidelberg Annals. In 1807, he published at Paris his Comparison of the Phædra of Euripides with that of Racine, which was written in French, and attracted much attention from the French literati. In 1808, he delivered lectures on the dramatic art, in Vienna, and published them, at a later period, in three volumes, 2d edition, 1817. They have been translated into almost all the languages of Europe. In 1812, he made a new collection of his poems (2d edition, 1820). In 1813, he became a political writer in French and German, accompanied the then crown-prince of Sweden, as secretary, and received several orders, and the rank of nobility. After the fall of Napoleon, he returned to madame de Staël, after whose death, in 1818, he accepted a professorship in the university of Bonn, which had been but a short time established. His marriage with the daughter of Mr Paulus, in 1819, was dissolved in 1820. He lately lectured chiefly upon the history of arts and sciences in ancient and modern times, and, since 1820, published the Indian Library, a periodical for promoting the study of the Oriental languages, particularly Sanscrit. He superintended the printing of the great Sanscrit work *Bamâyana*, at the printing-office established by him at the expense of the Prussian government. In 1823, he published *Bhagavad-Gita*, an episode of the epos *Mahabharata*, with a Latin translation. His Oriental studies led him again to France, and, in 1823, to England, where he examined the manuscripts at London, Oxford, Cambridge, and Hayleybury. In

the *Bibliotheca Italiana*, he wrote (in 1816), a very learned treatise, in Italian, on the bronze horses at Venice, which he declared to be Greek; another treatise (in 1817) in the *Bibliothèque Universelle*, at Geneva, on the group of Niobe, and, in the *Zeitgenossen*, a life of Necker; remarks on the Provençal language and literature, in French (1818); a historical notice of John of Fiesole; and many other pieces. In 1828, he defended himself, in a pamphlet, against the reproach of crypto-Catholicism.

His brother *Frederic von Schlegel*, born, as we mentioned above, in 1772, was intended by his father for a merchant, but was liberally educated, to leave him more freedom of choice. He became dissatisfied with the mercantile life during his apprenticeship at Leipsic, and his father withdrew him from his situation there. He was now sixteen years old, and devoted himself to philology with the greatest zeal, one year in Göttingen, and the rest in Leipsic; and could say, when he had ended his academic course, that there was no Greek or Latin author of importance whom he had not read at least once. About 1793, he first appeared as an author. He contributed to several periodicals of reputation, and, in 1797, produced his Greeks and Romans; in 1798, his Poetry of the Greeks and Romans (two vols.), a sort of continuation of the first. In Berlin, he undertook, in connexion with Schleiermacher the translation of Plato, but soon abandoned the project. In 1799, appeared the first volume of his Lucinda, which remained unfinished, and is reproached by many as an idealization of voluptuousness. In 1800, he settled as *privatdocent* at Jena, and appeared for the first time as a poet, publishing his productions in various periodicals. In 1802, he lived some time in Dresden, and then delivered lectures on philosophy in Paris, where he also published *Europa*, and occupied himself with the fine arts, and the languages of the south, particularly those of India. In 1808, he published a treatise on the Language and wisdom of the Indians; in 1804, a collection of romantic poems, of the middle ages, from printed sources and manuscripts, in two vols.; and, in 1805, Lother and Maller. We are indebted to him for illustrations of the history of Joan of Arc, drawn from the *Notices et Extraits*. He now returned to Germany, went over, with his wife, to the Catholic faith, at Cologne, and, in 1808, repaired to Vienna. In 1809, he received an appointment at the head-quarters of the archduke Charles, where he drew up several powerful proclamations. When peace was concluded, he again delivered lectures in Vienna, on modern history and the literature of all nations. They were published in 1811 and 1812. His limited views in regard to religion, after his adoption of Catholicism, appear particularly in his modern history. In 1812, he published the German Museum, and gained the confidence of prince Metternich by various diplomatic papers, in consequence of which he was appointed Austrian counsellor of legation, at the diet in Frankfort. In 1818, he returned to Vienna, where he lived as secretary of the court, and counsellor of legation, and published a View of the Present Political Relations, and his complete works. In 1820, he undertook a periodical, called Concordia, intended to unite the various opinions on church and state; but he did not continue it long. He also published, at a much earlier period, the Writings of Novalis (see *Hardenberg*), in conjunction with his friend Tieck, and volume I. of Florentine, written by his wife. In 1807, he also published a German translation of Corinna, before the French original appeared. Since 1822, his complete works have appeared in ten volumes, with some corrections and additions. He died August 9, 1829. The two brothers always lived on the best terms, however great the difference of their views on some points. The influence which they have exercised, particularly Augustus William, on belles-lettres in general, and especially in promoting a more correct understanding of the literature of the middle ages, is very great, and extends far beyond the confines of their native country. They will be remembered in the history of literature, as two minds of uncommon vigour.

SCHLEIERMACHER, Frederic Daniel Ernest, one of the most distinguished German theologians and philologists, was born at Breslau, in 1768, and received his education at the academy of the Moravian Brethren at Niesky. In 1787, he ceased to be a member of this society, left Barby, where he had begun the study of theology, and went to Halle to continue it. In 1794, after having been employed as a teacher, he was ordained a clergyman, and appointed assistant preacher at Landsberg on the Warte. From 1796 to 1802, he was minister in the *Charité* (a great hospital) at Berlin. During this period, he translated Fawcet's Sermons (two vols.), contributed to the Athenæum, conducted by the two Schlegels, and wrote the Discourses on Religion, and the Monologues, and Letters of a Minister out of Berlin. He soon undertook his translation of Plato. Few men ever entered so deeply into the spirit of that author. In 1802, he published his first collection of sermons, which was afterwards followed by two others. In 1802, he removed to Stolpe, where he wrote his Critical View of Ethics. In the same year, he was appointed *professor extraordinarius* of theology at Halle, and preached to the university. In 1807, when Halle was separated from Prussia, he went to Berlin, and lectured there, as well as preached, with the greatest boldness, on the existing state of things, although a hostile force under Davoust occupied the city. In 1809, he was appointed preacher at the Trinity church in Berlin, and married. In 1810, when the new university was opened in that city, he was appointed *professor ordinarius*, as he had been at Halle during the last part of his residence there. In 1811, he was elected a member of the academy of sciences, and, in 1814, secretary of the philosophical class, when he was released from the duties which he had discharged in the department of public instruction in the ministry of the interior. Many papers by him appeared in the Memoirs of the academy, chiefly relating to ancient philosophy. About this period he wrote his View of the Study of Theology. When Schmalz strove to lower the elevated feeling of the people, after the wars of 1813, '14, and '15, to a tone more convenient for an absolute government, he brought out a pungent reply, characterized by a Platonic style of reasoning. His last work was his Doctrines of the Christian Faith. Few men equalled Schleiermacher in activity. He delivered lectures in various departments of theology and philosophy. He preached every Sunday (always without notes), besides writing much, and having a wide circle of official labours. For many years his church was crowded, and his lectures at the university were attended by large numbers of the students. He had many enthusiastic admirers; but the mystical party regarded him with dislike.

Schleiermacher did much for the intellectual and religious advancement of his countrymen. His death took place at Berlin, Feb. 12, 1834.

SCHLEISSHEIM; a royal palace three leagues from Munich. It has a magnificent gallery, in which above 2000 pictures are arranged, according to the schools to which they belong.

SCHMALKALDIC LEAGUE. See *Smalcaldic League.*

SCHMIDT, MICHAEL IGNATIUS, a German historian, was born in 1736, at Arnstein, in Würzburg. He studied theology in the Catholic seminary at Würzburg, and became a priest. During the seven years' war, he went to Suabia, received a benefice, and, in 1771, was made librarian of the university at Würzburg. He received by degrees higher appointments in that sovereign bishopric, did much for education, and, in 1778, began the publication of his German History, to which he devoted the remainder of his life. The empress of Austria was anxious to have him in her service, and caused him to be appointed superintendent of the Archives. Joseph II. made him teacher of history to his nephew, the late emperor, Francis I. After a residence of fourteen years at Vienna, he died there in 1794. Schmidt was the first who wrote a proper history of the German nation: his predecessors only gave the history of the emperors, of the empire, or the estates. His chief aim was to show how the Germans became what they are; and he executed his plan with taste, judgment, and a philosophical spirit. His erudition was great. In the account of the reformation, he is not always impartial or faithful. His style is not to be imitated. This extensive work was published at Ulm, and later at Vienna. Joseph Milbiller continued Schmidt's history from his papers. The Vienna edition of the early history is in eight volumes: of the modern history, in seventeen. Dresch's History of Germany since the Confederation of the Rhine, is a continuation of the work of Schmidt and Milbiller, forming vols. 18, 19, and 20.

SCHNEEBERG; a town in the Erzgebirge, kingdom of Saxony, with 4800 inhabitants. There are important mines of silver and cobalt in the neighbourhood. The inhabitants manufacture lace and similar articles in large quantities.

SCHNEEKOPF. See *Schneekoppe.*

SCHNEEKOPPE (*snow-summit*); the highest elevation of the Riesengebirge (q. v.), 4950 feet above the level of the sea. It is not to be confounded with Schneekopf (*snow-head*), the highest summit of the Thuringian forest, which rises 2886 feet, or, according to some, 2975 feet above the sea.

SCHNEIDER, JOHN GOTTLOB. This celebrated philologist, born at Kolm, in 1752, studied under Ernesti, at Leipsic, where a wealthy relation in Dresden supported him. His first publication was Observations on Anacreon, in 1770. Soon after, he went to Göttingen, and gained the favour of Heyne, who recommended him to Brunck, whom he accompanied to Strasburg, to assist him in the publication of his *Analecta.* He lived in this place three years, and then received an invitation to the university of Frankfort on the Oder, and there, with Brunck, published Oppian. For thirty-four years Schneider was professor of ancient languages there, and published a great number of critical editions of the ancient classics. He applied himself especially to those works of antiquity which related to natural science, as Ælian's History of Beasts, and Nicander's two didactic poems on medicine, with the Greek Scholia, and the Periphrasis of Eutecnius. His *Historia Amphibiorum*, of which the first two volumes appeared in 1779, from unfavourable circumstances, was not completed. He paid much attention to ichthyology. After thirty years of labour, he published the nine remaining books of Aristotle, containing the History of Beasts (Leipsic, 1811, 4 vols.); also the physical and meteorological works of Epicurus, the *Analecta*, relating to the metallurgy of the ancients, the *Eclogæ Physicæ*, &c. His excellent Greek Lexicon, which has passed through three editions, is the basis of that of Passow, and of the English-Greek Lexicon of Donnegan, (London, 1831). It has contributed not a little to give a new impulse to the study of the Greek language in Germany. He has also edited the political works of Aristotle; the works of Xenophon, Æsop, the Pseudo-Orpheus, the *Scriptores Rei Rusticæ*, Vitruvius, Theophrastus, and other writers. When the university was removed, in 1811, from Frankfort on the Oder to Breslau, Schneider went thither, and was made chief librarian, in addition to his other office. He died there, January 12, 1822.

SCHNEIDER, EULOGIUS; a German priest, vicar to the constitutional bishop of Strasburg, and afterwards public accuser before the criminal tribunal of the Lower Rhine, one of the most pernicious agents of Robespierre and his confederates. Armed with the authority of St Just and Lebas, commissioners from the convention at Strasburg, Schneider proceeded through the department with a body of troops, and followed by the guillotine, on which he immolated citizens of every rank, sex and age, where interest or revenge furnished the slightest motive for their execution. Schneider was about to set on foot *noyades* at Strasburg, similar to those of Nantes, when he was cut short in his career. St Just and Lebas, displeased, not by his crimes, but by his arrogance, had him arrested, December 20, 1793, and conveyed to Paris, where he was condemned by the revolutionary tribunal, and guillotined, at the age of thirty-seven.

SCHNEPFENTHAL; an institution for education, established by Salzmann, not far from Gotha, at the foot of the Thuringian forest, half a league from the town of Waltershausen. See *Salzmann.*

SCHOEN, MARTIN, one of the earliest and most distinguished German painters, likewise a goldsmith and engraver, was born at Colmbach, and died, in 1486, at Colmar. The Italians called him *Buon Martino*, or *Martino d'Anversa.* One hundred and twenty-one of his paintings, chiefly on scriptural subjects, are known to be still in existence. Schoen was remarkable for richness of invention, and for the life of his figures.

SCHOLASTICS. This name was given to teachers of rhetoric among the Romans. In the middle ages, a class of philosophers arose under the name of *scholastics*, or *schoolmen*, who taught a peculiar kind of philosophy, which consisted in applying the ancient dialectics to theology, and intimately uniting both. The character of this philosophy varied at different periods, and historians are not agreed as to its origin. Those who regard particularly its theological character make Augustine its founder; others consider it as having commenced in the monophysite disputes of the fifth and sixth centuries. John Scotus Erigena in the ninth century, is commonly called the first scholastic, without making him, however, the proper founder of that philosophy. He was the great philosopher of his age, and his

doctrines were connected with those of the New Platonic system. The name *scholastic philosophy* is derived from the circumstance that it originated in the schools instituted by and after Charlemagne, for the education of the clergy. (See *Schools.*) The philosophy therein taught consisted in a collection of logical rules and metaphysical notions, drawn from the Latin commentators on Aristotle, especially the Pseudo-Augustine and Boethius, and from the introduction of Porphyry to the writings of Aristotle. These, under the name of *dialectics*, composed the theoretical philosophy in general, and were connected with the later Alexandrian ideas of God, and of his nature and relations to the world. The original aim of the scholastic philosophy was only to establish and defend the dogmas of the church. Buhle makes three periods:—The first extends to Roscellinus in 1089, or to the contest of the Realists and Nominalists; the second to Albertus Magnus, who died in 1280, when the metaphysical works of Aristotle were more generally known and commented on; the third to the revival of ancient learning, in the middle of the fifteenth century, and the consequent improvement in philosophy. Tiedemann explained the scholastic system as a mode of treating subjects *a priori*, in which, after a statement of the reasons, on both sides, in the form of syllogisms, the decision was made conformable to the opinions of Aristotle, and the church fathers, and the prevailing theological doctrines. According to him, its history begins with the Franciscan Alexander of Hales (a monastery in Gloucestershire), who first made a considerable use of the writings of Aristotle. He died in 1245. This Alexander of Hales was the first complete commentator on the sentences of Peter of Lombardy; was an instructor at Paris, and received the name of *doctor irrefragabilis*. He also wrote commentaries on the psychology of Aristotle. He is not an independent thinker, but decides every case on reasons drawn from other theological writers and philosophers. The second period of the schoolmen, according to Tiedemann, begins with Albert the Great, who wrote commentaries on the physical and philosophical writings of Aristotle, and on several books of the Scriptures. Still greater is the reputation of his pupil, Thomas Aquinas (q. v.), the father of ethics, and a strict adherent of Aristotle, on whose works he left fifty-two commentaries. His opponent was the Franciscan John Duns (q. v.) Scotus, who is not to be confounded with John Scotus Erigena, before mentioned. Duns Scotus is one of the most hair-splitting logicians, and known by his scholastic or barbarous Latin. His opposition to Thomas gave rise to the parties called *Thomists* and *Scotists*, whose controversies became peculiarly warm, when Scotus declared himself opposed to the strict Augustine doctrines of grace defended by Thomas, and which had maintained their place in the church for centuries. Another acute scholastic of this age was the Franciscan mystic Bonaventura, the pupil of Alexander of Hales; Hervey, a general of the Dominicans; Francis Mairon, a Franciscan, pupil of Duns Scotus, and founder of the Sorbonne disputation in Paris, at which the respondent was obliged to defend the controverted positions from six o'clock in the morning to six in the evening, and was only permitted to take a short meal, without leaving the room. The third period of the scholastic philosophy some begin with William of St Pourçain or Durandus de Sancto Porciano (who died at Meaux, in 1332); though, more properly, the third period of scholastic theology may be considered as commencing with him. From his skill in solving difficult questions, he received the name of *doctor resolutissimus*. He made a distinction between theological truth, which rests on the authority of the church, and philosophical truth, which is established, independently of the church, on private conviction, and affirmed that many things were theologically true, and yet philosophically false. Others begin the third period of the scholastics with William Ocham, or Occam, (who died in 1347), a Franciscan, who revived again the nearly forgotten disputes of the Nominalists, and distinguished himself as a fearless defender of Christian liberty against the assumptions of the popes. One of the last scholastics of this period was Gabriel Biel (who died in 1495), a moderate Nominalist, and active in founding the university of Tübingen in 1477.

Tennemann makes four periods of the scholastic philosophy:—I. The first, to the twelfth century, is characterized by blind Realism, and filled by detached philosophical essays on doctrinal theology. To this period belong John Scotus Erigena, Berengarius of Tours, and his opponent Lanfranc, Damianus, Hildebert of Lavardin, and the great Anselm of Canterbury.—II. Separation of Nominalism and Realism. This period extends from Roscellinus to Albertus Magnus, in the beginning of the thirteenth century, and can boast of Roscellinus, Abelard, William of Champeaux, Hugh de St Victor, Richard de St Victor, Gilbert Porretanus, Peter Lombard, Peter of Poitiers, Alanus Insulensis, John of Salisbury.—III. Exclusive prevalence of Realism. Complete union of the doctrines of the church and the Aristotelian philosophy, from Albertus Magnus, to Occam, in the fourteenth century. To this period belong Alex. of Hales, Vincent of Beauvais, Bonaventura, Thomas Aquinas, Peter Hispanus, Henry Goethals, Rich. Middleton, Duns Scotus, Francis Mairon, St Pourçain.—IV. A renewal of the contest between Nominalism and Realism, in which the former was victorious, and a separation of theology and philosophy gradually took place. In this period we find William Occam, Marsilius Ingenuus, Robert Holcot, Gabriel Biel, John Buridan, &c. See Tennemann's *Sketch of a History of Philosophy*, 4th ed., or 2d rifacimento by Wendt.

On account of the excessive subtilty which prevailed in the scholastic philosophy, the expression *scholastic* has come to denote the extreme of *subtilty*. After the reformation and the revival of letters, the scholastic system gradually declined. From that time we find but few distinguished scholastics, as the Spanish Jesuit Suarez, who died in 1617. With lord Bacon and Descartes, a more enlightened and independent philosophy commences.

SCHOLIA: explanations annexed to Greek or Latin authors, by the early grammarians, who taught the practical part of philology. The writer of such scholia is called a *scholiast*. There are many scholia to Greek authors extant, fewer to Latin. The names of the scholiasts are mostly unknown. Those, however, of Didymus, John Tzetzes, and Eustathius, the famous scholiast of Homer, have been preserved. The two last belong to the twelfth century.

SCHOMBERG, Frederic Hermann, duke of, a distinguished military officer, a native of Germany, born about 1619, was the son of count Schomberg, by the daughter of lord Dudley. He began his military career under Frederic, prince of

Orange, and afterwards went to France, where he became acquainted with the prince of Condé and marshal Turenne. He was then employed in Portugal, and established the independence of that kingdom, obliging the Spaniards to recognise the claims of the house of Braganza. He commanded the French army in Catalonia in 1672, and was afterwards employed in the Netherlands, where he obliged the prince of Orange to raise the siege of Maestricht. For these services, he was rewarded with the staff of a marshal of France in 1675; but on the revocation of the edict of Nantes, marshal Schomberg, who was a Protestant, quitted the French service, and went to Portugal. Being also driven from that country, on account of his religion, he retired to Holland, and subsequently engaged in the service of the elector of Brandenburg. He went to England in 1688, with William III., and, after the revolution, was created a duke, and obtained a grant of one hundred thousand pounds. He was sent to Ireland, in the following year, to oppose the partisans of James II. Being joined by king William, he was present at the battle of the Boyne, in which he lost his life, July 1, 1690, owing, it is said, to an accidental shot from his own troops, as he was passing the river to attack the enemy.

SCHON (German, for *beautiful*); an adjective which begins innumerable German geographical names.

SCHONBRUNN. See *Vienna*.

SCHONEN, OR SCANIA (Swedish, *Skane*); a province of Sweden, in the south of Gothland, bounded north by Halland and Smaland, east by Blekingen and the Baltic, south by the Baltic, and west by the Sound, which separates it from Denmark; 4000 square miles; population, 334,744, differing in dialect and manners from the other Swedes. This is the most level, pleasant and fertile part of Sweden, and produces plenty of rye, barley, oats, peas, buckwheat, honey, cumin-seed; likewise pit-coal, chalk, tiles, and pot-ashes. It has several rivers and lakes, all well stored with fish. The principal towns are Malmoe, Lund, Landscron, Helsinborg, and Christianstadt. It is now divided into the governments (*lane*) of Christianstadt and Malmoehus. Schonen formerly belonged to Denmark, but was ceded to Sweden with some of the neighbouring districts, by the peace of Roeskild, in 1658.

SCHOODIC, OR PASSAMAQUODDY. See *Croix, St.*

SCHOOLMEN. See *Scholastics*.

SCHOOLS. This momentous element of modern society is one of many instances, which show the slow progress of mankind in perfecting the most important parts of the social machine. Schools are of comparatively recent date, and their benefits are mostly confined to Europeans and their descendants. A historical sketch of their progress will be interesting, as showing how slowly and laboriously these institutions, which diffuse sound knowledge in a thousand channels, and irrigate, as it were, the whole field of society, have reached their present degree of improvement, which is far from being satisfactory. In antiquity, education and instruction were entirely a matter of domestic concern. In countries where priestly or royal despotism prevailed, schools were first established for the sons of the great and for the priests. Moses was educated in a priestly school in Egypt, Cyrus at a seminary connected with the Persian court; the Indian Brahmins imparted instruction in secret schools; in Palestine, those conversant with the Scriptures taught in the schools of the prophets, at later periods in the synagogues, and the schools of the rabbies, where inquiring youths assembled. The advantages of these schools were accessible to few; the means of learning were limited to conversation, reading, committing to memory, and hearing the explanation of sacred books. More was done under the Greeks. As early as 500 B. C., boys and girls, in the Greek cities, learned reading, writing and arithmetic in private schools, as the legislators, except in Sparta, left the education of children entirely to the parents; and what Lycurgus did in Sparta was much more intended for the development of the physical powers than of the intellect. Young persons, who were eager for knowledge, resorted to the instructions of philosophers and sophists, the finest example of which are the Socratic dialogues. The country people remained in great ignorance. The same was the case with the Romans, who, from 300 B. C., had schools for boys in the cities, and from the age of Cæsar, who conferred the rights of citizenship on teachers, possessed the higher institutions of the grammarians. In these, Latin and Greek were taught scientifically, and young men of talent went from the grammarians to the rhetoricians, who, like Quinctilian, prepared them, by exercises in declamation, for speaking in public. But a regular school system no where existed with the ancient nations. Schools were institutions confined to particular classes, or were the fruit of private enterprise. The emperor Vespasian was the first who established public professorships of grammar and rhetoric, with fixed salaries attached to them, for the education of young men for the public service; and, 150 A. D., Antoninus Pius founded imperial schools in the larger cities of the Roman empire, which may be compared to the German gymnasia. Though there was no systematic co-operation among the various professors, the imperial school at Rome, after the organization which it received, in 370, from Valentinian, resembled rather the German universities. The most celebrated place for scientific culture was Athens, to which students from all parts of Europe resorted, as late as the ninth century, and often led very dissipated lives. In the lower schools of the ancient Romans, the discipline was very severe. The rod was not spared; and Ovid is not the only one who complained of the severity of an Orbilius. Christianity, by degrees, gave a new turn to education. In the East, it gradually came entirely into the hands of the clergy, and under their superintendence. Schools were instituted in the cities and villages for the catechumens, and in some capitals, catechetical schools for the education of clergymen, of which that in Alexandria was the most flourishing, from the second to the fourth centuries. From the fifth century, however, these higher establishments seem to have been discontinued, and the episcopal or cathedral schools to have taken their place, in which the young men, intended for the clerical profession, learned, besides theology, the seven liberal arts—grammar, logic, rhetoric (these three made the *trivium*), arithmetic, geometry, astronomy, and music (*quadrivium*), from the *Encyclopædia* of the African Marcianus Capella, a poor compendium, which appeared at Rome in 470, and which remained for upwards of 1000 years the common text-book in the schools of Europe.

The imperial schools declined, and became ex-

tinct, because, in the confusion which followed the irruption of the barbarians, the salaries of the professors were not paid; and the cathedral schools and parochial schools for boys and young men of all classes in the cities, were established, in which the learning of reading and writing was followed by the study of the *trivium*, which had become popular; hence they received, at a later time, the name of *trivial schools*. These schools, after the sixth century, were surpassed in importance by the conventual schools, which, at first, were only seminaries to prepare persons for the monastic life, but were soon resorted to by laymen. The Benedictine convents—those links between the civilization of ancient and modern times—flourished in Ireland, England, France and Germany, from the sixth to the eleventh century, and were the chief seats of modern European civilization. The discipline was severe and monkish; but the instruction was generally better than in other institutions, partly on account of the many distinguished literary men who embraced the monastic life, partly on account of the peculiar opportunities which they had to form considerable libraries, in consequence of the constant communications among the various convents, and the pleasure which the inmates of these took in copying; partly on account of the *esprit de corps* of the order, which delighted in being able to show distinguished members or eminent men who had been educated in its schools. There were several priests or monks, whose reputation was such as to attract pupils from great distances. The conventual schools at Armagh and Clogher, Canterbury, York and Westminster, at Tours, Rheims, Clermont, Paris, at Salzburg, of St Emmeran at Ratisbon, Hersfield Corvey, Fulda, Hirschau and St Blasius on the Schwarzwald, &c., were particularly famous. The scholars who proceeded from them gave to the scholastic philosophy its character and name, the teachers in the conventual schools being called *scholastici*. These schools rivalled the episcopal and cathedral schools, yet were always directed more to the advantage of the priesthood than to purposes of general instruction, which was owing to a variety of causes springing from the then existing state of things. Charlemagne, had in view a system of national instruction, when he issued, in 789, his decree for the improvement of the schools of his empire. Not only every bishop's see and every convent, but every parish, was to have its school, the two former for the instruction of clergymen and public officers, the latter for the lower classes. At his court, Charlemagne established an academy of distinguished scholars, to whom he himself resorted for instruction, and whom he employed to educate his children, and capable boys belonging to the nobility and other classes, in the court-school (*schola palatii*). Alcuinus was made rector of these two schools, which accompanied the court in its changes of residence. The ladies of his court also partook in the benefits of instruction, and some nunneries, in their institutions for female education, rivalled the seminaries in the monasteries. The ladies learned Latin, which was then the common medium of communication between persons of different countries, as French is at present. Charlemagne took upon himself the superintendence of the schools in his empire, had reports sent to him, made examinations, and delivered addresses to the pupils of the school at his court. These schools often enabled him to discover the talents of young men, whom he appointed to high offices in the church or the state. It is one of the noblest traits in his character, that, in that age of gross ignorance, he laboured with zeal for the instruction of the nations under his sway.—See a short article entitled Charlemagne's Life in Private and at Court, in the third volume of Raumer's Historical Pocket Book (Leipsic, 1832).

When the clergy of the cathedrals, in the ninth century, adopted the canonical life, the cathedral schools originated, which approached, in character, to the *trivial schools*, so called, whilst the episcopal schools remained seminaries for the clerical order, or for particular professions, and at a later period became transformed into universities. Mayence, Treves, Cologne, Liege, Utrecht, Bremen, Hildesheim, had, in the tenth century, celebrated cathedral schools. The encouragement which the higher authorities had afforded them, however, was soon discontinued. Charlemagne's decrees were forgotten during the disputes of his grandsons about the government, under whom, also, the above-mentioned court school was abandoned; and his great creation declined as the school establishment of the great Alfred, in England, which was begun with equal zeal, and on an equal scale, in the ninth century, was destroyed by the invasions of the Danes, though Edward the confessor endeavoured to restore it. In the mean time, the school of the rabbis, among the Jews in Syria, Northern Africa, and even in Europe (Jewish academies existed in the seventh century, at Lunel, in France, and, in the tenth and eleventh centuries, at Cordova, in Spain), preserved the remains of ancient learning; and the Arabian schools established in the ninth century in the Oriental and African caliphates, and in the Moorish kingdoms in Spain, exhibited a freer spirit and better taste. From them a knowledge of the mathematical and medical sciences was first communicated to the south of Christian Europe. In Italy, where, after the barbarism introduced by the Goths and Lombards, king Lothaire had been the first to establish schools in the ninth century, for the large cities, as well as in Spain and France, the influence of Arabic civilization became observable, in the institution of schools for qualifying men for the different professions. At Salerno, Montpellier and Seville, Arabic physicians taught; and the works of the Saracens on natural history and mathematics were sought for even by Christian scholars. The development of the papal canon law gave occasion to the foundation of law schools, among which those of Bologna and Lyons acquired the greatest reputation. The academical privileges, which the former of these two received, in 1158, from the emperor Frederic I., became the foundation of the constitution of the continental universities which originated in the twelfth and thirteenth centuries. The inactivity and luxury of the clergy had led to the neglect of the cathedral and conventual schools, and they rapidly declined. The new institutions which had grown up were necessary to form new teachers and to revive the taste for science. But even these became subject to undue clerical influence, as since the beginning of the thirteenth century, the mendicant monks not only connected popular schools with their convents, and undertook the education of the children in the cities, but also obtained entrance into the universities as teachers, where they laboured to augment the importance of their various orders and the power of the pope.

Thus the state of the schools in the middle ages, was by no means so flourishing as might have been

expected from the activity of former centuries and the institutions of Charlemagne. Dictating took the place of lecturing even in the higher schools; mere exercises of memory held the place of erudition; the dead letter predominated, and an intelligent investigation of the subjects studied was little practised. The pupils of the Latin or *trivial* schools wasted almost all their time in copying the manuals. In the lower parish schools, the monks would not even permit the scholars to learn to write; being desirous to confine the art, which was highly lucrative and important before the invention of printing, to the clergy (it was called the *ars clericalis*); and the privilege of establishing writing schools for the children of citizens could not be obtained by the magistrates but by special agreement with the clergy. But at length, with the increasing power of the cities, the citizens became more independent and the magistrates themselves began to take care of the instruction of youth, which had been so much neglected by the clergy, and to establish schools, in which reading, writing, and the *trivium* were taught. For these, as well as for the cathedral and parish schools (the canons and parish priests having ceased to occupy themselves with the instruction of youth), itinerant monks and students were taken as teachers. This gave rise to a separate class of teachers, which indeed belonged to the clerical order, then in the exclusive possession of learning, but resembled the corporations of mechanics in its regular gradations, and in the unsettled life of its members, who wandered from place to place much to the detriment of their morals. The schoolmasters were engaged by the corporation of cities and the parish ministers, were liable to be dismissed on a year or three month's warning, and were obliged to employ assistants, proportioned to the number of their pupils, and to pay them out of their own salaries. These assistant teachers (*locati*, because they were hired; *stampuales*, because they gave elementary instruction) were subject, as well as the head masters, to the parish ministers, who used them as writers and church servants. Sometimes the school-masters, who taught Latin, were called *rectors;* the assistant teachers, who taught singing, reading, and gave religious instruction (the latter consisting in making their pupils commit to memory the creed, the ten commandments, prayers, and psalms), were called *cantors*. From this division originated in some countries, for instance in Germany, the division of Latin and German schools, which were, however, most generally united. The elder pupils of the highest class frequently travelled from one school to another, pretending to detect hidden treasures, and practising various mummeries and fooleries; hence they were sometimes called *histriones* (because they formed the first companies of actors, as, in France, the Jongleurs and Gaillards), sometimes *vacantivi* (i. e. idlers). Generally they carried with them younger pupils, who were their slaves, to all intents and purposes, and had to procure them support, by begging and stealing, if there was no other way, and retained for themselves only such portion of their acquisitions as their tyrants were willing to let them enjoy. In the fourteenth and sixteenth centuries, these bands of vagrants, among whom there were sometimes *vacantivi* thirty years old, who were yet unable to construe a Latin author, were most numerous in Germany. As students, they were allowed to wear swords, and thus were frequently tempted to disturb the public peace. When they stopped to pursue their studies in a school, they found lodgings in the school-rooms, or about the churches, and lived upon the charity of the citizens. If there were several schools in one place, disputes often occurred between the pupils, which were decided by arms, according to the fashion of the middle ages. As late as the beginning of the sixteenth century, Luther complained that such vagrants received appointments as teachers, because, generally, these *vacantivi*, who had hardly seen a university, were the only persons who could be hired as school-masters, since the more learned youths were ambitious of clerical benefices and academical professorships. Unique in its kind, in the history of the schools of this period, was the pious fraternity of the Jeronymites. They consisted of clergymen and laymen, who lived together, occupied partly with mechanical arts, partly with the instruction of girls and boys, to whom they taught reading, writing, and useful arts. For boys of talent and diligence, there were Latin classes. On the model of these schools, others were established in the Netherlands, on the Rhine, and in Northern Germany. These soon came into communication with the Greeks who had fled to Italy; and thus the study of the classics became more cultivated. Through the efforts of men like Thomas a Kempis, Hegius, Erasmus, Agricola, Reuchlin, and Melanchthon, a liberal study of the remains of classic antiquity was commenced. Much was done, in and after the last half of the fourteenth century, to promote this object by Italian courts and universities, through the instrumentality of learned Greeks, and of the Platonic academy of Florence, and towards the end of the fifteenth century, through the learned Rhenish society, established by Conrad Celtes. The result at first, was only an intellectual luxury for the great and the learned; yet many skilful teachers proceeded from Basle, Tübingen, Heidelberg, and Wittenberg, which, after the time of Luther and Melanchthon, became the head-quarters of instruction for Germany.

In all countries where the reformation became general, it had a decided influence upon the schools. It even had a considerable influence in several Catholic countries; but its effects were more decided in Germany. According to the advice of the reformers in that country, who, in 1529, furnished a great example of the care which government should bestow on the schools, by the visitations which they made of the schools in the electorate of Saxony, the corporations of cities founded gymnasia and lyceums with permanent teachers. The property of the convents, and of the church in general, which had been confiscated by the governments, was, in most cases, applied to the use of schools. The number of these institutions was now much increased, and their character elevated, and scientific school-masters were soon formed. The newly invented art of printing assisted greatly in this work of improvement. Only the conventual, cathedral, and *trivial* schools of the Catholics remained restricted to the narrow limits of the seven liberal arts. Schools for girls were founded, and in the villages, instructors were appointed to teach the catechism. Whilst schools were thus acquiring a systematic character in the sixteenth century, and the classical languages were even taught in the smaller towns, the Jesuit schools arose towards the end of this century among the Catholics. They soon obtained, by their better taste and more scientific spirit, a superiority over the old Catholic schools. But, though they have exercised a great influence, as has

been stated in the article *Jesuits*, to which we must refer our readers, they were yet more calculated for the children of the wealthy, or those of uncommon talent among the poorer classes, than for the general education of the people. In Spain and Italy, their schools were long the best; in Hungary and Poland, they were the only ones excepting the conventual schools and the colleges of the Piarists; and even in America and Asia, they contributed zealously, by their missions, to the diffusion of European civilization. But a variety of circumstances contributed to produce degeneracy in these latter schools as well as in those of the Protestants. The former became again confined to a fixed routine; the latter passed from the strictness of the conventual schools to licentiousness, through the influence of the privileged universities. To this was added, in Germany, the thirty years' war, in which fanaticism on both sides destroyed what had been judiciously established. Yet, about this time, some great men distinguished themselves as writers on education, as lord Bacon, and the exiled bishop of the Moravians, Amos Comenius.

Considerable influence was exerted upon the system of education, towards the end of the seventeenth century, by the principles of Pietism and Quietism, established by Fénélon and Spener, which was the basis of the instructions of A. H. Franke. Instructors in his spirit spread themselves, in the first half of the eighteenth century, from Halle, over the whole of Northern Germany. Yet the lower schools were bad in comparison to the higher; and in these, Latin and Greek seem to have been the only thing considered essential. The idea of an education adapted to the nature and general destination of man, suggested by Bacon and Montaigne, received, about this time, a more complete development from Locke and Rousseau; and the Philanthropinism* of Basedow and his friends introduced it, in the second half of the eighteenth century, into Germany. Schools were now instituted, in which, besides languages and history, natural history, technology, civil arithmetic, &c., were taught. They held an intermediate place between the primary schools and the gymnasia. In 1807 and 1808, the Bavarian government established, besides the gymnasia for classical education, seminaries, called *Real-institute*, where young persons who intended to become merchants, apothecaries, miners, manufacturers, artists, &c., were instructed in that knowledge which is of most general utility—in history, religion, modern languages, mathematics, and the natural sciences. The *trivial schools*, which continued to exist, both in the larger and smaller towns, were changed, after the end of the eighteenth century, into public schools, both common and high, and many schools were established for paupers. In fact, every where in Protestant Germany, and in some other countries, effectual steps were taken for the advancement of school instruction; but the Catholic countries took little part in this advancement. The Catholic governments trusted implicitly to the Jesuits, Piarists, Ursulines, and some other orders, unconcerned whether the instruction which they afforded did or did not correspond to the demands of the time. By the abolition of the Jesuits, in 1773, moreover, a chasm was produced, which the schools of the Piarists, mostly of the *trivial* kind, were unable immediately to supply. Austria felt this abolition less than other Catholic countries, on account of her normal schools for the lower orders, intended to serve as a pattern for all the common schools in the empire. Her school system, however, was far from perfect. Under the late emperor, professorships of pedagogics (for the instruction of teachers) were established in the universities and episcopal seminaries. Many gymnasia, common schools, Sunday schools, &c., have likewise been instituted in Austria. The normal schools were imitated by most of the Catholic states of Germany. Italy, Portugal, and Spain continued inactive, as they had been for a long series of years: they left instruction to the clergy and to chance. They have only episcopal seminaries and the Piarist and conventual schools. The institutions of Leopold in Tuscany, for popular education, after the Austrian model, were disturbed by the wars of the revolution. The French had not time to do a great deal for the education of the people; and, in fact, education had not made any great advances among themselves; and when in Spain and Italy, the old rulers again took possession of the country, they considered education dangerous, as productive of a revolutionary spirit. The Jesuits, since their revival, have as yet been too unimportant to produce any great effect. In those countries of Europe where they have exerted an influence on instruction of late, it has been an injurious influence, intended to counteract the spirit of the time.

In France, much remains to be done for education. Before the revolution there were, besides the episcopal seminaries and conventual schools, lyceums and colleges in the cities, where young persons were prepared, under a system of monastic discipline, for the higher seminaries. The government did nothing for the education of the people at large, and the clergy, though possessing so large a proportion of all the property in France, and having the instruction of the people under their especial care, left them in abominable ignorance; whence the horrid outrages that disfigured the early part of the revolution. Some elementary schools were supported here and there, by religious orders, or private persons; but the instruction was scanty, and in all the institutions of education was behind the age. During the revolution, the schools were declared to be under the care of the state. It was not to be expected that a good plan could be adopted immediately. The polytechnic school, however, was excellently arranged. Napoleon established several military schools, and others for instruction in trades and arts, and an imperial university was created, to have the supreme direction of instruction in France. But the plan was on a military principle, and as little fitted to promote the true purposes of education as the monastic narrowness of former ages. Academies (schools for the different professions) and lyceums, on an entirely military plan, were introduced. The "secondary schools" actually went into operation in but very few places, and the "primary schools," (elementary and village schools) hardly any where. The instruction in private establishments was subjected to much restriction, except in regard to mathematics and the natural sciences. The religious

* The system of Philanthropinism was directed against the prevailing faults, both of school instruction and of domestic education, against the tyranny of the rod, the stiffness of the ordinary discipline, the inconvenient and prejudicial nature of children's dress, the want of proper bodily exercise, the system of loading the memory without exercising the active faculties, &c. The object was to develope the energies of children in a more natural way, and with less constraint and hardship. Several institutions, called "Philanthropins," were established, of which that of Salzmann was the only one which survived to the nineteenth century.

instruction was to be founded on the "Catechism of the Empire." This was the state in which the Bourbons found the schools in France. Changes were made by them, but not for the better. The clergy laboured with them to restore a state of things which had long gone by. In 1816, elementary schools on the Lancasterian principle were introduced, which would have become a great blessing to the country; but the royalists and clergy, after a while, procured their abolition. The lower classes receive very little instruction in France, and there cannot be much doubt that a third part of the whole population of that country, which considers itself the most civilized on the earth, grows up without education. The whole number of individuals, subject to the conscription in 1830, was 294,975. Of these, 121,079 could read and write; 12,801 could only read; 153,635 could neither read nor write; in respect to 7460, it could not be ascertained what was the extent of their attainments.* M. Dupin, in his work, cited below, page 71, says, that "it must be acknowledged that there are no parts of Europe, except the Pyrenæan peninsula, Turkey, the south of Italy, Greece, and Russia, in which education is in a more backward state than in France." For further information we refer our readers to an article, "The State of Education in France," in the Quarterly Journal of Education for July and October, 1831, containing the answers given by the *Société pour la Propagation de Connaissances Scientifiques et Industrielles* to questions put by the Society for the Diffusion of Useful Knowledge in 1830. Quite recently, professor Cousin (q. v.) addressed several letters on the state of education in Germany, to the minister of public instruction in France, after careful personal examination of the subject.

In England, no general system of education for all classes of the community has ever been established. The efforts of Brougham to introduce such a system were frustrated by party spirit and ecclesiastical prejudices. Something, however, has been accomplished for the instruction of the lower classes by individual exertions, the institution of infant and Sunday schools, and the operation of the Lancasterian mode of instruction. In the middle ages, besides the two universities, the education of youth was provided for by the cathedral or episcopal schools, of which there was one in each diocese, under a *scholastic*, as the superintendent of the school was called, in which the studies were mainly intended as a preparation for the priestly office; the conventual or abbey schools in the monasteries, in which all the sciences were taught (the ecclesiastics were, at that time, lawyers and physicians), and schools in the principal towns and cities. But the great public schools of England are mostly of later origin. Winchester college was founded by bishop Wykeham, as early as the reign of Edward I. (1387), Eton, with seventy king's scholars or collegers, was founded by Henry VI., in 1440; Westminster, with forty scholarships, in 1560, by Elizabeth; and Harrow free school was also instituted during her reign. The course of instruction in these high schools is not very extensive, nor judiciously conducted. At Eton, for instance, little more is taught than the Latin and Greek languages; the scholarships depend merely upon seniority, and entitle the scholars to a fellowship in King's college, (Oxford), and finally to a university degree without examination. The course of reading is rather limited and injudicious, and the elementary books poor. The case is not very different at Westminster. There are numerous charitable foundations for education in England, the enormous abuses of which were exposed by the persevering and indefatigable exertions of Brougham in successive reports to the house of commons: in one instance, for example, where the funds of the charity yielded £450 per annum, only one boy was boarded and educated; and in another case, in which the revenue of the establishment was £1500 per annum, the incumbent left the care of the school to a carpenter in the village, to whom he paid £40 a year. If these abuses have been remedied, and the facilities for popular education in some degree increased, much yet remains to be accomplished in England.

In Scotland, more provision has been made for popular education. By an act of William and Mary, it is required that there shall be a school and school-master in every parish. In 1803, the limits of the salary were raised from 100 and 200 merks to 300 and 400 merks (a merk is about thirteen pence, Sterling), with the addition of a house and one quarter of an acre of land. In 1831 some further addition was made to the schoolmaster's salary. The proprietors of land in the parish are assessed for the latter expenses, and that of the school-house; but the salary is paid half by the proprietors and half by the tenants. In a large part of the country, nearly the whole population is able to read and write; but in some parts, chiefly in the Highlands, the parishes are so extensive that there are many who have no means of education within reach, and three or four schools would be required to accommodate all the inhabitants. In some of the principal towns, the parochial schools are of a higher description, and are entitled *grammar schools*. Within the last twenty years, academies, in which the higher branches are taught, have been established in some of the larger provincial towns. See *Scotland*.

In Sweden, the schools are much on the same footing as they were in the seventeenth century among the German Protestants. The clergy, in the possession of the church property of their Catholic predecessors, show little disposition to apply a part of it to the public instruction.

The government of the vast Russian empire has directed its attention to a system of schools for a hundred years past, before which there were only conventual schools for the clergy, and some institutions for the sons of the great, established—almost by force—by Wladimir the Great. According to the decrees of the emperor Alexander, schools for the circles, districts and parishes, were to be instituted throughout the empire, in order to strike an effectual blow at the deep ignorance of the Russian people. The circle schools exist at present on the pattern of the German gymnasia, in most of the capital cities of the governments; the district schools are found in some towns of a middling size; the parish schools, however, in very few villages,

* The law of September 14, 1791, enacted that a system of instruction for all the people should be organized, which would be gratuitous with respect to those kinds of knowledge which are indispensable for all classes. But this law was never carried into effect. The ordinance of April, 1816, declared that every commune should be bound to provide primary instruction for all the children of the commune, giving this instruction gratuitously to indigent children. But the means of carrying this into effect have been wanting, the majority of the communes being unable to provide a salary for a primary instructor. It would seem indispensable, that the state or the departments should form a common fund to pay, or to assist in paying, the teachers in the poorest communes. A law on this subject is of urgent necessity.

and the greatest and best part of this plan remains, as yet, unexecuted.* Somewhat earlier, there existed, in the German provinces of Russia, good gymnasia, and some common and country schools; but the latter are still in a very low condition. The education of Catholic youth was attended to by the Jesuits, who were admitted by Catharine II. into White Russia.

Poland, where, formerly, the nobility only were instructed by the members of religious orders (Lazarists, Piarists and Jesuits), had, before its partition, some gymnasia, founded towards the end of the eighteenth century, and some common and country schools, but no well arranged school system. During the existence of the grand-duchy of Poland, something was intended to be done for the education of children of both sexes; but it was not executed, and the last catastrophe, which has reduced Poland to a Russian province, must have a most injurious effect on the few means of education which the country affords.

Denmark, Holland (which has far outstripped Catholic Belgium), and Switzerland, strive to keep pace with Protestant Germany; but the improvement of Switzerland has not been so great as might have been expected, after the impulse given by Pestalozzi. Some cantons, however, have seminaries for the education of teachers; and Denmark has had them for forty years. The Danish government issued, in 1814, a school ordinance for its German provinces, which contains many wise directions. Holland distinguished itself early by institutions for philological instruction, and the society for the public welfare (founded in 1784) has given a good organization to the common schools.

In no part of the continent, however, has so much been done for schools, and education been made so much a particular branch of study by thinking men, as in Germany. Bavaria was the first of the larger states in which this subject received the particular attention of the government. Since 1806, the schools in that kingdom have been conducted systematically on a general plan. There is a particular department, in the ministry of the interior, to superintend the subject of education, whose authority extends to all the various schools and institutions. The smaller states have done much for schools, as Nassau, Lippe-Detmold, Anhalt-Dessau, and the Saxon dukedoms. Though Hanover and Brunswick established seminaries for the formation of instructors in the last century, their subsequent progress has been comparatively slow. Saxony, which took the lead in this particular after the reformation, always had its schools for instruction in philology, and also good common schools; yet it did not advance, as might have been hoped.—See Ruhkopf's *History of Schools and Education in Germany* (in German).

Out of Europe, the United States of America only have an effective system of education. In the United States, the provisions for education are made chiefly by the state authorities, and are very different in different parts of the country; but no where has popular education in general received more attention, or been carried to greater extent. Of the colleges of that country we have given some account in the article *College*. Next in rank to these seminaries are the establishments called *academies*, founded by private bequests, or public grants, in which Latin and Greek, and commonly one or more modern languages, with geography, history, the elementary portions of mathematics, and physical philosophy are generally taught. In the grammar schools, the course of study is very different; sometimes only reading, writing, grammar and arithmetic are taught, but geography is frequently studied in them, and sometimes history. Below these, in some places, there are primary schools, kept by women for younger children, and numerous infant schools, which take the child almost from the cradle. In this way, a child may, in some instances, be educated, from the age of three or four, to that of sixteen or seventeen, without any fee for tuition. The federal government has, in the disposition of the public lands, made provisions for common schools, by reserving one section of each township, for the support of schools in the township, besides making other reservations for colleges. (See *Public Lands*.) The system of free schools has been carried to the greatest perfection in the New England states, in which, though the details of the system differ much, yet the leading principles are the same. More is generally done than is required by law, by the towns in their corporate capacity, besides the great numbers of private schools, all over the country, for all ages and of all descriptions. Thus, in the city of Boston, in which the legal expenditure on the free schools would amount to but 3000 dollars per annum, the yearly expense is actually upwards of 60,000 dollars, supporting eighty schools, with 7430 pupils; besides which there are 155 private schools in the city, with 4018 pupils, making a total of 235 schools, and 11,448 pupils, in a population of less than 62,000 souls. In Massachusetts, the laws require that every town or district, containing fifty families, shall be provided with a school or schools, equivalent in time to six months for one school in a year; if containing 100 families, twelve months; 150 families, eighteen months; and the towns are required to raise the sums of money necessary for the support of the schools in the same manner as other town taxes. The state of Connecticut has a fund, derived from the sale of lands in Ohio, of 1,882,261 dollars, the income of which (upwards of 72,000 dollars) is appropriated to the support of common free schools. The number of children between four and sixteen, in 1828, was 84,899. The great principle on which the system is founded, is, that elementary education should be so free as to exclude none, and the schools so numerous as to be within the reach of all, at the same time that their management should be principally intrusted to the people themselves, in small districts, so as to excite and sustain a general interest among all classes. The tax is on property, and thus the poorer classes are saved from a burden which might otherwise be too great for them, at the same time that they pay enough to render them desirous of securing the benefit of the schools; and the rich are glad to secure the most effectual protection for order and property, in the general intelligence and morality of the people. (See the valuable paper of professor Ticknor, in the English Quarterly Journal of Education, No. IV.) For the population of New England, consisting of less than 2,000,000, there are between 10,000 and 12,000 schools, 150 academies, and eleven colleges, besides great numbers of private schools and boarding schools. We have given an account of the state of schools in New York, in the article *New York*, division *Public In-*

* See the *Statistique et Itinéraire de la Russie, par J. H. Schnitzler*. Paris, 1829.

struction. New Jersey has a school fund of 245,404 dollars, the income of which, with a tax of ½ per cent, on the capital stock of the banks, is distributed, in small sums, to towns which will raise an equal sum for the support of schools. In Pennsylvania, little has been done for common education. In the Report of the Society for the Promotion of Public Schools (April, 1831), it is stated that, during the preceding year, the number of children between the ages of five and fifteen, was 400,000, of which there were not 150,000 in all the schools in the state. There is no legislative provision for the support of schools. In Delaware, there is a school fund, the income of which is distributed to such towns as will raise a sum equal to that which they receive; and, in Maryland, some attempts have been made to establish a general system of primary education; but it has been only partially accomplished. The New England system of free schools has been introduced into Ohio (March, 1831); and, in Indiana, the constitution makes it the duty of the legislature to provide, by law, for a general system of education, in which tuition shall be given gratis. Similar provisions have been made in Illinois; and in Kentucky attempts have recently been made to effect the same purpose. But in the Southern and Western States generally, there is no legislative provision for the establishment of common schools, on the plan of those of New England. The Sunday schools in the United States are, in a great measure, intended for religious instruction, and are therefore composed of the pupils of the day schools.—Further information on this subject may be found in the American Annals of Education (1826, seq.), various numbers of the North American Review, and American Almanac (vols. ii. and iii.)

In Canada, education is, generally speaking, in a very low state, which is greatly owing to the population being much scattered.

In the West Indies, the schools, though improving in some parts, as in Cuba, must be subjected to very different influences before they can reach any thing like perfection; and in South America the people labour under the immense disadvantage of having been formerly under the Spanish and Portuguese governments, which did nothing for the education even of their European subjects; to which must be added that the population is scattered, and that they are under the exclusive sway of the Catholic clergy. Common schools have been established, of late, in several colonies of Europe (e. g. at the cape of Good Hope), and several schools, on the plan of mutual instruction, in the East Indies. Independent of the influence of European civilization, schools of different degrees are to be found in the East Indies, China, Japan, and the other empires of Eastern Asia, in which despots or priests give children such an education as will best fit them for their service. Persia, also, has established schools, in which boys of all classes learn to read and write. Turkey and Northern Africa alone limit instruction to the explanation of the Koran. A few schools (e. g. in Asia Minor), established by American or European missionaries, need hardly be mentioned in this general view. Missionaries have also established schools in various parts of Greece; yet it has been found impossible to do much in the present disturbed state of that unfortunate country.

The time in which we live is so remarkable for the important changes produced in almost all departments of human activity, by the power of science and general information, that, in most civilized countries, the urgent necessity of general education has been clearly felt, and measures have been taken (though not always the most effective, as might well be expected) to bring about this object. The changes which have taken place in science, and in the whole condition of modern nations, who are no longer dependent, like those of the middle ages, for their means of intellectual culture, on the remains of ancient civilization, necessarily make the character of school instruction very different from what it was formerly, when the whole intellectual wealth of Europe was contained in two languages; and though these noble idioms will always retain a high place in a complete system of education (see *Philology*), yet their importance is comparatively less, while that of the natural sciences, history, geography, politics, &c., has very much increased. All this has had a great influence upon schools, and will have a still greater. The importance of education, moreover, is now set in strong relief by the general conviction, entertained in free countries, that the general diffusion of knowledge is the only true security for well regulated liberty, which must rest on a just sense of what is due from man to man; and few results can be attained by the student of history and of mankind more delightful than this of the essential connexion of light and liberty; not that great learning necessarily leads to liberty; history affords many instances which disprove this; but that a general diffusion of knowledge always tends to promote a general sense and love of what is right and just, as well as to furnish the means of securing it. We see, therefore, in our age, not only a great increase in the number of schools, but also the introduction of various new kinds, as the Sunday schools (q. v.) and the infant schools; the latter we think of advantage in the case of parents who are unable to take care of their children at home, but injurious where (as it happens but too often) they induce mothers, the natural guardians of their infants, to neglect those duties which Providence has best qualified them to discharge, and thus lose those opportunities of exerting a beneficial influence on the opening character of the infant, which are fully perceived only by the keen eye of parental love.

From the circumstances which we have mentioned, a great zeal for the improvement of schools has been exhibited, in several countries, since about the year 1818, a few years after the conclusion of the general peace in Europe; and we shall therefore take one more rapid view of the state of schools in Europe since that time. Prussia has done, of late, more than any other country of equal or larger size, for the improvement of schools. In addition to the nineteen seminaries for the education of instructors, which existed in 1818, nine new ones have been founded, so that, since 1825, 1500 teachers are continually educated in twenty-eight large seminaries and twenty-one of less size. The demand for teachers is great, as the country schools alone require 21,000. The expense of these seminaries for teachers is 100,000 Prussian dollars yearly, which is paid by the government. The government have also sent teachers into foreign countries to study their school systems. All the countries of Germany have seminaries for teachers, and many laws have been enacted to induce or oblige the poorest classes to send their children to school; still, however, much remains to be done, to bring the instruction of the people at large to

the level of the demands of the age. The last reorganization of the Bavarian system of education took place in 1825. If much has been done in Germany for common schools, still more has been done in several states of that country for the gymnasia, or learned schools. The great increase of aids to study, lexicographical, grammatical, metrical, critical, and archæological, has given the learned schools a degree of activity and efficiency which, perhaps, twenty years ago, would have appeared unattainable. In Austria alone, the gymnasia are, as yet, circumscribed within comparatively narrow limits. In Russia, the school system has not effected what it promised. The circle schools are, as yet, confided to military directors, in most cases, and the district schools, on account of the low degree of civilization among the mass of the people, are obliged to employ themselves on the very rudiments of knowledge; and, for the parish schools, masters are yet to be formed. In the provinces on the Baltic, the schools come somewhat nearer to the German. For the army, several Lancasterian schools have been established since 1820. Sweden has, according to the decree of December 16, 1820, received a new organization, which has considerably improved the learned and *trivial* schools, but the country schools very little. Seminaries for schoolmasters do not exist there at all. In some larger cities, Lancasterian schools have existed, since 1820, for the children of soldiers and of the poor. But the degree of information to be found among the Swedish peasants, who not unfrequently instruct their children themselves, somewhat remedies this evil. Denmark has established many Lancasterian schools. This system was first introduced into the army in 1819, and in 1822, with some modifications, was recommended by the king to all the common schools, of which above 2000 have adopted it. (See the article *Mutual Instruction.*) In 1825, a law was passed in the Netherlands, which declared the establishment of schools, public and private, dependent upon the government. In France, the ultra-montanists and the aristocratic party, after the restoration, laboured, with the aid of the ministry, to bring back the system of education to the narrow limits within which it was confined by the clergy before the revolution. They broke up the Lancasterian schools, established under the influence of the constitutional party, and favoured the Brethren of Christian Doctrine and the Jesuits, whose colleges not only became again institutions of education, but also had a decided influence upon others. But the French schools, generally speaking, with the exception of mathematics and the natural sciences, teach little thoroughly; skilful teachers are found only in large cities; the small towns have but very ordinary schools, and a great part of the peasants grow up without school education. There is a tax on the learning of Latin in all the colleges of the kingdom, amounting to fifteen francs annually for each individual, which, with other heavy taxes, (some paid by the teachers themselves), goes into the treasury of the university at Paris. This explains how the schools, which are a considerable expense to other governments, yielded, in 1826, to the French government, 2,526,910 francs, and cost only 2,213,200 francs, affording therefore a surplus of 313,710 francs. All kinds of instruction in France are dependent upon the university. It was always one of the points most insisted on by the liberals, that instruction should be freed from this subjection, particularly since the amendment of the charter in 1830; and promises to this effect have even been made by the ministers; but as yet the relief has not been obtained. In the Sardinian states, where the supervision of education was restored to the Jesuits, the learning of reading and writing is prohibited, by royal decree, to all who do not possess a capital of 1500 lire, and the study of the sciences to all who have not an income of 1500 lire. The Italian schools stagnate under similar influences. Naples has not, as yet, given particular attention to this subject. In the States of the Church, Modena and Lucca, it is left to the Jesuits. In Tuscany, where a private association introduced the Lancasterian system into Florence, in 1821, education stands on nearly the same footing as in the Austrian dominions in Italy, in which it is at least established on a regular system, and is not left in the hands of the Jesuits, although it may not be more progressive than in Hungary. In Spain and Portugal, the state of education is particularly low. The activity of the university and many schools was, for a time, interrupted by the revolution. Yet the cortes had already directed their attention to education, as the ninth chapter of their constitution proves, by which, if the instrument had remained in force, a complete system of school instruction would have been established. Immediately after the revolution of 1820, the ninth chapter was carried into effect; but all that had been done was overturned in 1823, after the restoration. Many schools and other institutions ceased to teach; and where instruction continued to be given, it has been on the old scholastic system of the middle ages. A few years since, a decree was issued, prohibiting philosophy to be taught in the universities! In many places, there is not even a school for elementary instruction. For the higher classes, there are some boarding schools, in the French style.

SCHOONER; a small vessel with two masts, whose mainsail and foresail are both suspended by gaffs, like a sloop's mainsail.

SCHOREEL, JOHN, a distinguished Dutch painter, received his name from Schoreel, a village near Alkmaer, where he was born in 1495. His love of painting appeared in his boyish sports. He copied every painted window, and covered, with delicate figures, every horn-inkstand that came in his way. At the age of fourteen years, he was placed with the painter Will. Cornelis. At the age of seventeen, he travelled to Amsterdam, and entered the establishment of Jacob Cornelis, one of the most celebrated painters and engravers on wood, of that period. Here he spent several years. He next repaired to the first of the masters then living, John of Mabuse, in Utrecht. The disorderly life of his new master disgusted the young Schoreel; and he visited, successively, many large cities, where there were painters of eminence, especially Cologne and Spire, where he studied architecture and perspective. He also visited Dürer, in Nuremberg, and was received kindly. At the age of twenty-two, Schoreel passed through Carinthia to Venice. One of his countrymen, in a monastery there, persuaded him to undertake a pilgrimage, with him, to Palestine. For three years, he remained within the walls of Jerusalem, sketching views of the city and surrounding country; and a large painting, probably by him, is still in the church, in the place where Christ is said to have been born. On his return, he spent some time at Rhodes, which he painted, together with the sur-

rounding country; and afterwards at Rome, among the works of Raphael, Michael Angelo, and Giulio, till Adrian VI., a native of Utrecht, ascended the papal chair, in 1522, and committed to him the superintendence of the Belvedere. The death of Adrian, the following year, induced Schoreel to return home through France and Amsterdam. He now executed many splendid pieces, in Utrecht, afterwards in Harlem, and, from time to time, in other cities in the Netherlands. He died at Utrecht, December 6, 1562. He has been compared with John van Eyck, whom he equalled in splendour and truth of colouring, in expression, in warmth of representation; and, at the most, was inferior to him only in the execution of particular parts. Unhappily, the rage of the fanatics, in a subsequent age, for destroying pictures, was fatal to many of his most valuable works.

SCHORL. See *Tourmaline.*

SCHORLITE. See *Topaz.*

SCHREVELIUS, Cornelius, a learned critic, was born at Harlem, about 1614. His father was rector of the school of Leyden, in which office he was succeeded by Cornelius, in 1642. The latter had taken his degree in medicine; but on his promotion to the school, he turned his attention exclusively to classical pursuits, in the course of which he published several *Variorum* editions of the classics, which display more industry than taste or judgment. His name is now principally known by a Manual Greek and Latin Dictionary (1645), which has been often reprinted, in most countries of Europe. An edition, with great improvements, by Fleury-Lécluse, appeared at Paris in 1820; and it has been translated into English, with very extensive additions and improvements, by John Pickering (Boston, 3d edition, 1832). He died in 1667.

SCHUBART, Christian Frederic Daniel, a German poet of much natural talent, but of a defective education, and an irregular life, was born in 1739, at Obersontheim, in Suabia. He began the study of theology at Jena, in 1758; but his dissipation involved him in debt. For some time he supported himself by preaching; but music, for which he had much talent, drew him away from theology. In 1764, he married; but the union was an unfortunate one for his wife. In 1768, he became director of music at Ludwigsburg, near Stuttgard, but gave himself up, more and more, to dissipation, so that he was imprisoned for some time, and exiled from Würtemberg. He now lived an unsettled life, undertook various employments, which he was always obliged to resign on account of his bad life, his attacks upon the clergy, &c. His Chronicle became a popular journal. But, in 1777, he was seduced into the Würtemberg territory, and arrested on account of some things which he had written. He remained ten years in prison at Hohenasperg, was liberated at the request of Mad. Karschin, and made director of the music of the ducal theatre at Stuttgard. He began several works, but, before they were completed, he died, in 1791. His poems, which contain much inflated and unpolished matter,—interspersed, however, with many flashes of genius,—were published at Frankfort on the Maine, in 1787, 2 vols.; another edition in 3 vols., 12mo., at the same place, with a life of him; and several other pieces in prose. His Miscellaneous Works (Zürich, 1812, 2 vols.), were published by his son.

SCHULTENS, Albert, a celebrated Orientalist, born at Gröningen, in 1686, studied theology and Arabic at that place, at Leyden and Utrecht, became a preacher in 1711; professor of the Oriental languages in 1713, and in 1717, university preacher at Franeker. His chief works, *Origines Hebrææ*, and *Institutiones ad Fundamenta Linguæ Hebraicæ* (1737), had an important influence on the study of the eastern languages. His son *John Jacob* (1716—1778) was the author of several learned dissertations and treatises. *Henry Albert*, son of the latter, born at Herborn, in 1749, was educated at Leyden, where he studied Arabic and Hebrew, and afterwards became a commoner in Wadham college, Oxford, and received the degree of master of arts there. On his return to Holland, he was chosen professor of the Oriental languages at Amsterdam, where he resided until the death of his father, whom he afterwards succeeded at Leyden. He died in 1793. Besides his Arabian Anthology (1772), he published an edition of Pilpay's Fables, and a supplement to the *Bibliothèque Orientale* of D'Herbelot.

SCHUMLA. See *Choumla.*

SCHUYLKILL, a river of Pennsylvania, which rises in Lucerne county, runs south-east, and unites with the Delaware, six miles below Philadelphia. It is 140 miles long, and navigable for boats ninety miles. The Tulpehocken, a navigable stream, flows into the Schuylkill a little above the town of Reading. There are falls on the river five miles above Philadelphia, and others near Norristown. A part of the valuable coal called *anthracite*, which is now so much used in Philadelphia, and exported thence to all the northern cities, is obtained from mines situated on the Schuylkill.

SCHWABACH, ARTICLES OF; a confession of faith, drawn up by Luther, for the princes and cities assembled, in October, 1529, at Schwabach. The cities of South Germany, inclining to the Swiss doctrine, refused to subscribe the above articles, on account of the doctrine of the presence of Christ in the eucharist, which is strongly expressed in them by Luther. These articles, adopted by the Smalcaldic league, became thus a chief obstacle to a union between the party of Luther and Zuinglius.

SCHWABENSPIEGEL (i. e. *Mirror of the Suabians*); a collection of legal precepts and customs in Upper Germany, made probably between 1268 and 1282, by an unknown monk. It does not exist in its original form, as it was changed in many countries. It never acquired the same authority as the *Sachsenspiegel.* It went out of use in the fifteenth and sixteenth centuries. It is best printed in Senkenberg's *Corp. Jur. Germ.*

SCHWARTZ, Berthold, born in the first half of the fourteenth century, was a Franciscan friar of Friburg, or, according to some, a monk of Cologne, and has been regarded as the inventor of gunpowder and fire-arms. He is said to have been mixing together the ingredients of gunpowder,—viz. nitre, sulphur and charcoal,—in an iron mortar, in the prosecution of some alchemical researches, when the composition exploded, from an accidental spark occasioned by the collision of the pestle and mortar. The former being driven forcibly to a distance, Berthold thence conceived the idea of forming pieces of artillery. Such is the story commonly told of the invention of gunpowder, said to have occurred in the early part of the fourteenth century. There is, however, much discrepancy in the accounts of this discovery; and it is certain that

Roger Bacon, who died in 1292, was acquainted with an inflammable composition similar to gunpowder, the knowledge of which Europeans appear to have derived from the Orientals. See *Gunpowder*.

SCHWARTZBURG, OR SCHWARZBURG; a sovereign principality of Germany, in the interior of Thuringia, and bounded by Saxe-Gotha and the Prussian province of Erfurt. The house is very ancient, and is divided into two lines, Schwartzburg-Sondershausen, and Schwartzburg-Rudoldstadt. In the diet, they have, with Oldenburg and Anhalt, one vote (15th), and in the *plenum* a vote each. The territories of both are hilly, interspersed with fertile valleys. The forests are extensive, and contain mines of iron, alum and cobalt; also quarries of marble, freestone and slate. The religion is Lutheran.

Schwartzburg-Rudolstadt lies further to the south, and borders on the grand-duchy of Saxe-Weimar. Rudolstadt (4000 inhabitants) is the chief town, and residence of the prince. The other principal towns are Frankenhausen and Ilmstadt. Population, 58,000; square miles, 400; revenue, 136,500 dollars; debt, 113,000. Rudolstadt has estates, but Sondershausen is an absolute government.

Schwartzburg-Sondershausen is almost surrounded by the Prussian province of Saxony. Sondershausen (3321 inhabitants) is the chief town, and residence of the prince. The other principal towns are Arnstadt, Breitenbach, and Graussen. Population, 48,106; square miles, 350; revenue, 170,000 dollars; debt, the same.

SCHWARTZENBERG, CHARLES PHILIP, prince of, Austrian field-marshal, born at Vienna, in 1771, served in the early wars of the French revolution, in which he distinguished himself on several occasions. In 1805, he was at the head of a division under general Mack, and at Ulm commanded the right wing of the Austrian forces. After the fortune of the day was decided, he forced his way through the enemy at the head of a body of cavalry. The battle of Austerlitz, at which he was present, was fought against his advice, before Bennigsen and the archduke Charles had come up. In 1808, Schwartzenberg was ambassador to the Russian court; and, in 1809, commanded the rearguard after the battle of Wagram. In the campaign of 1812, he commanded the Austrian auxiliary corps of 30,000 men, in Galicia,—which, however, remained almost entirely inactive,—and at the close of the year, he received the marshal's staff. In 1813, he was appointed to command the army of observation in Bohemia; and after the declaration of war by Austria, prince Schwartzenberg was named generalissimo of the allied forces. (See *Dresden, Russian-German War,* and *Leipsic, Battle of.*) After Napoleon's return from Elba, he commanded the allied forces on the Upper Rhine; but the contest was decided at Waterloo, without his participation. The prince died in 1820. Many of his military dispositions have been censured; and Napoleon declared that he could not command 6000 men.—See Prokesch, *Mémoirs of Prince Schwartzenberg* (in German, Vienna, 1823).

SCHWARZ, OR SCHWARTZ (German *black*); an adjective which begins a great number of German geographical names.

SCHWARZWALD. See *Black Forest.*

SCHWEIGHAUSER, JOHN, one of the most distinguished German philologists, was born at Strasburg, in 1742, and became professor of the Greek and Oriental languages in that place in 1778. He published valuable editions of Polybius, Athenæus, Arrian, Epictetus, &c., and especially of Herodotus (6 vols., 1816). His academical writings were published in 1807 (2 vols.), and in 1824 appeared his *Lexicon Herodoteum* (2 vols.) He died in 1830.

SCHWEITZ, OR SCHWYTZ; a canton of Switzerland, bounded N. W. and N. by Zug and Zürich, E. by Glarus, S. by Uri, and W. by Underwalden and Lucerne; population, 36,040, nearly all Germans, and Catholics; square miles, 336. It is surrounded by Alpine mountains, between which are a few valleys, tolerably fertile. The chief mountains are Mytten, 6300 feet high; Righi, 6000; and Pragel, 5500. The soil is better adapted to pasturage than tillage, and the wealth of the inhabitants consists in cattle. It was here that, in the beginning of the fourteenth century, the standard of Swiss liberty was first erected; and this petty canton had the honour of giving its name to the confederation. (See *Switzerland.*) The capital of the canton, of the same name, two miles from lake Lowerz, is situated in a fertile valley, between the mountains of Mytten and Righi; population, 5000.

SCHWERIN. See *Mecklenburg-Schwerin.*

SCHWERIN, KURT CHRISTOPHER, count, Prussian field-marshal, was born in 1684, in Swedish Pomerania, and, after having served in the Dutch armies, entered the Prussian service in 1720, with the rank of major-general. Frederic II., who ascended the throne in 1740, esteemed him very highly, created him field-marshal, and count, and gave him the command of his forces in the Austrian succession war (1741). In 1756, he was again placed in command of one of the Prussian armies, and fell at the head of his troops, before Prague, in 1757. See *Seven years' War;* consult also Frederic's *Histoire de mon Temps.*

SCILLY ISLANDS; a group of islands, situated at the western extremity of the English channel, about thirty miles westward of the Land's End, and belonging to the county of Cornwall. Their total surface is about 4700 acres; and of St Mary's, the largest, 1640 acres. There are only six among them of any importance, namely, St Mary's, Tresco, or Trescow, St Agnes, St Martin's, Breyer, and Sampson, the rest, eleven in number, being barren rocks, interspersed with shoals and quicksands, which have often proved fatal to mariners. It has been conjectured that these islands were, at a remote period, joined to Cornwall, and that the intervening ridge of land was submerged by an earthquake, or by the violence of the sea. The inhabitants are chiefly engaged in agriculture, in fishing, and formerly in the manufacture of kelp. The crops principally raised are barley, pease and oats, with a small proportion of wheat. The language spoken in the Scilly Islands is an intermixture of the west country dialect with common English. On several of the islands are remains of what are commonly called Druidical antiquities. The situation of the Scilly group renders the islands important for the assistance or supply of ships bound to England from the south; and they were therefore appointed as a place of rendezvous by the Admiralty about twenty years age. On St Agnes is a lighthouse, lat. 40° 53′ 30″ north. Population of the Scilly Islands in 1831: St Mary's, 1311; Tresco, 470; St Agnes, 289; St Martin's, 230; Breyer, 128; and Sampson Isle, 37:—total 2465.

SCIO (Chios, called by the Turks *Saki-Adassi*), one of the largest and richest islands of the Grecian archipelago, contains 392 square miles. It is separated from the continent of Asia on the east by a narrow strait (*Stretto di Capo bianco*), and has a healthy climate. But little attention is paid to raising grain or keeping cattle, but it produces abundantly silk, cotton, turpentine, marble, fruits, and particularly wine (Chian wine was celebrated even in antiquity), oranges, lemons and mastic (to the amount of eighty tons a year, valued at 800,000 piasters). The beauty of the females is celebrated. On this island, remains of ancient art are still to be seen; among others, the school of Homer, the fountains of Helen, the ruins of Delphinium, Cardamissa, and a temple of Neptune. The chief city, of the same name, on the eastern coast of the island, has a harbour, spacious, but very difficult of access, and about 20,000 inhabitants. The population of the whole island was estimated, before the Greek revolution, at upwards of 120,000; mostly Greeks. When Greece revolted, in 1821, the Sciots attempted to drive away the Turkish garrison. The Turks threw themselves into the citadel, and continued the contest with the inhabitants till 1822, when a Turkish fleet landed, under the command of the capudan pacha, and a massacre began, in which, after many thousands had fallen in battle, from April 14 to 20, 40,000 persons, without distinction of age or sex, were put to the sword, and some of them cruelly tortured. The fugitives escaped to the mountain fastnesses or to the opposite continent, or, in Greek vessels, to the other islands. At length the Greek fleet attacked the Turks, and destroyed several of their vessels with fire-ships. The capudan pacha was obliged to retreat, half consumed, from his ship lying in flames, and to land upon the shore, where he had, a short time before, murdered the innocent without compunction, and where he now perished in the greatest tortures. But the Greeks were not strong enough to occupy the island, and the vengeance of the Turks now assailed the mastic villages, the people of which had remained quiet during the revolution. June 19, 1822, these villages were burnt, and 30,000 Christians murdered or sold into slavery. In March, 1823, the population of the island was only 16,000. Scio from that time has remained under the dominion of the Turks. Fabvier's attempt to reconquer Scio, in 1827, failed. A part of the unhappy Sciots fled to the ships of the French admiral De Rigny.—Before the devastation of Scio, there was a school in its chief city, and it was the see of a Greek and Roman bishop. It has been lately reported that the sultan had ordered the restoration of the property and estates of the Sciots without reservation. In 1770, a naval engagement took place between the Russians and Turks, between this island and Tschesme, which lies on the opposite coast of Natolia; a part of the Turkish fleet was burned by the Russians.

SCIOTO; a river of Ohio, the second in size of those which have their whole courses in this state. Its general course is south; its length about 170 miles; and it flows into the Ohio river by a mouth 150 yards wide, between Portsmouth and Alexandria. It is navigable for boats about 130 miles, and is connected with the Sandusky by a portage four miles long. The country watered by this river is known by the name of the Scioto country, and is remarkably fertile. On the eastern bank, about five miles above Columbus, is an almost inexhaustible quarry of marble, which receives a good polish, and is of a beautiful gray colour.

SCIPIO AFRICANUS (the elder), PUBLIUS CORNELIUS. The Cornelian family was rich in great men, among whom the conqueror of the formidable Hannibal is particularly distinguished. His father, who bore the same name, fought without success, but not without honour, against the Carthaginians, in the beginning of the second Punic war. In the bloody engagement on the river Ticinus, in Upper Italy, the young Scipio, hardly sixteen years old, took an active part, and is said to have saved the life of his wounded father. From the still more fatal battle of Cannæ (B. C. 216), he escaped with the remains of the conquered army. The wreck of the cavalry, having assembled at Canubium, chose him for their commander, and he led them back to Rome. Here his remarkable firmness induced a company of young men of distinction, who had resolved to flee from Italy in despair, to remain and defend their country. With his drawn sword he stepped boldly among them, and threatened to kill whoever should refuse to take the oath that he proposed. Astounded by his boldness, they did as he desired, and aided to save Rome. Such spirit met with public honour. At the age of twenty, he was made curule edile, and, a few years after, was appointed proconsul in Spain. Here he overcame the enemy, not merely by his courage and conduct, but also by his magnanimity and kindness. His first successful enterprise of importance was the conquest of New Carthage. With great boldness, he attacked the city on the side washed by the sea, which was almost defenceless, and easiest to be surmounted, with 500 of the most courageous soldiers, who waded through the low water at ebb tide, took one of the gates by storm, and, while the troops who were to assail the city on the land side, were storming other parts, the enemy were so terrified that they hastened into the castle, and quickly surrendered this hold also. The Africans who were taken he sold for slaves; the Spaniards received their liberty. This treatment made a deep impression on the latter, and they separated from the Carthaginians. He gained still more esteem among the warlike Celtiberians, by restoring the beautiful bride of the young prince Allucius, who was brought to him as a prisoner, and who had made a deep impression on his heart, as soon as he heard of her being betrothed to the prince. The ransom, which her overjoyed parents urged upon the conqueror, he bestowed upon the youthful pair. Allucius, as a token of his gratitude, immediately entered the Roman service with a body of chosen troops, and rendered important service. The next year, Scipio totally defeated Asdrubal, Hannibal's brother, notwithstanding his advantageous position, and compelled him to retreat to the Pyrenees. Thus the Carthaginians lost still more adherents in Spain. A near relative of Masinissa, king of Numidia, who was among the prisoners, he liberated, and conferred on him rich presents. This kindness procured for him the favour of the Numidian monarch, and led to the advantageous alliance which Rome soon after concluded with this powerful prince. The title of *king*, which the Spaniards offered to the victorious general, he steadfastly refused. He now laboured to reduce the disaffected tribes in the interior of Spain. In the mean while, the Carthaginians collected a fresh army, which was led by Mago and Hanno. Scipio attacked them, and, after a long and bloody engage-

ment, destroyed the greater part of them. The remainder, abandoned by their commanders, were allowed to retire undisturbed, in consequence of the intercession of Masinissa. Leaving his army in Spain, he now went to Africa, to induce Syphax, king of Massæsylia, to become the ally of Rome; in which he succeeded. After his return, he chastised the cities which had revolted during his absence. A short time after, he was attacked by a disease, which nearly cost him his life, and induced several Spanish tribes to revolt again from the Romans; even two legions in his own army mutinied. But Scipio recovered, and by his energy and prudence quelled the disturbances. He also obtained possession, by negotiation, of the valuable city of Gades.—Thus the Carthaginians were wholly driven from Spain, and the greatest part of that country was subjected to Rome. The general entered Rome in triumph, amid the loudest acclamations of the people. Scarcely had he arrived, before he petitioned the senate for permission to conduct an army to Africa, that he might attack the enemy in their own country. In vain did Fabius Maximus exert his influence and eloquence to frustrate the design. Scipio was empowered to go to Sicily with an army and a fleet, in order, after mature deliberation on the means of effecting a landing on the coast of Africa, to execute the plan which he had formed. He arrived successfully at the island, and dispatched his friend Lælius, with a detachment of troops and of the fleet, to the enemy's country. On landing, Lælius found the country almost destitute of soldiers, took and plundered several rich cities, laid waste the fields, and gained over Masinissa to the designs of Scipio. At the approach of the hostile fleet, he returned, laden with booty, to Sicily. Scipio now laboured with redoubled activity to equip the troops for his great enterprise; and then hastened to the shores of Africa. His unexpected arrival spread terror among the Carthaginians, who were without an army or a good general. But they succeeded in detaching the powerful Syphax from the Roman alliance, and he came with an army of 60,000 men to their aid. Towards winter, the Romans were forced to retire to a distance from the city by the superiority of the enemy: the negotiations for peace produced no result. The proconsulate of Scipio in Africa, therefore, was prolonged, till the war should be terminated. The following spring, the affairs of the Romans took a more favourable turn. The camp of Syphax was assailed, and his whole army destroyed; Asdrubal suffered a similar fate. The defeat was dreadful, and none escaped but the commanders, with a few attendants. Nevertheless, the Carthaginians collected a new army with wonderful rapidity; but it was equally unable to withstand the Romans. Masinissa, associated with Lælius, had again defeated Syphax, and taken him prisoner. The beautiful Sophonisbe, the daughter of Asdrubal, by whom Syphax had been gained over to Carthage, Masinissa longed to marry. Fearing the effect of her charms, Scipio commanded her to be brought to the camp as a Roman prisoner. To avert such a disgrace, the king persuaded her to swallow poison. An armistice was now brought about between the Romans and their enemies; but the latter violated it. Hannibal had returned from Italy, to save his country, if possible; but he had now only the wreck of his once formidable army. His spies, who fell into the hands of the Romans, Scipio ordered to be led through all parts of the Roman camp, and then suffered them to return. Hannibal wished for an interview with the Roman commander; and not far from Zama, the two greatest generals of their time met (B. C. 202). They approached each other, for the first time, in the presence of their respective armies. For a long time they gazed upon each other in silence; then Hannibal advised a peace, and spoke of the fickleness of fortune. Scipio required of the Carthaginians unconditional submission; Hannibal promised to give up all the foreign possessions. This was not satisfactory to the Roman; and the generals separated and prepared for an engagement. The two armies fought with ardour; but their strength was unequal. Scipio had an excellent and well-disciplined infantry, and the numerous and valiant cavalry of Masinissa. Hannibal's troops, on the contrary, were mostly raw soldiers, or mercenaries. These fled at the first onset, and the veterans alone defended themselves with firmness. Their general stood by their side, as usual, to encourage their exertions. The Romans assailed them in vain, till Masinissa and Lælius attacked them in the rear. They now gave way, and nearly all fell victims to their perseverance. Hannibal scarcely succeeded in saving himself. He now advised a peace, which was granted on very hard conditions. Scipio's return through Italy to Rome resembled a triumphal procession; every one was eager to see the conqueror. At the gate of the city he received the congratulations of his fellow-citizens; and then followed the most magnificent triumph which Rome had ever witnessed. The spoils were immense. One hundred and twenty thousand pounds of silver were carried in the procession, to be deposited in the public treasury. The columns which the Romans proposed to erect in honour of Scipio he declined, but received the surname of *Africanus*. After this, he discharged, in a praiseworthy manner, the office of censor; but he lost the favour of the people, because he defended with zeal the pretensions of the senate. Afterwards he became his brother's lieutenant, when the war broke out with Antiochus, king of Syria, and went to Greece, and thence to Asia. Here he had the misfortune to see his only son fall into the hands of the enemy. As Antiochus wished for peace, he sent ambassadors to the Roman commanders, and promised the afflicted father that his son should be restored without a ransom. Scipio declared that he accepted their offer with gratitude, but warned the envoys not to imagine that he could be thus bribed to violate his duty. Nothing but complete submission could purchase peace. Soon after, Scipio was taken sick, and obliged to leave the army. As soon as Antiochus heard of it, he sent back his captive son without any conditions. With tears of joy the father embraced him, and immediately sent his thanks to Antiochus, and advised him not to encounter the Romans; but his advice was neglected. Nevertheless, he procured the defeated king (B. C. 189) tolerable conditions of peace. After his return from Asia, Scipio retired into private life. Here he experienced with grief the ingratitude of his fellow-citizens. Cato the Censor, the inveterate enemy of the Scipios, by constant accusations, procured an order for Scipio to be brought before the public tribunal, to give an account of the money which he had received. He appeared, showed the people his accounts, and then tore them in pieces in their sight. "This is the day," he exclaimed,

with a firm voice and a calm countenance—"This is the day when Hannibal was beaten and Carthage overcome. Why waste the time in words; the gods expect us in the capitol. Follow me, Romans, and let us offer them our thanks." The people were filled with shame, followed him directly, and left the accusers in the forum alone. Notwithstanding this, Scipio was summoned before the tribunal a second time by his enemies. He did not appear, but left the ungrateful city, and retired to his villa at Linternum. As he was still persecuted, and his rural quiet disturbed, Tiberius Gracchus, the eloquent tribune of the people, at length undertook his defence, and showed the Romans the baseness and injustice of their conduct. The persecutions now ceased; but Scipio soon fell sick, and died in his retirement. He told his wife to have these words engraved upon his monument: "Ungrateful country, thou shalt never possess my bones." He died three years after he had left Rome, in the year of the city 571 (B. C. 183). The same year, Hannibal, the most dangerous enemy of the Romans, died in Bithynia.

SCIPIO, Publius Æmilianus, surnamed Africanus the younger, son of the famous Paulus Æmilius, who conquered the powerful Perseus, king of Macedonia, was adopted by the son of the great Scipio. He began his public career at the age of thirty, when the Roman senate was about to despatch a new army to repress the disturbances in Spain. Exasperated by the constant failure of the wars against the Spanish tribes, the people obstinately refused to serve. At this juncture, Scipio came forward, and by a spirited and powerful harangue, made such an impression on the public mind, that a multitude of Romans of all classes voluntarily enlisted. B. C. 152, he accompanied the consul, Luc. Licinius Lucullus, to Spain, as legionary tribune, and, by his disinterestedness, courage, affability, and firmness, gained the love and esteem of the army. He acquired peculiar respect by conquering a gigantic Spaniard, who had long irritated the Romans by his arrogant challenges. By his magnanimity and kindness he obtained more honourable victories over the hearts of the Spaniards. But Lucullus viewed the young hero with a jealous eye, and, in order to remove him from the army, commissioned him to obtain elephants from Masinissa, in Africa. He was entertained by the king with the greatest distinction, fully accomplished the object of his mission, and returned to Spain. A few years after this, he went to Africa a second time, at the commencement of the third Punic war, in the year of Rome 605; B. C. 149. He served under the consul M. Manlius Nepos, and, by his courage and vigilance, rendered important services to the cause of the Romans. When, owing to the negligence of the consul, the Carthaginians, in this campaign, suddenly fell upon the camp, Scipio saved the army from destruction by coming unexpectedly upon the rear of the enemy, and forcing them to retire. A short time subsequent to this event, the same imprudent consul attacked Asdrubal in a position unfavourable for the Romans, and was obliged to retreat. Hotly pursued by the enemy, he would have suffered a great loss, had not Scipio confronted the pursuers with a body of 300 horse, and kept them in check till the rest of the troops had passed over the river. But a few hundred of the Roman foot-soldiers were still behind. No sooner had Scipio perceived their condition, than he hastened over the river with a detachment of cavalry, took possession of a piece of rising ground, attacked the enemy, and thus enabled the Romans to escape with only a trifling loss. He returned in triumph to the Roman camp, crowned by the grateful soldiers, who owed to him their safety, with a wreath of grass, woven on the place where they were rescued. By this proof of courage and conduct, Scipio gained universal esteem and admiration. Even the severe Cato was loud in his praise, and prophesied at his death, that by him alone could the proud rival of Rome, Carthage, be destroyed. Manlius, his commander, could not forbear to recommend the young hero, in the most emphatic manner, to the senate. Hence, the next year, contrary to the usual custom, he was unanimously chosen consul, and leader of the forces against the Carthaginians. Accompanied by Lælius, the worthy son of the Lælius renowned in the second Punic war, who was the intimate friend of the elder Scipio, and by Polybius, the Greek historian, he went a second time into a hostile country. Directly after his arrival, he rescued a large body of Roman soldiers, who were surrounded, and whose destruction appeared certain. Having beaten and driven back the hostile armies, he began to make serious preparations to reduce the city, which was extremely strong, and laboured to cut off all the supplies of troops and provisions, both by land and sea. But his design was frustrated by the desperate efforts of the besieged. With incredible activity, the Carthaginians excavated a new harbour, and thus opened a connexion with the troops collected without the city. And, strange as it may seem, a new fleet of fifty ships was built, which violently attacked the fleet of the Romans; and, after a protracted and stubborn contest the Romans gained no decisive victory. An attempt which they made to storm an important rampart near the city, totally failed, as the enemy, swimming through the intervening water, set fire to the Roman machinery, and repelled the Romans themselves with fire-brands. Some time after, indeed, the consul made himself master of this rampart, and kept possession of it; but he was unable to take the city that year, and the approach of winter put a stop to military operations. The next season, he attacked the hostile army, which was strongly intrenched, with a superior force, conquered and destroyed them. He then advanced against the city, and, after twenty days, the genius of the general, and the perseverance of the devoted troops effected the reduction of Carthage (q. v.) B. C. 146. Lælius, the valiant friend of Scipio, first ascended the walls of the city with his soldiers. With unparalleled fury the Carthaginians resisted the Romans, even after they had entered the city; and much blood was spilt before the conquerors could fully reduce it. By the express command of the Roman senate, this rival of Rome, once so powerful, was demolished and burnt. This spectacle affected Scipio to tears. He was honoured with a magnificent triumph at Rome, after the war was terminated, and was surnamed the *younger Africanus*. After he had lived for some time as a private citizen, he was sent with other ambassadors to Egypt, to king Ptolemy Euergetes, where he was much admired for his genuine Roman moderation, and his noble thirst for knowledge. When he returned (B. C. 142) he was elected censor. In this office he frequently urged the degenerate Romans to return to the simplicity and frugality of their fathers; he even punished severely some respectable citizens

for their extravagance. B. C. 134, he entered on his second consulship, in order to put an end to the war which had long been carried on with Numantia, a bravely defended city in Spain. On his arrival in the enemy's country, his first labour was to reduce the disorderly, enervated troops to their former state of discipline. But before he could effect this, the year was gone, and Numantia still untaken. His term of command was therefore prolonged. Reinforced by troops and elephants, which were brought to him from Numidia by the young Jugurtha, afterwards the dangerous enemy of the Romans, he commenced the siege with great energy. For his conquest of this powerful city, a triumph was decreed to Scipio, and he received the surname of *Numantinus*. He suffered like the elder Africanus, in the last years of his life, from the ingratitude of his countrymen, and made himself many enemies among the people by opposing the agrarian law. (See the article *Agrarian Laws*.) He retired, therefore, with Lælius, his constant friend, to an estate near Naples, and lived in tranquillity. But having returned to the city, and become suspected of aspiring to the dictatorship, he was found one morning dead in his bed, with marks of having been strangled. It was generally believed that his wife, Sempronia, a sister of the Gracchi, who were the ardent supporters of the agrarian law, had a share in the deed. Papirius Carbo, and C. Gracchus, the tribunes of the people, were likewise bitter enemies of his. After Scipio's death, there was found in his house only two and a half pounds of gold, and less than thirty-two of silver, so great had been his liberality and moderation. He died B. C. 129, at the age of fifty-six years. All the Romans, who knew his great virtues, lamented his death. Like the elder Scipio Africanus, he was a Roman of the highest stamp; he united courage with magnanimity, wisdom with humility, patriotism with moderation and forecast, and benevolence with unshaken probity.

SCIRE FACIAS; a judicial writ, most commonly used to call a man to show cause to the court, whence it issues, why execution of judgment passed should not be made out.

SCIRON; a celebrated robber in Attica, who plundered the inhabitants of the country, and kicked them from the rocks into the sea while washing his feet. Theseus attacked him, and treated him as he treated travellers. According to Ovid, the earth, as well as the sea, refused to receive the bones of Sciron, which remained for some time suspended in the air, till they were changed into large rocks, called *Scironia Saxa*, situated between Megara and Corinth. Bottiger thinks he was the same as Procrustes (q. v.), and Sinis, or Scinis.

SCIRPUS; an old Latin name for the bulrush and other plants of that tribe, which, on account of their soft flexible stems, destitute of knots, are useful for tying things together or for making baskets. It is a very numerous genus. The common bulrush is frequent in clear waters, and about the borders of rivers throughout Europe; also in North America and New South Wales. The roots are thick and stout, creeping under water in the deep mud; stems four or five feet, or more, in height; naked, smooth, round, dark green, tough, and pliant, spongy within, useful for packing and thatching, and especially for platting into the bottom of chairs, their base inverted with several sheathing scales, partly ending in leafy points.

SCIRRHUS; a hard tumor in any part of the body, generally proceeding from the induration of a gland, and frequently terminating in a cancer.

SCISSORS. See *Cutlery*.

SCLAVONIA, a kingdom under the government of the emperor of Austria, is bounded on the west by Croatia, and separated, on the three other sides, by the Drave, Save and Danube, from Hungary, Servia and Bosnia. Under the Romans, it formed a part of Pannonia. It derives its present name from the Sclavi, who settled there in the seventh century. In the tenth century, it came under the dominion of Hungary, and, in 1526, under that of the Turks; but was subjected to the house of Austria by the peace of Carlowitz, in 1699. It contains 6530 square miles, and is traversed from one extremity to the other by a chain of mountains which rise in Croatia, and run from the west to the east. It abounds in forests, which is the cause that the climate is cooler than might be expected in this latitude. In fertility of soil, Sclavonia is equal to Hungary, with the exception of the mountainous districts. Its productions are, besides poultry and the common domestic animals, venison, fish, bees, a great quantity of silk, corn (although agriculture is still very backward), melons, tobacco, and an abundance of wine. Fruit is produced in great abundance, particularly plums, of which brandy is made, and a great quantity of nuts: both articles are exported largely, particularly the plums, which form a principal article of consumption and trade. There are, likewise, considerable forests of oaks, which are used for tanning; and likewise forests of chestnuts. The mountains, most probably, contain minerals; but there is no mining carried on. Mineral springs are abundant; coals have likewise been found. The inhabitants (528,000) belong, for the most part, to the Sclavonian stock: but there are likewise many Magyars, Walachians, Gypsies, Germans, Greeks, Jews, and Armenians. The Roman Catholic, the Greek Catholic, and the Greek non-united church, are the most numerous religious denominations. There are but few Protestants. Manufactures are almost entirely unknown amongst the inhabitants. Until 1745, the country was only divided into military districts, but since that time a beginning has been made towards giving some of them a civilized constitution. These form three counties. The military district, or generalate, consists of Brod, Peterwaradin, and Gradisca. It is under a military government, at the head of which is the commanding general in Sclavonia, who resides at Peterwaradin. The counties are subject to the kingdom of Hungary, and each has its governor and vice-governor. Most of the citizens of the towns, as also the peasants, are bondsmen. Many of the proprietors of estates possess domains containing from 84 to 335 square miles.

SCLAVONIANS (from *slava*, fame); one of the two European families of nations which have retained their original character. Later than the Germans, the Sarmatians emigrated from Asia to Europe. From them descended, according to Ptolemy, the Wends, who extended themselves, in the fourth century, into the great plains along the Vistula, and contended with the Goths in the neighbourhood. Jornandes, an author of the sixth century, says, that the Wends were divided into several branches, of which the most general names were *Sclavini* and *Antes*. Hence he distinguishes three tribes of one stock, by the names of *Veneti*, *Antes*, and *Sclavi*. The name of the chief branch, *Wends*, remained peculiar to the nations which afterwards inundated

the north-eastern countries of Germany; the Sclavonians occupied the country between the southern bank of the Vistula and the Dniester; the Antes between the Dniester and the Dnieper. The irruption of the Huns into Europe freed them from the yoke of the Goths, and the death of Attila from that of the Huns. They were afterwards urged by the same impulse which impelled the German tribes to the south and west, while at the same time Scythian or Mongolian-Tartar hordes came down upon them, almost uninterruptedly, from the Wolga and the Caucasus, and drove them from the northern banks of the Black sea, some to the north, and others to the west. In the sixth century, the Wends, strictly so called (afterwards the Northern Sclavonians), took possession of the regions on the Elbe, which had been deserted by the Goths and Suevi, while the proper or eastern Sclavonians occupied the banks of the Danube to the Norican and Julian Alps. But the two tribes intermingled, and there arose two great Wendish Sclavonian unions; that in Great Croatia (East Bohemia, Silesia, and Lodomiria), and that in Great Servia (Misnia, West Bohemia, and Moravia). Under the yoke of the Franks and the Avars, they split into various bodies which were united, about 623, by Samo, the Frank, into a powerful empire; but after his death, it again fell to pieces, and formed numerous waywodeships, from which arose new national names before the end of the sixth century. All this rests only on tradition. In the eighth century, St Boniface led some Sclavonic tribes into the vicinity of Fulda, Bamberg, Würzburg, and Bayreuth. In Bohemia reigned Libussa, the founder of Prague, about 722, and Przemisl, first duke of the Bohemians, afterward called Czechen. The tribe of the Liaches (probably a branch of the Antes) retired from the eastern shore of the Danube to the Vistula, and, under the name of *Polijanes*, diffused themselves abroad in modern Poland. Branches of this race, the Pomeranians and Lutitzians, advanced to the north-eastern part of Germany (Pomerania, Lower Lusatia). The Wilzians, a branch of the Wends, spread from the Oder through the Mark to the other side of the Elbe; and the Sorbians, after 640, settled in the territory deserted by the Hermunduri, on the Upper Elbe (the present Misnia, as far as to the Saale), and the Havel. The Obotrites, still later, became powerful in Modern Mecklenburg. The Wends contended, on the west, with the Thuringians and Franks. Charlemagne sought the alliance of some of these tribes, and conquered others. In the war with the Avars, he subdued the southern Sclavonic territories, Carinthia, Stiria, and Carniola, where he and later emperors founded German Margraviates. (See *Austria*.) The Northern Wends were subsequently driven, by the Saxon kings of Germany, beyond the river Elbe; and in the tenth century were formed the Margraviates of Misnia, Lusatia and Brandenburg. About the same period the Antes who still remained at the mouth of the Danube, were exterminated by the irruptions of the Avars, Bulgarians, Hungarians, and others, or driven to distant lands. The name of *Antes* disappeared. Probably some of this race retired to the Dnieper and to the Wolchow. On the former they built Kiev, and on the latter Novgorod, the two Sclavonic pillars of the Russian state. (See *Russia*.) The proper Sclavi maintained their position on the northern bank of the Danube, and often invaded and devastated the Roman provinces, defended their independence against the Bulgarians and Avars, received emigrants from great Servia and Great Croatia, and, in connexion with them, founded Sclavonic settlements in Dalmatia (see *Dalmatia*, and *Illyria*), Servia, Croatia, and Sclavonia. On the fall of the kingdom of Great Moravia, at the close of the ninth century, that of the Obotrites arose (in Lauenburg, Mecklenburg, &c.), under king Gottschalk (he was assassinated in 1066), and king Henry (he died 1126), till, in the twelfth century, it was conquered, partly by Saxon dukes (see *Henry the Lion*), and partly by the Danish kings. Bohemia retained its Sclavonic line of princes, but acknowledged the sovereignty of the German emperors till 1306. Russia and Poland slowly unfolded into independent states; while on the other hand, the Sclavi on the Danube, the Sclavonians, the Bosnians, and Croatians, were never powerful, but almost always in subjection to the adjacent nations—the Greeks, Hungarians, Venetians, and Turks.

Meanwhile, centuries of emigration and war had transformed the democratic governments of the Wendish (Sclavonic) tribes into limited monarchies. Their first princes were the oldest members of the tribe; afterwards the leaders of their armies, styled *gospodin*, or *hospodar*, *knees*, *waywode*, *ban*, *kral*, &c. The heathen priests exercised a great authority over the rulers, and the high priests at Arcon on the island of Rügen, governed all the Wendish tribes. The principle deity of the Sclavonians was called *Bog*, and his wife *Siwa*. They also worshipped good spirits (*Belbog*) and evil spirits (*Czernebog*). Almost every village had its divinity. At Rügen, Swantewit was chiefly revered; the Obotrites worshipped Radegast; the Havlers, Herowit. Among the Apostles of the Sclavonians, in the ninth century, Cyril and Methodius are worthy of notice. As the kings of the Sclavonians were hereditary monarchs, and all the nobles might be said to participate in the government, the common people became, gradually, more and more oppressed, and sunk, at length, into complete slavery. They remained, after a dreadful war, in the same condition under their German conquerors, who forcibly introduced Christianity among them in the tenth and eleventh centuries. After the fall of Henry the Lion, however, in 1180, some Wendish princes succeeded in holding their lands as immediate vassals of the emperor. Pribislaw, the son of Niklot, the last Wendish king of the Obotrites, assumed the title of prince of Mecklenburg, from the ancient capital of his country; and his posterity still reign in Schwerin and Strelitz. Thus the family of Niklot, in Mecklenburg, is the only Sclavonic (Wendish) house of princes remaining in Europe. Bogeslaw and Casimir maintained themselves as princes of the empire in the duchies of Pomerania, from the Oder to the Vistula. In Pomerania Proper, the Wendish house of princes, notwithstanding many divisions, did not become extinct till 1637. German colonists settled in the Wendish territories which were depopulated by war; and thus their language and manners, in a great measure, disappeared (partially as early as the fifteenth century, e. g. on Rugen;) but bondage still remains. The old Wendish stock, however, has maintained its existence in several parts of Eastern Germany, as in Lusatia and Altenburg. Since the fall of the Wendish empire, the name of Sclavonians has become more general. The inhabitants of Poland, Galicia, Russia, Bohemia, Moravia, Sclavonia, Servia, Bosnia, Croatia, Illyria, and Dalmatia, are still, in a great

measure, Sclavonians. The whole number of them is estimated at 50,000,000. Five millions of these belong to the southern Sclavonians; and their dialect is called *Illyrian*, or *Servian*. The Servians (Rascians) are, next to the Czeches, the most civilized and powerful of all the southern Sclavonians, zealous friends of the Greek church, and brave defenders of their rights. Suroweicki describes the Sclavonians, as a nation employed wholly in agriculture and the raising of cattle, and who fight only in self-defence. The Sclavonians, in general, are courageous, lively, and hospitable, attached to their national manners and national fame. Though fond of spirituous liquors, they are diligent and intelligent; but in mental cultivation they have remained, with the exception of the Bohemians and the Ragusans in the middle ages, behind the Germans, because they are scattered over a wide extent of country, and have comparatively little intercourse with other nations, are engaged in frequent wars, and have unfavourable institutions of government. The Sclavonic government has been at all times a republican oligarchy. The different tribes were subject to chieftains (called *zupany* and *woiwody*) and independent of one another. In no Sclavonic territory have feudal laws bound the inferior lords of the soil; no where has the right of property given industry and prosperity to the great body of cultivators who have remained always vassals; no where has the Roman code, or the civilization of the West, become deeply rooted; for the Germans, on whom the Sclavonians bordered, were the objects of their mortal hatred, being always hostile neighbours, and often their oppressors. There were some cities of Sclavonic origin, which carried on an active trade; as Novgorod, Kiev, Pleskow, in Russia (Dantzic, in Pomerelia, was of Danish origin; and the existence of Wineta, the splendid commercial city of the Wends, which was situated in Pomerania, on the river Divenow, near Wollin, was destroyed by the Danes, and then sunk in the sea, is extremely doubtful, according to Gebhardi's History of the Wendish-Sclavonic states); but no one of those cities had a long duration. Julin (now Wollin), in the tenth, eleventh, and twelfth centuries, was a rich and populous mart, till, in the last part of the twelfth century, it was demolished by the Danes. Ragusa, the only Sclavonic republic, maintained its existence more than 1100 years —from 656 to 1806. It was, moreover, the first nurse of Sclavonic literature. With regard to the older history of this nation, we refer the curious to Surowiecki's valuable work, On the History of the Sclavonic Tribes (in the Polish language, Warsaw, 1824), where the author shows from Procopius, Jornandes and Sidonius, that the Sclavonians are the same with the Veneti.

Sclavonic Languages. The Sclavonic language, which, both in its roots and the words formed from them, bears a strong resemblance to the Greek, Latin, and Teutonic, is spoken by more than sixty nations, from the countries on the east of the Adriatic sea, to the shores of the Icy ocean, and from the Elbe to the Russian islands of the Pacific. In all of the Sclavonic dialects appear traces of an early, though imperfect, civilization, to which the race had attained in its primitive seats. The Sclavonians are thus shown to have been acquainted, not only with agriculture and mining, but with navigation; and the civilization of the whole people was promoted by the intercourse which subsisted between the different cities. The origin of the Sclavonic language must be looked for in India: the Devanagari (see *Indian Languages*) has fifty-six letters; the old Sclavonic alphabet consists of forty-six; the Bohemian of forty-two. The religious rites of the Sclavonians resembled those of the Hindoos, and their women, like those of the latter, were accustomed to burn themselves on the funeral pile of their husbands. The Sclavonic has even yet preserved many roots of Indian origin. The Croatian traveller Brezowski declares that he was able to understand the Hindoos as far as to Cochin-China, and to render himself intelligible to them. The Sclavonians are divided by their dialect into two great classes. To the first belong the Russians, Illyrians, Montenegrins, Bulgarians, Servians, Bosnians, Dalmatians, Croatians, and the Wends in Carniola, Carinthia, Stiria, and in the county of Eisenburg. To the second belong the Bohemians (Czechen, or Tschechen), Moravians, the Slowacs of Hungary (about 4,000,000), the Upper and Lower Lusatians, the Poles, and Silesians. It is a disadvantage to Sclavonic literature, that no single dialect has prevailed as the literary language; and that, owing to the great extent of country over which the Sclavonic race has spread, and the diversity of its political and religious institutions, several dialects have become written languages. It is remarkable that the Sclavonians have preserved their national character, and have flourished to such a degree, when we reflect that they have been the first to suffer from the storms which have broke over Europe, from invading hordes of barbarians. They were exposed to the first fury, not only of the Teutonic nations, but also of the Tartars, Huns, and Turks. The Sclavonians of Prussia, Brandenburg, Pomerania, Saxony, Altenburg, Misnia, and Silesia, yielded up their nationality only after a long struggle, and in consequence of the severest measures. Thus Frederic of Brandenburg prohibited the teaching of the Sclavonic language under pain of death, and introduced the German by force. The Lusatians still preserve their language and manners. According to Dobrowsky, the primitive Sclavonic is extinct. It was divided into two chief dialects—the Antian, or that of the Antes, or eastern Sclavonians; and that of the western Sclavonians, or the Sclavian. To the Antian stock belong, according to this author, three branches: the Russian (divided into the Great Russian and the Little Russian), the Servian and Croatian; and to the Sclavian, the three branches of the Bohemian, the Servian, and the Polish. In general, the Sclavonic is less completely developed than the other European literary languages; but the Sclavonians were the first of the European races to translate the Bible into their mother tongue. The Russian and Polish languages comprise literatures of considerable value and extent. (See *Russian Language and Literature*, and *Polish Language and Literature*, under the heads *Russia* and *Poland*.) The Servian or Illyrian language has recently received new cultivation. The Sclavonic dialects of Bosnia and Bulgaria differ little from the Servian. The Carinthian, or Wendish dialect, and the Slowac in Moravia, are nearly related to the Bohemian. The Wendish, in Lusatia, is a mixture of Polish and Bohemian; but in Lower Lusatia it is very different from those and from the Servian. The Bohemian has reached a high degree of cultivation. Prague is the central point of the literature. (See *Bohemian Language and Literature*.) In Schaffarick's History of the Sclavonic Language and Literature, according to its dialects (Buda, 1826), the

author adopts the following division: *A.* The South-Eastern Sclavonic, comprising first, the old Sclavonic, or ecclesiastical language; second, the Russian language and literature; third, the literature and language of the Sclavo-Servians of the Greek church; fourth, the language of the Catholic Sclavo-Servians, with the literature of Ragusa; fifth, the Wendish language and literature; principal dialect, that of Lower Carniola. *B.* The North-Western Sclavonic: first, the Bohemians, or Czeches; second, Slowacs in Hungary; third Poles; fourth, the Sorbians, or Wends, in Lusatia.

SCLEROTICA, in anatomy; one of the tunics, or coats of the eye. See *Eye.*

SCOMBER. See *Mackerel.*

SCONE; a village of Scotland, a little above Perth, on the Tay. It was formerly the residence of the Scottish kings, the place of their coronation, and the scene of many historical events. There was formerly an abbey here. The remains of the palace are now incorporated with the mansion of the earl of Mansfield.

SCORPION (*scorpio*) a formidable insect, allied to the spider, but differing essentially in form. The body is elongated, and terminates abruptly in a jointed tail, armed at the extremity with a curved and very acute spine: under the point of this spine are two small orifices, which serve to give passage to a poisonous fluid. The anterior pair of feet, or *palpi*, are very large, resembling those of the lobster in form, and serve to seize and bear to the mouth of the animal the various insects on which it feeds: the other feet do not differ essentially in form from those of the spider. At the junction of the thorax and abdomen, are two movable plates, having the form of combs, the use of which is not well understood. Several species of scorpion are known, all inhabiting the warmer parts of the globe. They shun moisture, living on the ground in places exposed to a hot sun, and hiding under stones, or in crevices, and, when disturbed, run, rapidly, with their tails curved over their backs. The species of the south of Europe are little more than an inch in length, while some of the tropical species exceed five inches. The sting of the larger ones is very much dreaded, and is said frequently to cause death. In some places, they are so numerous as to become a constant object of apprehension to the inhabitants, and even force them to abandon their habitations. The scorpions may be divided into two sections, viz. those with eight eyes, and those which have only six.

SCOTIA, NOVA. See *Nova Scotia.*

SCOTISTS. See *Duns*, and *Scholastics.*

SCOTLAND; the northern division of the island of Great Britain; is bounded on the south-east by England, (from which it is separated by a line drawn from Berwick along the Tweed and the Cheviot hills, to the Solway frith), and on every other side by vast and stormy seas; on the west by the Atlantic, on the north by the Northern, or Deu-Caledonian sea, and on the east by the German ocean. Excluding its islands, it lies between the latitudes of 54° 40′ and 58° 40′, and longitudes 1° 47′ and 6° 7′ west. Its extreme length, from the Mull of Galloway to Dunnet Head, is 284 miles; its breadth varies greatly, as, in the north, it is only 71 miles between Assynt and Nosshead, and in the south, 134 between St Abb's Head and the point of Knapp. Its territorial surface is about 26,286 English square miles, of which about 290 are fresh water lakes. Including its islands, the extreme latitude of Scotland reaches to 61° 13′, and the extreme longitude west to 8° 18′. The area of the islands is computed at 3212 square miles, so that the total land of Scotland amounts to 29,498 square miles, exclusive of the water.

History.—The history of Scotland may appropriately be divided into five periods. I. From the earliest glimpses of history to the union of the Scots and Picts, under Kenneth the Second, A. D. 843. II. From Kenneth's reign to the death of Alexander the Third, A. D. 1286. III. From Alexander's death to that of James the Fifth, A. D. 1542. IV. From James the Fifth's death to the accession of James the Sixth to the throne of England, A. D. 1603. V. From James' accession to the Union of the two kingdoms, A. D. 1707. The adoption of these periods may seem to be somewhat arbitrary, yet, on consideration, it is presumed each will be found to constitute, in some measure, a characteristic epoch.

I. *Early History, to the reign of Kenneth II.*, A. D. 843.—Before the Christian era, the aborigines of the island of Britain are supposed to have been supplanted by the Celts, who occupied a large portion of the west of Europe. These Celts consisted originally of two vast divisions, namely, the *Gael*, or *Gaul*, who were the ancient inhabitants of all Gaul, and the *Cumri*, or *Cimbri*, who held all Germany. The south parts of Britain, it is supposed, were first peopled by Gael from Gaul, and the north part of Britain, by Cumri, from Jutland. About two hundred years before Christ, the Cumri of Scotland were expelled or supplanted by a Gothic race from Scandinavia, called *Picts* or *Caledonians*. They were driven by the Picts beyond the friths of Forth and Clyde, but till a later period contrived to keep possession of a portion of Clydesdale and Galloway. These Cumri were of the same stock with the Welsh Celts, who passed from the opposite coast of Germany, and forced the Gael, the then inhabitants of England, to seek refuge in Ireland.

There has been much dispute among antiquaries whether, in the first place, the Picts and Caledonians were the same race, and whether, secondly, they were of Gothic origin; but, according to the best authorities, both these points have been very satisfactorily demonstrated. Tacitus describes the Caledonians as being of tall stature, light hair, and blue eyes, and he deduces their Gothic origin from their appearance; the Celts being, on the other hand, a small and dark people, with black eyes and hair.

These Picts or Caledonians were they who so long and successfully resisted the invasions of the Romans. Britain had been several times visited by Roman arms, but it was not till A. D. 75, that they first penetrated into that part of the island which we now call Scotland. Under the command of Agricola, the Roman army had for several years repeated engagements with the Caledonians, until A. D. 84, when the celebrated battle of the Grampians was fought against Galgacus, in which the latter was defeated. The whole open country was abandoned to the invaders, whose progress was stayed by what they termed the Caledonian forest, under which they seem to have vaguely comprehended the vast pine woods of Glenmore and the steep barrier of the Grampians. Their military occupation is attested by the formation of numerous camps, of which that at Ardoch, ten miles north of Stirling, is the most extensive and complete. From these mountain bulwarks the Caledonians rushed

down, and made their name terrible to the conquerors of the world. The Romans endeavoured to resist their incursions, by rearing, at different periods, two walls; one between the Solway and the Tyne, the other between the Forth and Clyde. The first of these walls is called the wall of Adrian, having been erected by that emperor on his visit to Britain, about A. D. 125; the second is called the wall of Antoninus, having been erected during that emperor's reign, about 140. The total length of the latter, which extended from Carron on the Forth to Dunglass on the Clyde, was 63,980 yards, and it was defended by nineteen forts. The whole extent of territory that lay between the walls of Adrian and Antoninus, was every where intersected by Roman roads. But it is doubtful whether the country between the northern wall and the Murray firth was formally erected into a Roman province; though it was traversed by roads of communication, and overawed by military stations. The Romans, finding their conquests in Caledonia burdensome, began to contract the lines of the empire; and, during the reign of the emperor Aurelian, evacuated the military stations beyond the wall of Antoninus. In A. D. 209, the emperor Severus embarked for Britain, attended by his two sons and a formidable army. Upon his arrival, he repaired or rebuilt the wall of Adrian, in order to protect his retreat, in case of accidents. He speedily passed the northern wall, and penetrated into the country of the Caledonians. Unable to oppose the obstinate attack of the Romans, the fugitive Caledonians were compelled to sue for peace, and to surrender a part of their arms and a considerable portion of their territory. The emperor then retired beyond the wall of Adrian, but the barbarians, regardless of the obligations of a treaty, renewed hostilities, in consequence of which Severus sent another army into their country, under his son Caracalla, with orders to extirpate them. Upon the death of Severus, however, Caracalla concluded a treaty with the Caledonians, by which he relinquished the territories they had recently surrendered to his father, and abandoned the forts which had been erected to enforce their submission. The wall of Antoninus was fixed as the northern boundary of the Romans. For about a century after this period, the Caledonian tribes remained quiet. The long residence of the Romans in the island had improved the rude manners of the inhabitants, taught them to desire and cultivate the conveniences of life, and reconciled them to their language and manners.

The emperor Constantinus, in the year 306, found it necessary to repair to Britain in person, to repel the attacks of the Caledonians. The Romans were successful, but their general died at York.

After the appointment and recall of Severus, and of Jovian, as commanders of the Roman troops in the British island, Theodosius was sent to Britain, in 367, to restore tranquillity to a very disturbed people. He restored, in the two campaigns of 368 and 369, the tranquillity of Britain, by suppressing domestic insurrection, and by repelling foreign invasion; the thirty years' quiet of Britain which ensued, bears testimony to the vigour of his arms and the efficacy of his wisdom.

During the year 398, when the Roman empire was attacked without by the surrounding tribes, and enfeebled within by domestic parties, the Scots from Ireland, and the Picts from Caledonia, renewed their depredations on the British provincials. Stilicho, who supported a falling empire by the strength of his talents, sent such effectual aid, as enabled the governors to repel the invaders, to repair the northern wall and to restore general quiet.

The Romans finally abandoned the island in the year 446, leaving the inhabitants of the more southern parts a prey to the attacks of the more warlike Caledonians. The former addressed a letter of supplication to Rome, beseeching assistance. "The barbarians," said they, "chase us into the sea; the sea throws us back on the barbarians; and we have only the hard choice left us of perishing by the sword or by the waves." The Romans, however, by this time, struggling for their own existence, were unable to render succour, and the Britons were forced to invite Saxons to their assistance, who served to check the future inroads of the Picts.

From the retirement of the Romans in 446 to 843 A. D., the Picts formed the main and most powerful people who inhabited Scotland, and the annals of Pictland, or Caledonia, are the only real annals of ancient Scottish history. Much obscurity, however, necessarily attaches itself to a period so remote and barbarous. The first Pictish monarch of whom authentic information exists, was Drust, the son of Erk, who for a long period rendered himself terrible to the Romanised Britons. In the annals of Pictland a list of the monarchs who succeeded him is given, to the amount of thirty-eight, but as these consist merely of a succession of barbarous names, without any corresponding information, it is unnecessary to repeat them here. About the end of the seventh century, Elfrid, Prince of Northumbria, attacked the Picts. Having crossed the Forth and the Tay, he advanced into Angus as far as Dunnichen, where he received a total defeat. Few of the Saxons escaped, and so complete was their overthrow, that the Tweed, for a short time, became the northern boundary of their principality. The Picts were tempted by their success to make an irruption into Northumberland, but they sustained a defeat, and Bridei, their king, was slain.

The country of the Picts appears to have acquired different names, in successive periods. The mountainous part of it was denominated, by the first colonists, in their native speech *Alban*, the *superior height*. This name, which was originally applied to the hilly region that forms the west of Perth and the north-west of Argyle, was, in after times, extended to the whole country. In the first century, the British term *Celyddon*, (hence Caledonia) which literally signified the *coverts*, was applied by the Roman authors to the whole country on the north of the friths, though the same name was confined, by the Roman geographers, to the interior highlands lying northward of Alban. Both of these well-known appellations were afterwards applied more laxly to North-Britain. The Pictish Chronicle, from the Pictish people, calls their country by the analogous word, *Pictavia*. The annals of Ulster generally speak of this country, by the name of *Fortrun*, with a slight deviation from *Fothir*, the name of the Pictish capital. It was not till about the beginning of the eleventh century, or nearly two centuries after the union of the Scots of Dalriad and the Picts of Caledonia, that we find the names *Scoti* and *Scotia* applied to the people and country generally. The universal adoption of the term *Scotland* from a small tribe who inhabited but a small portion of its territory, cannot be very satisfactorily accounted for, and it has caused much confusion in the early annals of the country.

During the domination of the Picts over the greater part of Scotland, there still existed within the country some tribes who for several centuries were independent of their sway, and claimed a prince or king of their own. One of the most remarkable of these was the tribe of ancient Britons, who held, what was called, the kingdom of *Strat-Clyde*. Much obscurity prevails over the history of this kingdom. It is supposed to have included our present Lanarkshire, Renfrewshire, and portions of Ayrshire and Dumbartonshire. *Alclugd*, called afterwards *Dunbriton* and *Dunbarton*, consisting of an insulated precipitous rock, near the mouth of the Clyde, is said to have been its capital or chief fortress. During its more early history, this kingdom included within its bounds Liddesdale, Teviotdale, Dumfries-shire, and Galloway; but, the constant encroachments of the Saxons limited its ancient boundaries on the south-east, and reduced it to the size which we have already mentioned. The names of only five princes or chiefs of this little territory are mentioned in ancient annals. These are Caw, Hoel, Arthur, Rederc, and Owen or Hoen. The Arthur, here mentioned, is supposed to be the redoubtable Arthur of old British romance. Of the character of the other princes nothing is known, with the exception of Rederc, who, from his generosity, received the sirname of *the bountiful*, and who is reputed to have been the great patron and friend of Kentigern, the tutelar saint of Glasgow. As the Strat-Clyde Britons were often attacked by the Picts from the north, by the Scoto-Irish from the west, and by the Saxons from the south, their struggles to preserve their independence as a people must have been great and many. The very jealousy of their enemies may have preserved them from being swallowed up by any single one of their more powerful neighbours. It was not till about 972, that Kenneth IV. entirely subdued these Britons of Strat-Clyde, and their territory being annexed to the Pictish throne, we find no mention of the kingdom of Strat-Clyde afterwards, but the people occur in charters, &c. to a later period. Innes shows that charters to the see of Glasgow, by Malcolm IV. and William, are addressed: *Francis et Anglicis, Scotis et Galweiensibus et Walensibus, et omnibus ecclesiæ S. Kentigerni de Glasgo, et ejusdem episcopiparochianis.* The *Franci et Angli* are Normans and English, some of whom settled in the south of Scotland; the *Galweienses* are the Picts of Galloway; the *Walenses*, or Welsh, are the Britons of Strat-Clyde. In 1304, the law of the Scots and *Brets* is mentioned in an instrument quoted by Lord Hailes in his Annals. These Brets were evidently the Britons of Strat-Clyde, as all the northern writers call the Welsh *Brets* and Wales Bretland. Winton also uses *Bret* and *Bretan*, for Briton and Britain. Nay, in Clydesdale at present, if the common people are asked about any ancient castle, or the like, they will tell you it was erected by the *Pechs*, that is, by the Picts. On their final defeat, the Strat-clyde Britons are said to have fled to Wales. The language of that part of Scotland which constituted the kingdom of Strat-Clyde, still retains some words common to Wales.

Another small kingdom, which existed for several centuries in Scotland independent of the Picts, and the name of whose people came ultimately to be bestowed on the whole country, was the kingdom of *Dalriad*, situated in our present Argyleshire. In the early centuries of Christianity, there existed in Ireland a Celtic tribe, who were denominated *Scoti* or *Scots*, and from them the island of Ireland itself often received the appellation of Scotland. A portion of this tribe, distinguished by the name of Dalriadi, having been defeated by a rival tribe, effected a settlement in Argyleshire under Fergus, in A. D. 503. Scots from Ireland, long before this, appear to have visited this country on warlike expeditions; but this was the first colony which permanently established themselves here. They were not numerous at first, but they rapidly multiplied, as they were soon joined by kindred tribes. In the eighth century, a civil war desolated the British kingdom, and the Scots taking advantage of these civil discords, harrassed the enfeebled Picts. At length Kenneth the Second, king of the Dalriads or Scots, secured his accession to the Pictish throne, and united into one kingdom the whole country north of the wall of Antoninus. How the name of Picts however, came to be lost in that of Scots, has never been quite satisfactorily demonstrated. By one class of historians, the Picts are represented to have been totally overthrown and extirpated by the Scots; but the more probable view of the matter is, that Kenneth, king of the Scots, either by descent or success in war, came into possession of the regal government of Pictland, and that, in the course of time, the name *Scots* came to be applied to the inhabitants of the country generally over which he and his successors ruled.

II. *From Kenneth II. to the death of Alexander III.*—The history of Scotland, as a kingdom, properly commences with the reign of Kenneth, A. D. 836. About that period the union of the Picts and Scots took place; the ancient Britons of Strathclyde were amalgamated with both; the Lothians and more southern portions of the country were annexed to the kingdom; and one monarch began to sway that portion of territory in the island, which is still comprehended under the term *Scotland*, but which before that time had formed several principal cities and kingdoms. Before the union of these states or tribes under one king, and indeed for about two centuries later, our knowledge of the country is extremely limited, any glimpses of history respecting it which have reached us being slight, unsatisfactory, and sometimes conflicting.

The reigns of Kenneth's immediate successors were chiefly distinguished by bloody feuds and conflicts between rival chieftains, and by repeated invasions of the Danes, at that time a piratical people, who infested the whole north of Europe. Malcolm the III., surnamed Caen-more or Great head, with whom well authenticated Scottish history is generally considered to begin, was crowned at Scone, in 1057. He succeeded Macbeth, who had slain his father, Duncan, and usurped the Scottish throne. The conquest of England by William of Normandy, involved Malcolm, who espoused the cause of the Saxons, in many fierce wars. Edgar Atheling, the heir of the Saxon line, and many of the Saxon nobles, sought refuge in Scotland. Malcolm married Margaret, the sister of the fugitive prince, who is said to have introduced a degree of refinement into her court remarkable for that time, and to have contributed to soften the rude manners of the people. Malcolm twice invaded England with success; but William, having collected a great army, in his turn invaded Scotland, and compelled Malcolm to do homage for those lands which he held within what was accounted the English territory. This was an an-

cient feudal practice, common at the period. William himself, while he was independent sovereign of England, did homage to the king of France for his possessions in Normandy. In later times, however, the kings of England, to justify their aggressions upon Scotland, affirmed, that the homage paid by the Scottish kings was not only for the provinces which they at the time possessed in England, but also for the kingdom of Scotland. But the Scottish kings, while they rendered the homage demanded for their possessions in England, uniformly disavowed that they were subject to any claim of homage on account of the *kingdom* of Scotland. This question was the ostensible cause of many bloody wars; and even so far down as the Union between the two nations, it was revived by some English writers, who endeavoured to depreciate the claims of Scotland, by disputing its ancient independency. These writers were triumphantly answered on the other side; and to all impartial minds it appeared that, whatever might be the extent of the feudal tenure, nothing could be more paltry than to draw from such an obsolete deed a claim against a kingdom, which had been *de facto* so long independent, and which had so nobly maintained its independence in a hundred battles.

Malcolm Caenmore, and his eldest son, were slain in attempting to take the castle of Alnwick, A. D. 1093. Though he left male heirs yet his throne was usurped, first by Donald Bane, and afterwards by Duncan, his natural son. By the interposition of the king of England, however, Edgar, lawful son of Malcolm, was placed upon the Scottish throne. After a reign of no great length, and distinguished by no remarkable event, Edgar died in 1107, and was succeeded by Alexander, a prince who rendered himself chiefly remarkable by his severe administration of justice. A conspiracy formed against the life of the king was dissipated by the vigour of his measures; and after assisting Henry I. of England in a war with the Welsh, he died in 1124. Having left behind him no issue, Alexander was succeeded by David his younger brother, commonly called *St David*, on account of his great piety and excessive liberality to the church and clergy. David interested himself in the affairs of England, espousing the cause of Maud against Stephen. In several engagements he was successful, but was in others defeated; and found himself unable effectually to support the cause which he had undertaken. He died in 1153, and was succeeded by Malcolm IV. a prince of a weak body, and no less feeble mind, who distinguished himself only by his continence; and, in 1165, left his crown to his brother William. This prince, in the beginning of his reign, recovered from Henry of England, the earldom of Northumberland, which had been relinquished by Malcolm; but afterwards leading an army into England, and conducting himself with too little caution, he was made prisoner by surprise, and detained in captivity, till, in order to regain his liberty, he consented to declare himself a vassal of England, and to do homage for his whole kingdom. Richard Cœur de Lion, however, who succeeded Henry, remitted the oppressive terms, and declared Scotland to be an independent kingdom: a measure to which he was induced, partly by the injustice of the claim itself, and partly by his wish of rendering the Scots his friends, during an expedition which he was about to undertake into Palestine. William showed his gratitude for the restoration of his independence, by continuing a faithful ally of the English, till his death in 1214.

Alexander II. who succeeded his father, took the side of the English barons, in their contentions with John, their feeble and imprudent monarch. He was a wise and good prince, and maintained with steadiness and spirit the independency of his crown abroad, and the authority of his government at home. He died in the small isle of Kerrara, A. D. 1249, in the fifty-first year of his age and thirty-fifth of his reign, and was succeeded by his only son, of the same name, a child in the eighth year of his age.

Alexander III. was crowned at Scone, 13th July, 1249. He had been betrothed, when an infant, to the princess Margaret of England. Their nuptials were celebrated at York in 1251, and Alexander did homage to Henry for his English possessions. The latter insidiously demanded homage for the kingdom of Scotland, but the prince replied with spirit, that he had been invited to York to marry the princess of England, not to treat of state affairs, and that he would not take so important a step without the concurrence of the national council. One of the principal events of Alexander's reign was the Battle of Largs. Haco, king of Norway, having collected a fleet of one hundred and sixty ships, sailed towards Scotland with a numerous army, A. D. 1263, with a view to recover such of the western isles as had formerly belonged to his crown, but which had been wrested from it by the Scots. He made himself master of Arran and Bute, and afterwards landed on the coast of Ayrshire. Alexander attacked him at Largs, October 2. After a fierce contest, victory at last declared for the Scots, and the greater part of the invading army fell either in the action or the pursuit. Haco reached the Orkneys, where he soon afterwards died, as is said, of a broken heart, and was succeeded by Magnus, who, discouraged by the disaster which had befallen his father, yielded all his rights to the Western Islands and the Isle of Man (A. D. 1266) to the crown of Scotland, for the sum of 4000 merks, to be paid in four years, and a quit rent of one hundred merks yearly. The Norwegians still retained the Orkney and Shetland Islands. From this period, Alexander was employed for several years in maintaining the independence of the Scottish church against the pretensions of the pope, and in restraining the encroachments of the clergy. His reign was a long and prosperous one, and his death was, in its consequences, a serious calamity to Scotland. While riding in the dusk of the evening along the sea-coast of Fife, his horse started or stumbled, and he was thrown over the rock and killed on the spot. This event took place on the 19th March, 1286.

III. *From the death of Alexander III. to that of James V.*, A. D. 1542.—Alexander left only one grandchild, a female infant, in a foreign country. His own children had all died before him. His daughter, Margaret, had married Eric, king of Norway, and died, leaving issue one daughter, Margaret, commonly called the Maiden of Norway, the now undoubted heiress of the crown of Scotland, and recognised as such by the states of the kingdom about three weeks after Alexander's death. The same convention appointed a regency of six noblemen during the absence of the young queen. These regents for some time acted with wisdom and unanimity; but two of them dying, dissensions arose among the remaining four; and Eric, king of

Norway, apprehensive for the interests of his daughter, applied to Edward, king of England, for his assistance and protection. Edward had already formed a scheme for uniting the two kingdoms by the marriage of his eldest son, Edward, with the young queen of Scots. A treaty was entered into for this purpose, and had the marriage taken place, and been followed by children, England and Scotland might have been united three hundred years sooner than they were. But the Maiden of Norway unfortunately died at Orkney, on her passage to Scotland, and the nation was struck with grief and consternation in beholding the extinction of a race of sovereigns who had distinguished themselves for their bravery and wisdom, and in anticipating the miseries of a contested succession.

The line of Alexander's descendants being thus extinguished, the right of succession reverted to the posterity of David, earl of Huntingdon, grandson of David, the Scottish king. The earl of Huntingdon had three daughters—Margaret, Isabella, and Ada. John Baliol was the *grandson* of the eldest daughter; Robert Bruce was the *son* of the second daughter; and John Hastings was the *son* of the youngest daughter. In our days, John Baliol would have been indisputably heir to the throne, but at that time the law of succession was not so clearly established. Baliol claimed the crown, as being sprung from the eldest daughter; Bruce pleaded that though he was descended from the second daughter, yet, being grandson to the earl of Huntingdon, he ought to be preferred before Baliol, who was only great-grandson to that earl; and Hastings alleged that the kingdom of Scotland, like many other inheritances, was divisible, and that he had a title to a third. The kingdom being declared impartible, the pretensions of Hastings were excluded, and there remained only two competitors—Baliol and Bruce. Eager to avoid a civil war, the decision between these rival princes was referred to Edward I., of England, as umpire. Under pretence of having it in his power to enforce his decision, Edward demanded that all the places of strength in the kingdom should be put into his hands, that he might deliver them up to the successful candidate. The demand was complied with. Edward, thus put in possession of the kingdom, and wishing to retain it, revived those pretensions, which had been formerly in some cases avowed, of the supreme sovereignty of the English monarchs in the Scottish kingdom. This sovereignty, all the learning and ingenuity of his court, aided by all the arts of plausible forgery, were employed to demonstrate, though every one saw, and Edward himself perpectly well knew, the utter groundlessness of the claim. But an army of Englishmen, assembled upon the frontiers, enforced every argument; some pretended to be convinced; some laboured by cunning to evade the required concession, and some nourished in their breasts a secret resentment to which they hoped that time might yet afford ample gratification.

Edward, in the mean time, either convinced that Baliol's claim was superior, or imagining that he was of a more obsequious disposition than his rival, averred, that to him belonged the right of succession, and he was immediately dressed out in the pageantry of a monarch. Lest he should forget, however, that he had a superior, he was summoned to London on the most frivolous pretences, where he was subjected to the most degrading insults, till, unable longer to endure the ignominy of his situation, he retired with indignation to his own country.

The English king saw, with little regret, a mode of conduct in the Scottish king, which might give him a plausible pretence for carrying his arms into that nation. A war with France, in which he was then engaged, prevented him from immediately executing his designs; but he then formed the resolution which he soon executed. The Scots entered into an offensive and defensive alliance with France. Baliol formally renounced his allegiance to Edward; and, not waiting for the expected attack, invaded the English frontiers; but the Scottish soldiers, little trained to regular warfare, were unable to resist the disciplined forces of England. Baliol himself was carried to London, and confined in the Tower, whence, after two years' imprisonment, he was liberated, and, retiring to France, relinquished for ever the contest for regal power.

Edward now held complete possession of Scotland, which he had obtained more through fraud than open warfare. He destroyed or took away all the public records, and endeavoured to obliterate every monument of the former independence of Scotland. He displaced those who had held important offices under Baliol, and bestowed them on Englishmen, who exerted their authority in the most cruel and despotic manner. The unlimited exactions of Cressingham, the treasurer, and the rigour of Ormsby, the justiciary, in taking the oath of fealty, soon rendered them odious to the nobles; while the rapacity and barbarism of Edward's soldiers laid the wretched inhabitants open to every species of wrong and insult. In short, the whole country was laid under a military despotism of the most unqualified and irresponsible kind. At this crisis, Sir William Wallace arose. Having killed an English nobleman in an affray, he fled, and offered himself as a leader to a few companions whose desperate fortune, or hatred of the English government, had reduced them to a similar necessity. With a resolute band, he infested the English quarters. His success in these predatory expeditions attracted multitudes to be his companions in arms. With their united forces, they attacked the English justiciary at Scone. The viceroy fled to England, and was followed by all the officers of state. Emboldened by their success, the Scots assailed the castles, and put to the sword all the English who came within their power. Meanwhile, a large English army, under the command of the earl of Surrey and Cressingham, advanced to Stirling, to quell the insurgents. Wallace hastened to guard the passage of the Forth, and encamped near Cambuskenneth. The English general ordered his troops to cross the Forth by a wooden bridge; but scarcely had a division passed over, when Wallace attacked them, routed them, and pushed them into the river. The English burned the bridge, abandoned their baggage, and fled to Berwick. Thus Scotland was once more free; and the castles which the English had still retained were immediately surrendered. Wallace, now invested with the title of governor of Scotland, in the name of king John, marched his army into the north of England, and laid waste the country from Carlisle to Newcastle.

The English king was in Flanders when he received the news of Surrey's defeat and of the liberation of Scotland. Inflamed at this overthrow of his exertions and schemes, he issued orders to all those

forces of England and Wales to meet him at York, and marched in person to Scotland with an army which that unhappy country, torn as it was by intestine factions, arising chiefly from a jealousy of the nobility towards Sir William Wallace, could not resist. The Scots were totally defeated at Falkirk (July 22, 1298); and Edward proceeded to the extremity of the kingdom, receiving, wherever he came, the submission of the nobles. By the treachery of one of Wallace's friends, that unyielding patriot was betrayed into his hands; and with a severity unbecoming Edward's character, was carried to London in chains, and executed in August, 1305.

Wallace soon had a more successful, though not a more brave successor. Robert de Bruce, grandson of that Bruce who had been Baliol's rival in the dispute concerning the Scottish crown, formed the design of rescuing the Scots from their present degraded condition, and placing himself upon the throne. He escaped from Edward, who was apprised of his design, and who intended to have seized him. He soon arrived in Scotland; and put to death Cummin, whose treachery had informed the English monarch of the intended revolt. He interested the greater part of the nobility in his favour. He made himself master of the greater part of the fortified places in the kingdom; and had almost entirely liberated the country from its oppressors, when he was suddenly attacked by the English forces, defeated, and compelled to take shelter in the Western Islands. Edward, provoked at the frequent revolts of the Scots, marched in person, with an army sufficient to put the whole nation in such a state, that rebellion should be long hopeless. He had proceeded to Carlisle when he suddenly died.

Before Edward expired, he enjoined his son and successor, Edward II. to prosecute the war with Scotland; but the young king inherited not his father's abilities. Bruce, who had issued from his retreat, and had begun to collect his forces, when Edward I. made his approach, found not a formidable antagonist in Edward II. The English king, advancing only a short way into Scotland, returned and disbanded his army. Bruce gained several advantages over the troops which had been left to preserve the Scots in subjection. He had succeeded so far in animating his followers, that, not content with having gained into his power the greater part of his own kingdom, he marched into England, and laid waste several of the northern counties. Edward was at length roused from his lethargy, and led into Scotland an army more powerful than had ever invaded that country. He came up to Bruce, near Stirling; when the great and decisive battle of Bannockburn, (June 24, 1314) terminated the ill-founded pretensions of the English, and firmly established Scottish independency. Bruce was secured on the throne which he had so bravely acquired; and, after a prosperous reign, he died in 1328.

On the death of Robert Bruce, his son, David II. was proclaimed king by the greater part of the nation. Baliol, however, the son of that Baliol, who, during the reign of Edward I. had disgraced himself by his pusillanimity, formed a party for the purpose of supporting his pretensions to the crown; he was supported by Edward III. a prince of no less illustrious abilities than his predecessor, Edward I. Many battles were fought, and much cruelty was exercised by both parties. Baliol and Edward were at first successful; but, at length David succeeded in expelling the usurper from his kingdom. Still, however, the war between Scotland and England continued with increasing rancour, till, at length, David was made prisoner at the battle of Durham. After being detained in captivity eleven years, he was liberated for 100,000 merks. Returning to Scotland, he died in 1371, leaving behind him no issue.

David was succeeded by his nephew, Robert II. the high steward of Scotland, the first of the family of Stuart who sat on the throne. An act was framed securing the crown to him and his heirs. He concluded a treaty with France, in which the nations mutually stipulated to defend each other. In consequence of an article of the treaty, Robert recalled such of his subjects as served in the English army; a measure which the English considered as a prelude to hostilities. War was soon commenced, but without any considerable advantage to either of the countries, and without producing any material change in their relative situations. Robert II. died in 1390, in the seventy-fifth year of his age and nineteenth of his reign, and was succeeded by his eldest son, John, who, upon his accession, called himself Robert III.

Scotland at this time was rent by the dissensions of its powerful barons, and the feuds of hostile clans. The earl of March, affronted by the king, fled into England. The English refused to give up the earl, and a war immediately ensued. The southern counties of Scotland were ravaged by Percy; and Henry IV. proposed to make an entire conquest of the country. He marched with a large army. He proceeded as far as Edinburgh; and had, for some time, laid siege to that fortress, when a conspiracy in England rendered it necessary for him to retire. The latter part of the reign of Robert III. was disturbed by the ambition of the duke of Albany. That nobleman, regardless of justice in his measures, procured the death of the duke of Rothesay, the heir of the crown. Unable to take vengeance on the powerful perpetrator, or even to protect the remaining branches of his family, the monarch designed to send his second son, James, into France, for the purpose of being educated in safety. James was intercepted by the English, and detained a prisoner; an event that so much affected his father, that he soon died of grief. This event took place in 1405.

James being then only eleven years of age, and a captive, the regency devolved on the duke of Albany, and the kingdom was the scene of much domestic confusion. Many Scotchmen repaired to France, where they entered into the army, and acquired much honour by their courage and discipline. The Scottish prince was detained in England nineteen years; but the excellent education bestowed on him, in some measure compensated for the injustice of his captivity. At length, when he had attained his thirtieth year, he obtained his liberty; and, returning to his own country, he endeavoured to correct those abuses which had arisen from the prevalence of the feudal system in its rudest form. This attempt was far from being agreeable to his ferocious barons; and the resumption of the crown lands which had been alienated during his captivity, rendered him still more odious. Such, at length, was the resentment of some of his nobles, that in 1437, he was, by their followers, assassinated while at supper, in a convent in the neighbourhood of Perth.

His son and successor, James II. being only seven years of age, the country was subjected to the mis-

eries of a long and feeble regency. When at length he assumed the reins of government into his own hands, James displayed a prudence and fortitude, which inspired hopes of a reign favourable to his country. These hopes were prematurely blasted, by his being accidentally killed by the bursting of a cannon at the siege of Roxburgh (1460), in the twenty-ninth year of his age and twenty-fourth of his reign.

James III. was not quite seven years of age when he succeeded to the kingdom: like that of his father, therefore, the reign of this prince was subject to all the troubles of a minority, equally long; but the disorders of the kingdom did not terminate with the minority. The king, of a pusillanimous and irresolute temper, attached himself to persons of mean station, and, for the most part, of contemptible abilities. He hated his nobles, and was, in his turn, despised by them. Frequent quarrels and insurrections were terminated by open rebellion; in which a party of nobles had the influence to prevail on the king's own son to place himself at their head. The forces of the rebels were numerous, but the king's troops were in number at least equal. They came to an engagement in the neighbourhood of Stirling. James' cowardice ruined his cause. He fled at the first onset, was thrown from his horse, carried into a miller's hut, and, by a person who, calling himself a priest, was brought to confess him, he was treacherously murdered. His death took place in the thirty-sixth year of his age, and the twenty-eighth of his reign.

James IV. was crowned in 1487, while he was yet a minor; but his minority seems to have been attended with few of those disorders which had distinguished those of his predecessors; and when he assumed the power into his own hands, he enjoyed a degree of quiet and prosperity, almost unknown to the former monarchs of Scotland. He espoused the daughter of Henry VII., and thus laid the foundation of the future union of the two kingdoms. He concluded a peace with England, which, in the treaty, was vainly termed perpetual. During the reign of Henry VII., indeed, it remained unviolated; but, such was the predilection of the Scots towards a connexion with France, that, during the reign of Henry VIII., James was induced to embrace the French interest, and to invade England. The undertaking proved fatal to himself, and hurtful to his kingdom. He invaded the northern counties; and, engaging the English army at Flodden, he fell, with the greater part of the nobles by whom he was accompanied. The battle of Flodden, so disastrous to the Scots, was fought in 1514. James was slain in the forty-first year of his age, and the twenty-sixth of his reign.

The death of James IV. once more subjected Scotland to the turbulence of a long minority. The nobles had, during the former minorities, been gradually acquiring a greater share of power than was consistent with the stability of government. Each of the princes of the house of Stuart was employed, during the latter part of his reign, in reducing that power, which, during the former part of it had become exorbitant. The minority of James V. was, if possible, more turbulent than that of any of his predecessors. The influence of the queen, his mother, prevented the commencement of hostilities with England; but this only afforded the nobles a better opportunity of quarrelling with each other. James' interest ought, perhaps, to have induced him to form, by marriage, an alliance with England; but his attachment to France prevailed, and he married the daughter of the French king. This princess lived not long after her nuptials; and James espoused a princess of the same nation, the well known Mary of Guise. The king, in many cases, consulted the true good of his country; and his institution of the Court of Session entitled him to the gratitude of his subjects: but his continual efforts to depress the nobility, though not inconsistent with the interests of his kingdom, embroiled him with that powerful body, and rendered almost his whole reign disastrous. Had he understood the political relations in which it was proper for Scotland to stand, he might have promoted the power of his kingdom while he preserved its peace; since his alliance was courted by the kings of England and France, as well as by the emperor and the pope; but his attachment to France led him to commence hostilities against England; and the disgust of his nobles, prevented him from carrying on the war with honour or success. The disgraceful issue of an expedition which he had sent against England, made an impression which nothing could obliterate. He survived only a few days, and expired in 1542, expressing the incurable anguish with which the defeat of his army, at Solway, had inspired him.

IV. *From the death of James V., to the accession of James VI. to the English throne*, A. D. 1603.—James V. left only one legitimate child, who was born at Linlithgow a few days before his death. This was the celebrated Mary, whose beauty, accomplishments, and misfortunes, have given her an European fame. Mary of Guise, the queen mother, had the art to obtain the regency; but, the soothing measures, which for that purpose, she was constrained to pursue with all ranks, gave an advantage to the reformers in religious matters, to which she was otherwise extremely averse. The minority of Mary was not without its troubles, arising chiefly from a continual struggle between those who favoured an alliance with England, and those who were attached to the interests of France. The policy of Elizabeth, who now filled the English throne, made her rather foment than terminate the struggle; since she thereby gave ample employment at home, to a nation, which, had it been united in its councils, might have proved a troublesome foe.

The young Scottish queen was early carried to France for the purpose of being educated; and through the influence of her relations of the family of Guise, was married to the eldest son of the French king. Her husband ascended the throne of France, under the name of Francis II., but lived not long to enjoy the power which he had inherited. Mary soon found it necessary to return to Scotland, where she ascended the throne of her ancestors, with not only the approbation, but the love of all ranks. For some time her felicity was unimpaired; but her subjects required her to choose a husband; and the ardour of youthful passion, rather than the dictates of policy, or even of prudence, induced her to accept of the hand of Henry, lord Darnley, a man of comely appearance, but headstrong, foolish, and in some instances, brutal. Darnley's disposition soon lessened the affections of the queen; and her love, formerly so violent, was, in a short time, converted into a hatred not less violent. From private quarrels, they proceeded to public insults and injuries. Jealous of the influence of Rizzio over Mary, if not of a

criminal intercourse between them, Darnley, aided by a few nobles, murdered him almost in her presence. This increased and confirmed that hatred which had already taken possession of her mind. Bothwell, a nobleman of the most unbounded ambition, unguarded by any scruples, insinuated himself into Mary's favour; and the services which he had rendered her, joined to her resentment against her husband, seem to have induced her to follow a mode of conduct which it is impossible to justify. Soon after the birth of the only child which she ever had, and who was afterwards known by the name of James VI., Darnley was murdered. Bothwell is known to have been the perpetrator of the deed; and suspicions were propagated that the queen herself was privy to the crime. Bothwell was brought to trial, but under circumstances which favoured the accused, and he was declared by a jury innocent of a crime of which all the world believed him guilty. Emboldened by this, Bothwell convened a number of the principal nobility, and prevailed upon them to sign a bond, in which they not only declared him innocent of Darnley's death, but recommended him as the fittest person whom her majesty could choose for a husband. Thus authorized, he suddenly appeared at the bridge of Cramond with a thousand horse, as Mary arrived there on her return from Stirling to Edinburgh, took the queen's horse by the bridle, and surrounding and disarming her attendants, led her to the strong castle of Dunbar, of which he was governor. The defenders of Mary contend, that she was seized by force, and her honour violated, and that her subsequent marriage with Bothwell was inevitable. Her detractors, on the other hand, affirm, that Bothwell's conduct met with her approval, and that the force apparently used was merely to cover the shame of a guilty passion. It is not to be denied, that her marriage to that profligate and ambitious man is the most unjustifiable point in her history, and dearly did she pay the penalty of her folly. So grossly did Bothwell use her after he had secured her hand, that she has been heard to pray for a knife to stab herself with, rather than endure his ill-treatment. The Scottish nobles and people were roused with indignation at her conduct. An army was speedily collected, and on the twelfth of June, 1567, they issued a proclamation avowing the cause of their taking arms to be, to deliver the queen from the captivity of her husband, to preserve the prince, and to punish the murderers of the late king. Both parties made hasty preparations for hostile collision, and an army soon collected around the queen. Mary and Bothwell marched from Dunbar towards Edinburgh: the lords of the congregation advanced to meet them; and at Carberry-hill, a battle was every moment expected, which was to decide a distracted country. But Mary, after a short communication with Kirkaldy, who commanded an advanced party, agreed to quit Bothwell, to join the associated lords, by whose councils she was now willing to be directed, on condition of their "respecting her as their born princess and queen." Bothwell left the field and sailed for the Orkney islands, where he was pursued by Kirkaldy of Grange, but he escaped in a boat, and proceeded to Denmark, where he was thrown into prison, and died. Mary was conducted to Edinburgh, amidst the reproaches of her subjects. After the repose of a wretched day, she was committed a prisoner to the fortalice of Lochleven, which was kept by William Douglas, who had married the concubine of James V., the mother of the bastard Murray. Whatever pretences were still used, by the associated lords, it is apparent, that they had finally resolved to dethrone the queen; and she was forced, on the 24th of July 1567, to sign a formal resignation of the crown. She, at the same time, assented to the regency of Murray. After these events, and notwithstanding the utmost degree of watchfulness, Mary made her escape from Lochleven castle on the 2d of May 1568. As she had many friends, she was soon surrounded by an army. The queen and the regent Murray now prepared for war. But the fortune and conduct of Murray prevailed at the battle of Langside, on the 13th of May, 1568. Mary fled from the field of battle, first to Kirkcudbright, and afterwards across the Solway to Workington in England, where she claimed the protection of her cousin, Elizabeth. The stricken deer might as well have sought refuge in the den of the tiger. After nineteen years of weary captivity, Mary was sacrificed to the jealous feelings of her rival. Her execution took place at Fotheringay castle, on the 8th February, 1587.

Murray, a natural brother of Mary's, and in secret league with Elizabeth, held the regency of Scotland till the 26th Feb. 1570, when he was shot in the streets of Linlithgow, by Hamilton of Bothwell Haugh, whose wife had been expelled her house, and driven to insanity, by the harshness of Murray's measures. The earl of Lennox, the earl of Mar, and the earl of Morton, were regents in succession. In 1578, a party attached themselves to the young king (James VI.) while yet a boy, and he assumed the reins of government. Means were taken to remove Morton. He was convicted of participating in the murder of Darnley, and executed on the 2d June, 1581. In 1589, James sailed to Denmark, where he married Ann, daughter of Frederic II. in the sixteenth year of her age. The year 1600 was distinguished by the Gowrie conspiracy against the life or liberty of James. On the 19th March, 1603, Queen Elizabeth died, and James succeeded to the crown of England. From that time till near the middle of the last century, Scotland declined not only in importance but in wealth. Considered rather as an appendage of England, than as a part of Britain, it enjoyed none of those advantages which its alliance with that kingdom seemed at first to promise. It had a parliament of its own; but was in form more than in reality, the seat of government. Neglected by its nobles, who attached themselves to the court in England; despised, sometimes oppressed, by its princes, who forgot that to it they owed their origin, Scotland became every day less considerable, till the reign of Anne, when Britain was, by a treaty between the two countries, declared to be an inseparable kingdom.

V. *From the accession of James to the English throne to the Union of the two kingdoms*, A. D. 1707.—The period of time from the union of the crowns to the union of the kingdoms, was characterized by civil wars and national revolutions. James, at the age of thirty-seven, ascended the throne of England, amidst the acclamations of his subjects, both Scots and English. An unusual calm ensued within his ancient kingdom. The spirit of the nobles seems to have been somewhat broken, or was perhaps turned to more distant views of ambition, and other objects of pursuit. There were seven Scottish parliaments called by James, after his accession, wherein he presided, by

a commissioner. This was a new officer in the state which a new situation of things required. A law was passed in 1606, for the restitution of the estate of bishops, which the king declared he had never intended to suppress. This restoration was followed by a great variety of laws, for giving proper effect to the general principle. The estate of the bishops was not, however, restored to the people's confidence. There were many laws enacted for promoting domestic economy. James died on the 27th March, 1625, after governing Scotland with more authority and success during two and twenty years' absence, than when he was personally present in the country.

James was succeeded by his son, Charles I., in the twenty-fifth year of his age. Ten years of quiet was followed by frequent perturbations. The king returned to Scotland after a long absence, in 1633, to be crowned, and to hold a parliament. With ample power and high prerogatives, he possessed no influence, having nothing to bestow. Yet the parliament was servile and submissive. Among many laws of a salutary tendency, they passed an act, resuming to the crown those lands which the baronage had wrested from the church; the clergy were thus benefited, the people were relieved, but the barons were offended. In the midst of dissatisfaction, the king introduced a book of canons and a new liturgy. These were the signals of insurrection in the capital, and discontent throughout the kingdom; it being supposed, that such innovations were preparatory to a restoration of Popery. The year 1637 may be considered as the beginning of a civil war, which lasted, with short intermissions, during fifty years.

After the execution of Charles I., in 1648, the Scots proclaimed his son king, under the title of Charles II. Cromwell passed the Tweed on the 22d of July, 1650. He defeated the Scots at Dunbar, owing more to the madness of the clergy, than to any want of skill in the generals, or bravery in the men. Charles II. marched into England; and at Worcester, on the third of September, 1651, was defeated. In April, 1652, by an ordinance of the English parliament, Scotland was incorporated into one commonwealth with England, in whose fortunes it now partook.

The restoration of Charles II. to the throne of his ancestors, in England, was followed by his restoration in Scotland. The Scottish parliament assembled, under the earl of Middleton, the king's commissioner, on the 1st of January, 1661. Much of what had been done, during the three and twenty years of trouble and bondage, was now rescinded. The king, through his commissioner, declared in parliament his resolution to maintain the true reformed Protestant religion, as it had been established during the reign of his father and grandfather; intimating, however, that he would restore the episcopal government, though he allowed, meanwhile, the administration of sessions, presbyteries, and synods. This endeavour to establish episcopacy was violently opposed, and led to the most cruel persecution of the presbyterians, which lasted, with more or less severity, during the whole of the profligate reign of Charles. Hundreds were executed on the scaffold, others were fined, imprisoned, and tortured; and whole tracts of the country were placed under a military despotism of the worst description. Driven to desperation, the presbyterian party had several times recourse to arms, and, although in some cases successful, they were finally defeated and scattered at Bothwell Bridge.

The death of Charles II., on the 6th of February, 1685, transferred his feverish administration to his brother, James II. James professed his intention to support the government, in church and state, as by law established; yet, without adverting to the experience of his father, he immediately adopted the imprudent ambition of converting his people to the Catholic religion. He was encouraged in this imprudence by the servility of the Scottish parliament, who seemed willing to invest him with absolute power. Yet when he applied to parliament for an indulgence to his Catholic subjects, that assembly, however complaisant as to their civil liberties, resolved to adhere to their religious principles. As the parliament thus refused their concurrence, James had undisguised recourse to his prerogative, for effecting an illegal change in the religious establishment. Universal discontent was the result of this measure. When the people of Scotland heard of the landing of the prince of Orange, and read his declaration in favour of liberty and in support of law, they hailed his advent with joy. The nobles began to intrigue; the populace, in their zeal, broke out into insurrection against the Catholics at Edinburgh. The earl of Perth, the chancellor, a new convert, imitating the pusillanimity and distraction of his master, now deserted his charge; and the privy council, which was noted equally for its servility to the sovereign and harshness to the people, on this occasion made their application to the prince of Orange, to whom every one looked up as the deliverer of the two nations from Popish dominion. William consulted several of the Scottish nobles, clergy, and gentry, regarding the state of their country, and issued circular letters, summoning a convention at Edinburgh, on the 22d March, 1689. We may easily suppose that the most zealous and active of the constituent members would attend on such an emergency. In England, at the revolution, it was of great importance to the security of the constitution and the quiet of the country, that the two great parties into which the nation was divided, were so equally balanced; but, in Scotland, the members of the convention were all of one party, and were all actuated by a strong sense of their recent wrongs. After a slight opposition, they boldly decided that king James, by his abuse of power, had *forfeited* the right to the crown; and immediately declared the prince and princess of Orange to be the king and queen of Scotland. This act, which involved such mighty consequences, was attended by a declaration of their wrongs and rights. Former insurrections, though accompanied by many mischiefs, passed away without any advantage to the nation. The revolution of 1689 brought with it a civil war, indeed, but was the means of strengthening the constitution, of preserving public liberty, and securing private rights. The presbyterian church was now erected on the ruins of episcopacy; the prerogative was restrained to its proper functions; yet the administration retained much of its ancient harshness; and much remained to be done for giving efficacy to law, and affording safety to property and persons. This revolution was also followed by much salutary legislation for promoting domestic economy.

The reign of William was marked by two events which rendered his character generally unpopular in Scotland, and strengthened the cause of the Ja-

cobites; we allude to the massacre in Glencoe, and the unfortunate result of the Darien expedition. In August, 1692, in consequence of a pacification with the Highlanders, a proclamation of indemnity had been passed to such insurgents as would take the oath to the new government on or before the last day of December. The last man to submit was Macdonald of Glencoe. Towards the end of December, he applied to the governor of Fort-William, who refused, not being a civil magistrate, to administer the oaths; but dispatched him in haste, with an earnest recommendation to the sheriff of Argyle. From the snows and other interruptions which he met with on the road, the day for appointed submission had elapsed, before he reached Inverary, the county town. The benefit of the indemnity was strictly forfeited; the sheriff was moved, however, by his tears and entreaties, to receive his oath of allegiance, and to certify the unavoidable cause of his delay. But his oath was industriously suppressed, by the advice particularly of Stair the president; the certificate was erased from his list presented to the privy council; and it appears that an extensive combination was formed for his destruction. William was persuaded that Glencoe was the chief obstacle to the pacification of the Highlands, and a warrant of military execution was procured from him against the unfortunate chief and his whole tribe. Campbell of Glenlyon, a captain in Argyle's regiment, was ordered with an hundred and twenty men to repair to Glencoe on the 1st of February. The soldiers were received on assurance of peace and friendship, and were quartered for above a fortnight among the inhabitants of the sequestered vale. On the evening of the 13th, orders arrived to attack the Macdonalds while asleep at midnight, and not to suffer a man to escape their swords. Before the break of day, a party, entering as friends, shot Glencoe as he rose from his bed. His wife was stript naked by the soldiers, who tore the rings with their teeth from her fingers; and she expired next morning with horror and grief. Nine men were bound and deliberately shot at Glenlyon's quarters; his landlord was shot by his orders, and a young boy, who clung to his knees for protection, was stabbed to death. At another part of the vale, the inhabitants were shot while sitting around their fires, and women perished with their children in their arms. Thirty-eight persons were thus inhumanly massacred by their guests and inmates. The rest, alarmed by the report of musquetry, escaped to the hills, and were only preserved from destruction, by a tempest that added to the horrors of the night. The carnage was succeeded by rapine and desolation; the houses were burned to the ground, and women and children stripped naked, and left to perish in the snow. This horrible massacre excited universal execration, and rendered the government of William justly odious to the highlanders. It was succeeded three years after by the expedition to Darien, the unfortunate result of which nearly involved Scotland in national bankruptcy, and raised an outcry from one end of the land to the other against the injustice of the English government in its conduct towards the colonists. (See a full account of the Darien expedition in this Encyclopedia, under the article *Darien*.)

The demise of William, in 1702, transferred the crowns of the two nations to queen Anne. She wrote to the Scottish privy councillors, authorising them to continue their authority; and assuring them that she would support the established government. The same parliament which had established the Revolution, continued to act on the accession of Anne, though not without protestations of its illegality. They passed an act for treating of an union with England, which they annulled in the subsequent year. The spirit of division seems to have overspread the land. In 1703, the parliament refused to tolerate episcopacy, and they declined to concur in adopting the protestant succession for the crown. They carried their ill-humour one step farther. They questioned the power of the queen to negative their bills. They issued a declaration which intimated a purpose, in case of the demise of the crown, to appoint a different sovereign from the English king. Such were the movements which led to the appointment of commissioners to treat of a union between the sister kingdoms. The terms of the union were particularly obnoxious to the Scotch, and the nation, instead of regarding it as an identification of the interest of both kingdoms, considered it as a total surrender of their independence, by their false and corrupted statesmen, into the hand of their powerful rival. All ranks of people, however divided in other matters, joined issue against this detested treaty, which involved the loss of national independence, on the one hand, and on the other, imposed a vast number of duties, customs, and restrictions upon a country to which they were before unknown. Addresses against it were presented from all quarters, and in several places the populace rose in arms and formed themselves into regiments of foot and horse in order to oppose the union. Even the commercial part of the community, who were supposed to benefit so largely by it, were dissatisfied, and with justice, at the terms of the treaty. Before the union, the trade of Scotland had been open to the Levant, the Baltic, France, Spain, Portugal, Holland, and the Dutch plantations; and it seemed difficult to conceive how the commerce of the country could be advanced by laying restrictions on it to all those places, especially as the compensation allowed, namely, the privilege of trading to the English settlements and the plantations in America, was very trifling, as the amount of the exports to these places did not then nearly equal the expense of defending them. Notwithstanding, however, every opposition, the treaty of union was ratified by a small majority of the Scotish and a large majority of the English parliament; and on the 1st of May, 1707, Scotland became united to England, amid the dejection and despair of the people, and under a sullen expression of discontent, which was fully justified not only by the terms of the treaty, but by the manner in which the treaty was carried. An influx of English revenue officers now overspread the country, till then but slightly acquainted with the oppressive laws of revenue, and their severe exactions tended to keep up the resentment of the nation. Nor was the Union productive, for many years, of those advantages which were at first expected. A feeble attempt to obtain a share in the colonial trade was defeated by new regulations which the commercial jealousy of the English merchants procured. No new manufactures were attracted to Scotland; on the contrary, commerce became more languid than before, and the price of land and rents fell. Every national exertion was discountenanced, and during nearly fifty years, either the interests of the country were disregarded, or it was treated like a conquered province, prone to revolt. The nation, in short, appeared to be

stationary, and was certainly far less progressive than if no Union had ever been contracted. On the 1st of May, 1708, the privy council of Scotland was abolished, and one privy council was settled for the united kingdom. The useful institution of justices of the peace was extended to Scotland. The circuit courts, which brought justice into every district were regulated. The English laws of treason, much more savage and harsh than those of Scotland, were also extended to this country; but, to balance this, it was declared that no person who was accused of any crime should hereafter be subject to torture. In addition to these changes, some ecclesiastical measures were adopted, perhaps with equal success, though they were opposed by the church judicatories. Episcopal congregations were protected as legal; and it was declared, that no forfeiture should be incurred, in consequence of any ecclesiastical censure. The right of patronages was restored to those who were supposed to represent the original founders of the several churches. In order to give effect to all these measures, a secretary of state for Scotland was appointed, who was soon found to be of less use than had been originally conceived.

The death of Queen Anne, on the 1st of August, 1714, transferred, under the act of settlement, the united crown to George I. The early measures of the new reign were dictated by extreme violence, an impolicy which produced disaffection in England and rebellion in Scotland A few months of the year 1715 saw the rebellion under the earl of Mar suppressed (see *Britain*). Forfeitures followed in its train, and the jurisdictions which were thus transferred from the ancient proprietors, who had only used them for selfish purposes, were annexed to the crown. The spirits of men, during these party conflicts, were still greatly embittered; and the year 1718 was marked by the issue of a commission of vengeance, when the terrors of insurrection had ceased. Commissioners of Oyer and Terminer sat at Perth, Dundee, at the county town of Fife, and at Kelso on the Tweed, to inquire into the treasons which had been committed in 1715. But the firmness of the grand juries in negativing the presentments, taught their rulers the wisdom of forbearance, after justice had had her sacrifices. In the subsequent year, there was an invasion of North-Britain by a small number of attainted nobles, on the western coast of Ross-shire, which was soon repulsed. The parliament, in 1725, enacted, that the highlanders should be disarmed; and this was performed with mildness and discretion by General Wade. But insurgents of a very different sort soon came upon the stage. The malt-tax, which had occasioned, during the late reign, a motion in parliament for a dissolution of the Union, was extended over Scotland during the present. The voice of every party and every person in this country was now raised in reprobation of this hated measure. An insurrection broke out at Glasgow, on the 24th June, 1725, in which the house of its representative in parliament was sacked, and the king's troops expelled the city. Every town and village was ready to imitate their example; and the king's servants at length saw that the united passions of a whole people must be respected. They abolished the office of secretary of state for Scotland, and sent to that country, as a confidential agent, the earl of Islay, a nobleman of uncommon address and talents, yet of little scrupulosity in his means. General Wade with Duncan Forbes, the king's advocate, marched at the head of an army into Glasgow. The principal insurgents were arrested; the magistrates of that city were carried prisoners to Edinburgh, where they were not long detained. By great efforts of management and perseverance, the malt-tax was enforced with some mitigations; but a proper respect was henceforth paid to the spirit of the people.

In June, 1726, the king invited the convention of royal burghs "to prepare schemes for their future welfare." Royal trustees were appointed, in 1727, for carrying those schemes into practical effect. A royal bank was at the same time established, at Edinburgh. In 1723, a society for the improvement of agriculture was formed at Edinburgh, consisting of the most distinguished personages in Scotland. This society continued its meetings and exertions till the rebellion in 1745 shed its baneful influences upon it.

Meantime, the death of George I., on the 10th May, 1727, transferred his crown, under the act of settlement, to George II. The ten years of peace which succeeded his death, contributed to the national prosperity. A war began, in 1738, with Spain, which drew on hostilities with France, in 1744; and, in addition to the calamities of both, Scotland was soon involved in the miseries of insurrection. Much had been done for preserving quiet; yet more remained to be carried into effect, during the existing circumstances, for giving vigour to law, and teaching obedience to the governed. The whole country was distracted by domestic faction. The districts lying northward of the Forth were actuated by discontents, which were peculiar to themselves. Of all those dissatisfactions, the king's ministers were amply informed; yet were unable, or unwilling, during unpropitious times, to apply adequate remedies to those various disorders. In this state of affairs, the nation was threatened with an invasion from France. In August, 1745, the standard of revolt was raised, within the recesses of the highlands, under the auspices of a grandson of James VII., who now claimed what his grandfather was declared to have forfeited. The successes of the revolted, during eight months, evinced the weakness and impolicy of the king's ministers. At length, on the 16th of April, 1746, that rebellious standard was torn down for ever, at the battle of Culloden.

On the 25th of March, 1747, an act "for taking away heritable jurisdictions," was passed. Other laws were passed, for giving full effect to that salutary measure. It was objected, indeed, that those jurisdictions had been saved by the Union, to the proprietors. But, it was observed, that the power of parliament had been also reserved to alter the union, for the obvious melioration of the whole people. And another principle of the constitution was brought in to aid that reservation; by declaring that the fair value of those private rights should be settled by the court of session, and paid for by the public. The great object appears to have been "to make effectual provision for the regular administration of justice throughout North-Britain, by the king's judges." Such were the measures arising from the rebellion of 1745, which gave completeness to the union of 1707.

By the abrogation and sale of hereditary jurisdictions, the poverty of the nobles was relieved, and the people were emancipated from their oppressive coercion. In 1755, the situation of Scotland attracted the peculiar attention of Pelham's administration, and from that period the benefits of

the Union began to be universally felt. The forfeited estates, instead of being sold as formerly, were appropriated to objects of national improvement; and industry was promoted by every encouragement which bounties can confer. The progress of industry and trade now became great. New manufactures were introduced with success, and the rapid cultivation of the country redoubled the produce and the value of the soil. Before the commencement of the American war, the merchants of Glasgow had engrossed the chief trade in tobacco for exportation. The interruption of trade during that disastrous war, directed their capital, and the national industry, to the improvement of domestic arts, and from the perfection of modern machinery, the cotton manufacture, a recent acquisition, in all its branches so prodigiously increased, already rivals and supplants the production of the ancient looms of Indostan. Undoubtedly much is to be ascribed to the spirit and progressive state of the nation; but without the Union, its unavailing efforts would have still been uncountenanced by the commercial jealousy and depressed by the influence of the English government. See the articles *Britain* and *England*.

Ecclesiastical History.—Christianity was introduced into Scotland as early as the fifth century; and like other parts of Western Europe, this country became subject to the authority of the Holy See, and the church was governed by a priesthood, distributed into various ranks. The monastic and mendicant orders here flourished, especially under the patronage of David I., whose great liberality to the church occasioned one of his successors to observe, on his being called St David, that he was "ane sair saint for the crown." All the churches in Scotland previous to the Reformation belonged either to regulars or seculars. The regulars followed St Augustine, bishop of Hippo, St Bennet, &c.; and were either canons, monks, or friars. The seculars followed rules dictated by their own chapter, and lived in separate cloisters, or in private houses near their own churches; and were governed by a dean, or provost. Those that followed St Augustine were the regular canons of St Augustine,—the Præmonstratenses,—the Red Friars,—the Dominicans or Black Friars,—the Lazzarettos,—and the canons of St Anthony. St Bennett's followers were the Benedictine monks of Marmontier, of Clugny, of Tyron,—the Cistertians, or Bernardines,—and the Vallis Caulian monks, so called from Vallis Caulium, in the diocese of Langres, in France,—the Carmelites, or White Friars,—the Franciscans,—and the Carthusians. All these were subdivided into rented religious and mendicant or begging friars. Under the first denomination, were canons regular, and the Benedictine, Cistertian, Carthusian, Vallis Caulian monks, and Red Friars. Under the second were the Black, Gray, and White Friars. At this time also more than half the wealth of the nation was possessed by the Popish clergy, and the greater part of this was in the hands of a few who ruled the rest. Bishops and abbots rivalled the first nobles in magnificence, and preceded them in honour: they were privy councillors, and lords of session, as well as of parliament; and the principal offices of the state, for a long time, were wholly engrossed by them. The inferior benefices were openly put to sale, or bestowed on the minions of bishops. Benefices given *in commendam* were kept vacant during the commendator's life, sometimes during several lives, to the deprivation of extensive parishes of all provision of religious service. Besides the regular and secular clergy, there were nuns of St Austin, St Clare, St Scholastica, and St Catherine of Sienna, and canonesses of various orders, whose general ignorance was as great as their morals were gross. Though the papal see had not the power of presenting to the Scottish prelacies, it never wanted numerous pretexts for interfering with them. The most important civil causes, which they had contrived to bring within the pale of their ecclesiastical jurisdiction, were carried to Rome; whither also, money in large quantities was sent for the purchasing of palls, the confirmation of benefices, and the conducting of appeals, &c. In 1528, the desire of reformation which agitated other parts of Europe, made its appearance in Scotland. The doctrines of Luther were rapidly and widely diffused throughout Scotland, notwithstanding the opposition of the clergy. At last a more systematic persecution was resorted to, and the first martyr whose blood flowed in the cause of the Reformation in Scotland was Patrick Hamilton, abbot of Fearn, who had imbibed the new tenets during his travels on the continent from the conversation of Luther and Melanchthon, and had begun to propagate them on his return to his native land with great success. In 1538, Forest, a Benedictine friar, and a disciple of Hamilton, was condemned to the stake for vindicating the tenets of his master; and in the following year the friars Keiller and Beveridge, Sir Duncan Simpson, Forrester, and Forrest, vicar of Dollar, were condemned as heretics by a convocation of bishops assembled in Edinburgh, and burnt together in the same fire on the Castle-hill. Such violent proceedings alarming the Protestants, many of them saved themselves by voluntary exile; but others boldly remained behind and became the apostles of the new doctrines to their countrymen.

The Reformation in Scotland commenced in the reign of James V., and made considerable progress under that of his daughter, though both of them were Catholics; it was completed by the abilities and fervent zeal of John Knox, and other Protestant preachers, who had adopted the doctrines of Calvin, established at Geneva. In 1560, the Roman Catholic religion was abolished, and the Reformation was sanctioned by act of Parliament. Until a regular form of church-government was settled, a few superintendents were appointed, who were accountable to the general assembly. As soon as presbyteries were erected, the office of superintendent ceased. General assemblies began in 1560, and continued to meet twice every year, for the space of twenty years; after which they were annual. From 1572 to 1592, a sort of Episcopacy obtained in the church, while the ecclesiastical form of government was Presbyterian. Meantime, the dignitaries of the church and the nobility monopolized the revenues of the church, and left the reformed clergy in a state of indigence. After much deliberation, the Protestant leaders resolved to provide a state-maintenance for their teachers, and the following plan was adopted. Two-thirds of all ecclesiastical benefices were reserved to the present possessor, and to the crown the remainder was annexed, out of which a competent subsistence was to be assigned to the Protestant clergy. But the revenue thus appropriated, instead of being duly applied, was diverted into other channels. In 1587, all the unalienated church-lands were annexed to the crown; and the tithes alone were reserved for

the support of the clergy. Bishops continued till 1592, when presbyterian government was established by an act of parliament, and a division was made of the church into synods and presbyteries. But the king, desirous of having the power of the bishops restored as a balance to the nobles in parliament, prevailed on a majority of the clergy, in 1597 and 1598, to agree that some ministers should represent the church in parliament, and that there should be constant moderators in presbyteries. In 1606, by act of parliament, the temporalities of bishops were restored; and they were allowed a seat in parliament. Thus the presbyterian government was overturned. In 1610, episcopacy was established by an act of the general assembly at Glasgow. To this change of government the civil sanction was given in 1612; but the subordination of judicatories was regularly kept up until Charles I. mounted the throne. Assemblies were then set aside; but synods and presbyteries were continued. Bishops, now being under no control, and encouraging tyranny in the state and innovation in the church, became so hateful, that all ranks concurred in their ejection. By an act of the general assembly in 1638, episcopacy was condemned, and the bishops were deposed. This restoration of presbyterian government was ratified by parliament in 1641. By another act, landholders were permitted to buy their own tithes, at from six to nine years' purchase, liable however to the augmentation of stipends. General assemblies were annually kept till 1653, when this court was put down by the civil power. From this time till 1690, there was not a meeting of the general assembly, In 1662, the government of the church by bishops was restored by the royal prerogative, and in the same year was ratified by parliament. Synods and presbyteries were allowed. A persecution of presbyterians ensued, during which about 400 ministers were ejected for nonconformity, and great numbers of covenanters perished for their testimony.

In 1689, prelacy was declared, by a convention of estates, to be a national grievance, which ought to be abolished. In 1690 the presbyterian government was restored and established by parliament; and the general assembly met, after it had been discontinued from the year 1652. Hitherto, the provision for the maintenance of the clergy was inadequate. Complaints being made to king James in 1602, commissioners, in 1617, were appointed to plant churches and modify stipends. By these commissioners the lowest stipend was fixed at six chalders of victual, or 500 merks. In 1633, the *minimum* of stipends was raised to 800 merks, or eight chalders of victual. As the value of grain soon after rose to £100 Scots per chalder, this became the legal conversion in adjusting stipends, and in the valuation and sale of tithes.

The presbyterian church government, afterwards secured in the treaty of Union, is founded on a parity of ecclesiastical authority among all its presbyters or pastors, and modelled after the Calvinistic plan in Geneva, which Knox recommended to his countrymen. This form of government excludes all pre-eminence of order, all ministers being held equal in rank and power. The manner in which power is distributed among the judicatories of the church is as follows: Scotland is divided into parishes, each of which has one pastor, who discharges the pastoral office according to his discretion, and is accountable to the presbytery of which he is a member. In matters relating to discipline, a pastor is assisted by elders, who ought to be selected from among the most intelligent and consistent of the parishioners, but who have no right to teach, nor to dispense the sacraments. Their proper office is to watch over the morals of the people, and to catechize and visit the sick. They likewise discharge the office of deacons, by managing the funds for the maintenance of the poor within their bounds. The elders and ministers compose what is called a *Kirk* or *Church-session*, the lowest ecclesiastical judicature in Scotland. When a parishioner is convicted of immoral conduct, the church-session inflicts some ecclesiastical censure. If a person thinks himself aggrieved he may appeal to the presbytery, which is the next superior court. The ministers of an indefinite number of contiguous parishes, with one ruling elder chosen half-yearly, out of every church-session, constitute what is called a *presbytery*, which has cognizance of all ecclesiastical matters within its bounds. Presbyteries take trial of candidates for the ministry, whom, if they find duly qualified, they license to preach, but not to dispense the sacraments. Holy orders are not conferred on such licentiates till they acquire a right to a benefice. Presbyteries also judge their own members, at least in the first instance. But appeals from their judgments to the synod, in whose bounds the presbytery lies, are competent. Presbyteries originally held their meetings every week, now every month; and they have power to adjourn to whatever time or place within their district they shall think proper. But, if they neglect to adjourn, they are considered as defunct, and can only be revived by the General Assembly, and not by act or deed of their own.

Synods are composed of several presbyteries, and of a ruling elder from every church-session within their bounds. Most of them meet twice a year, viz. in April and October. They review the procedure of presbyteries, and judge in references, complaints, and appeals from the inferior court. But their decisions and acts are reversible by the *General Assembly*, which is the highest ecclesiastical court, and from which there is no appeal. For a more full account of church judicature, see our article, *Assembly, General*.

There are thirteen provincial synods: 1. Lothian and Tweeddale, containing the presbyteries of Edinburgh, Linlithgow, Biggar, Peebles, Dalkeith, Haddington, and Dunbar. 2. Merse and Tiviotdale; presbyteries, Dunse, Chirnside, Kelso, Jedburgh, Selkirk, and Lauder. 3. Dumfries; presbyteries, Middlebie, Lochmaben, Penpont, and Dumfries. 4. Galloway; presbyteries, Kirkcudbright, Wigton, and Stranraer. 5. Glasgow and Ayr; presbyteries, Ayr, Irvine, Paisley, Hamilton, Lanark, Glasgow, and Dumbarton. 6. Argyle; presbyteries, Dunoon, Campbelton, Inverary, Kilmoir, and Skye. 7. Perth; presbyteries, Dunkeld, Perth, Dumblane, Stirling, and Auchterarder. 8. Fife; presbyteries, Dunfermline, Kirkaldy, Cupar, and St Andrew's. 9. Angus and Mearns; presbyteries, Meigle, Dundee, Forfar, Brechin, Aberbrothock, and Fordoun. 10. Aberdeen; presbyteries, Kincardine, Aberdeen, Alford, Garioch, Deer, Turreeff, Fordyce, and Ellon. 11. Moray; presbyteries, Strathbogie, Elgin, Forres, Inverness, Abernethy, and Aberdour. 12. Ross; presbyteries, Chanonry, Tain, Dingwall, and Dornoch. 13. Orkney; presbyteries, Caithness, Orkney, and Shetland. For an account of the most numerous and important body of dissenters in Scotland, see the article *Secession*.

Antiquities.—Some of the antiquities of Scotland are described in the articles relating to the places where they are noticed. Of Roman Antiquities none are more remarkable than the fortified line between Forth and Clyde, called by the different names of *Agricola's wall*, *Antoninus' wall*, and *Graham's dyke*. The accounts of the commencement and termination of this rampart, at its east and west ends, are different; some making it to commence at Caer-ridden on the Forth, and to terminate on the Clyde at West Kilpatrick,—others making it commence at Kinneil, and terminate at Dunglass; but the difference in length in these cases, is very inconsiderable, not amounting to more than a mile. The whole length is forty Roman, or twenty-seven British miles. The rampart consisted of a ditch, of which the dimensions are not now well known, though it is presumed to have been twelve feet wide. It is supposed that the foundation of this rampart was formed of stone, and that it was, at least in places much exposed to attack, faced with stone. Upon the wall, at different distances, forts were erected. At less considerable distances, turrets were reared for the accommodation of small bodies of troops, employed in the defence of the rampart. Of the larger forts, eighteen are known to have existed, at the distance of about two miles from each other; of the inferior turrets, the number and intermediate distances are unknown. Along the south side of the rampart, a military way was formed for the accommodation of troops passing from one part of it to another. Of this road the vestiges have for the most part disappeared; though in a few places it is still visible. The curious monument on the banks of the Carron, in Stirlingshire, called Arthur's Oven, and supposed to have been a temple of the god Terminus, was destroyed in the last century, for the sake of the materials of which it was built, by the proprietor of the soil. General Roy, and other antiquarians, have investigated, with considerable success, the course of the Roman roads through Scotland; but the existence of them are very inconsiderable, though there are many obvious indications of the camps and stations with which they communicated. Among the thirty-three British cities, specified by Richard of Cirencester, as the most celebrated and conspicuous, three only appear to have been situated in North Britain; these are, Theodosia, Dumbarton; Victoria, Dealgin Ross, Perthshire; and Prorotон, Burghead, Elginshire. Of the remains of Roman camps, that at Ardoch, in Perthshire, supposed to have been that occupied by Agricola, in his fourth campaign, in the year 84, is the most remarkable, and is reckoned the most complete. It appears to have been surrounded by three or four ditches and ramparts. Its length is 1060, its breadth 900 feet; and, according to the ordinary distribution of Roman soldiers in their encampments, it is reckoned to have been sufficient for 26,000 men. The passages across the ramparts to the gates upon the four sides, are still visible; and within the camp, but not exactly in its centre, may be distinguished the *prætorium*, or general's quarters. The camps of the Danes are seen in many places of Scotland, and are distinguished from those of the Romans, by being of a circular form, and generally placed in situations difficult of access. Circles of obelisks, called, by some antiquarians, druidical temples; by others, supposed to be places for the administration of justice among the Gothic nations, are found in several districts; one of the most remarkable is at Uig, in the Isle of Lewis, Ross-shire; it consists of twelve stones, set on one end, about seven feet high, and about six feet distant from each other. The centre is occupied by an obelisk, rising to the height of thirteen feet. At Brechin, and at Abernethy, are circular towers, which have baffled the penetration of the antiquarians, to discover either by whom they were erected, or for what purpose. That at Abernethy is seventy-four feet in height, and forty-eight in circumference, and consists of sixty-four courses of hewn stone. The height of the tower at Brechin is eighty feet; that of an octagonal spire, which surmounts it, is twenty-three feet, making the whole elevation 103 feet. The diameter at the foundation is sixteen feet. Of what have been termed vitrified forts, the most remarkable is that of the hill of Knockfarril, near Dingwall, in Ross-shire. The enclosure is 120 feet long, and forty feet broad. Another is situated on the hill of Craigphadrick, near Inverness, the enclosure eighty paces long, and twenty-seven broad. Similar vestiges are perceived at Dunevan, Nairnshire; at Fordun castle, near Fort Augustus; on the west side of Glenevis, in Lochaber: at the castle of Finhaven, in the county of Angus; on the hill of North, Aberdeenshire; and in many other places. Many specimens remain of the baronial castles of the middle ages, and of the churches and monasteries.

Descriptive Geography.—Scotland may be considered a mountainous country, as it posseses very little of what may be called level land, except those tracts along the courses of its principal streams. Yet it is nationally divided into two distinct portions,—the Highlands and the Lowlands,—although it may, with more propriety, be naturally divided into three parts,—the Northern, the Middle, and the Southern districts. The Northern is separated from the Middle district by the chain of lakes occupying the great valley of Glen-more-na-h'-alabin, and extending from the Firth of Moray to Loch Linnhe. The second, or Middle district, reaches southward to the Firths of Forth and Clyde, now connected by the canal to which those rivers give name; and the Southern district, of course, lies between this line and the English border. The Northern district is almost wholly rugged and mountainous, forming a most irregular surface, inclining from the west towards the north-east and east, on which side, near the coast, are vales and level lands sufficiently fertile to repay the toils of husbandry. The Middle district is likewise extremely mountainous on the west and north, where stretches the rocky spine of the Grampians, almost across the island; but here the flat country is more extensive, sloping on one side of the hills, towards the north, and on the other side, towards the eastern coast. The southern district, though less elevated than the preceding, is by no means destitute of hills, among the chief of which are those of Pentland and Lammermuir. There are also considerable tracts of moss and heath, but the fertile and cultivated portions are of more extent, and the coast on the north-east, the west, and the south, are the principal seats of national industry and commerce, the influence of which extends into the interior of this district, which, as well as the eastern coast of the preceding, is thickly inhabited, and said to contain a larger proportion of cultivated land than many parts of England.

Few countries exhibit a greater diversity of surface and aspect than Scotland. Its mountains vary in extent and altitude, from the swelling hill or

spreading upland, the heath-clad height or naked rock, to the mountain ridge of the Grampians, and the snowy peaks of Ben Lawers and Ben Nevis, the loftiest in the island. Wide tracts of moss and moor, sandy plains, deep melancholy glens and valleys, through which rush mountain streams, often forming in their descent grand and beautiful cataracts, and terminating in lakes, some of which are interesting from their picturesque scenery, and some from their vast extent and importance; all contribute to the richness and variety of the prospect. Nor are the milder features of the landscape wanting; for in some parts are fertile cornfields, and verdant meadows and pastures, interspersed with woods and plantations, and exhibiting the effects of human art and industry.

Scarcely any country has its shores indented with so many *bays*, *lochs*, and *inlets* of the sea as Scotland; and such is their extent and variety, that there is no place above forty miles distant from the waters of the ocean. On the eastern side of the kingdom are the firths of Dornoch, Cromarty, and Moray, the last mentioned communicating with the great chain of lakes crossing the kingdom; and the firths of Tay and Forth with their various harbours; and on the south and west sides are Wigton Bay, that of Luce, Loch Ryan, the Harbour of Ayr, the firth of Clyde, with its communicating lochs and inlets, Loch Fine, Loch Linnhe, and a multitude more of various extent and importance.

The chief *rivers* of Scotland are the Forth, the Clyde, the Tay, the Spey, the Dee, the Don, the Tweed, the Annan, and the Nith. It possesses also a number of smaller streams, distinguished by the beauty of the scenery through which they pass. An account of the more important rivers will be found under their respective heads, in this Encyclopedia.

The *lakes* of Scotland are extremely numerous, and some of them of great extent. In beauty and sublimity of scenery, some of them are not to be surpassed. They form, indeed, the most striking and interesting feature in Scottish landscape. Descriptions of the more celebrated will be found either under their proper heads, or under the counties to which they belong. The following table exhibits the superficial extent of a few:—

	Square Miles of Surface.
1. Loch Lomond, Dumbarton and Stirling	45
2. Loch Awe, Argyle	30
3. Loch Ness, Inverness	30
4. Loch Shin, Sutherland	25
5. Loch Mair, Ross	24
6. Loch Tay, Perth	20
7. Loch Arkieg, Inverness	18
8. Loch Shiel, Inverness	16
9. Loch Lochy, Inverness	15
10. Loch Laggan, Inverness	12

The principal ridges of *mountains* in Scotland are those of Ardross, in Ross-shire; the Grampian hills; the Ochil hills, in Perthshire; the Pentland hills, in Lothian; the hills of Lammermuir, in Berwickshire; the great chain of hills between the shires of Lanark and Dumfries; and the Cheviot hills, on the English border; besides which there are several mountain-peaks of great elevation, as Ben Nevis, Ben Hope, Ben Ledi, Ben Lomond, Ben Ivas, Ben Voirlich, Benvenue, Ben More, Ben Lawers, Belrinnes, Cruachan Beinn, Cairn Eilar, Cairn Harrah, Cairn Naple, Cairnsmuir, and Glenquhargen Craig. Ardross is a rugged mountain chain, occupying the central part of Ross-shire, almost destitute of inhabitants. The Grampian hills extend across the centre of Scotland, from the district of Cowal, in Argyleshire, bordering on the Atlantic, to Aberdeen, on the German ocean, whence another ridge diverges in a north-westerly direction, through Aberdeenshire to that of Elgin and the confines of Inverness. These mountains vary in elevation, from 1400 to 3500 feet above the level of the sea, and some peaks are of much greater height. The southern side of the principal ridge declines gradually into a champaign country of great extent and fertility; and the mountains themselves, though often clothed with heath, or consisting of naked rocks, are intersected in numerous directions by winding valleys, watered by limpid streams, and covered by verdant pastures, sheltered by flourishing woods and plantations. There are some deep and narrow defiles, through which the rivers falling from the mountains rush with impetuous force, and form grand and beautiful cataracts. These openings are called passes, some of which were highly dangerous, and scarcely passable before bridges were erected; such are the pass of Lenny, that of Aberfoyle, and the famous passes of Killicranky, and the Spittal of Glenshie. Beyond these defiles are plains of various extent, covered with villages and cultivated fields, amidst expanses of water, fed by a multitude of rivulets, stored with fish of different kinds. The higher levels and more irregular heights of the mountains afford excellent pasture for sheep; and the glens and valleys supply food for numerous herds of black-cattle. The northern side of the Grampian hills is much more rugged than the southern; and there are seen vast masses of rock piled one upon another. To this range belongs the Cairngorum, or Blue Mountain, situated in the parish of Abernethy, between the shires of Banff and Elgin, of a conical figure, having its summit, which is 4050 feet above the level of the sea, generally covered with snow. The Binnabaird, in Aberdeenshire, and some of the heights in the shires of Perth and Forfar, are among the loftiest peaks of the Grampians. The lofty range, called the Ochil Hills, extends from the parish of Dumblane, in Perthshire, into the county of Fife. These mountains are covered to their summits with verdure, and overspread with flocks and herds; and the intervening glens and hollows are watered by streams, stealing gently through them, or rushing with noisy violence from the precipitous cliffs; while in various parts are villages, farms, and cottages, sometimes skirted and sometimes enclosed with woods. The highest hill is Bencloch, or Bencleugh, the head of which is 2420 feet above the level of the sea. The Pentland hills extend from the vicinity of Edinburgh westward to the borders of Clydesdale. The termination of this range towards the east is somewhat abrupt; and on the north side the surface of the rock, when viewed from a distance, appears of a bright white hue, at the height of 1460 feet above the level of the sea. The hills of Lammermuir, or Lammermoor, consist of an elevated tract of moorland, stretching from Dunglass, in Haddingtonshire, and Coldingham, in Berwickshire, on the east, to Soutra Hill, in the western part of the former county, and having a breadth of from thirty to forty miles. They are interspersed with well-watered vales and glens; and the whole district is generally appropriated to the feeding of sheep; turnips, &c. being raised in the cultivated parts for their support during the depth of winter. The mountainous ridge on the borders of the shires of Lanark and Dumfries, forms part of a waving line

of hills, connected with the mountains of Carrick on the west, and with those of Selkirkshire and Lammermuir on the east. The Cheviot Hills extend along the south-east border of Roxburghshire; and connected with them, on the north, are Cocklaw, Ruberslaw, the Wisp, the Dunian, and other mountain heights. Ben Nevis, situated northward of the great chain of the Grampians, in the parish of Kilmallie, Inverness-shire, is the highest mountain in Great Britain, its summit being 4370 feet above the level of the sea. Ben Lawers, near Kenmore, in Perthshire, is a conical peak, the top of which is 4015 feet above the sea; and Ben Ivas, or Wyvis, in the parish of Fodderty, Ross-shire; Ben More, near Loch Dochart, in Perthshire; and Cairn Eilar, or the Hill of Eagles, at the junction of the counties of Perth, Inverness, and Aberdeen, are of a height somewhat inferior to that of Ben Lawers.

The *valleys* of Scotland claim attention next to her mountains. Many of them are intersected by rivers and lakes, and exhibit the most picturesque scenery. Stretching transversely across the island, from sea to sea, is the Great Glen of Caledonia, with its chain of lakes, now connected so as to form the Caledonian Canal; Strathmore, or the Great valley, traverses the kingdom from Stonehaven in Kincardineshire to the district of Cowal in Argyleshire, between the Grampian hills on the north, and the Sidlaws, Ochils and Lennox hills on the south; and another great but irregular valley extends from the Moss of Kincardine in Perthshire, south of the river Teith, to Clydesdale in Lanarkshire, chiefly lying between the Forth and the Clyde, and traversed from east to west by the canal which unites those rivers. The Carse of Gowrie, in Perthshire, is a fine tract of vale land; and the straths and glens of limited extent are numerous, including the fruitful districts of Strathblane in the shires of Stirling and Dumbarton, Stratherne in that of Perth, Glendevon in the same county, Glenorchay in Argyleshire, Glenbervie in Kincardineshire, and Glenkens in the stewartry of Kirkcudbright, watered by the streams from which they respectively derive their appellations. The level tracts, called moors and mosses, generally barren, unless where the land has been reclaimed by human industry, are more numerous, and cover a wider extent of surface, than those in South Britain. Some of these wastes have been rendered very productive, by the operations of skill and enterprise.

Scotland is divided into thirty-three counties, of very unequal sizes. Some of the larger shires were originally provinces, and others of smaller extent, sheriffwicks, an appellation sometimes yet retained. The various shires will be found described under their proper heads. The following table exhibits the extent of the several counties of Scotland. It was constructed from Arrowsmith's large map of Scotland, by Mr Jardine and Sir George Stuart Mackenzie. The map of Scotland constructed by Arrowsmith, is perhaps the best that has hitherto been published. It does contain a few errors in the position of places, and a few in the courses of rivers, but none have yet been discovered that can affect the present calculation in any material degree. On the whole, the table may be regarded as the nearest approximation to truth hitherto attempted. By the term *water*, mentioned in the subsequent table, is to be understood only the *fresh* water of lochs; that of rivers and salt water firths not being included:—

Counties.	English Square Miles.	English Acres.	Scotch Acres.
Aberdeen,	1,934·50	1,238,080	981,580
Argyle,			
Mainland,	2,212·84	1,415 898	1 122,559
Islands,	785·65	502.816	398,645
Water,	39·11	20,554	16,395
Ayr,	1,042·01	666,886	528,724
Banff,	632·60	404 864	320,986
Berwick,	478·52	306,258	242,805
Bute,	153·98	98,547	78,131
Caithness,			
Land,	737·79	472.186	374 360
Water,	6·45	4,128	3,275
Cromarty,			
Land,	258·88	102.451	128 795
Water,	8·57	5,485	4 848
Clackmannan,	52·55	33,632	26,664
Dumfries,	1,271.40	813,696	645,118
Dumbarton,			
Land,	246·17	157,549	124 909
Water,	32·54	20,826	16,511
Edinburgh,	387·49	247,994	196,635
Elgin,	472·02	302,093	239,507
Fife,	521·44	333,722	263,553
Forfar,	977·97	625,901	496,230
Haddington,	290·96	186,214	147,635
Inverness,			
Mainland,	2,726·65	1,745,056	1,383,524
Islands,	1,038·00	662 400	525,167
Water,	83·79	53,626	42.496
Kincardine,	400·91	256,582	203,425
Kinross,			
Land,	83·83	53,752	42.536
Water,	77·07	49,325	39,106
Kirkcudbright,	814·51	521,286	413 289
Lanark,	953·61	635,910	504,166
Linlithgow,	134·27	85,933	68,130
Nairn,	196·65	125,856	99,782
Orkney, *			
Land,	313·75	200.800	159,199
Water,	9·15	5,856	4.643
Shetland Islands,	516·62	330,637	262.137
Peebles,	347·10	222,144	176,121
Perth,			
Land,	2,830·80	1,811,392	1,436,116
Water,	33·58	21,491	17,039
Renfrew,	232·49	148,794	117,967
Ross,			
Mainland,	2,033·98	1,301,747	1,032.057
Islands,	561·17	359,149	284,742
Water,	39·42	25.229	20,002
Roxburgh,	725·81	464,518	368,282
Selkirk,	265·91	170,182	134,925
Stirling,	532·33	340,691	270,108
Sutherland,			
Land,	1,865·53	1,193,939	946,585
Water,	37·86	24,230	19,210
Wigton,	442·78	283,379	224,670
Total, Land,	29,510·87	18 888,894	14,957.406
Total, Water,	360·13	230,758	183,523
Total.	29,871·00	19,119,652	15,140,929

* Orkney and Shetland form only one county.

Natural productions.—The most plentiful minerals of Scotland are lead, iron, and coal. The lead mines are in the south of Lanarkshire and in Dumfries-shire. A mine of silver was formerly opened in the Ochils; but it now furnishes only cobalt. A small portion of silver is found in the ore of Scottish lead. Copper has been found in different places, but in small quantities. Mercury is not unknown; but the quantity procured is very inconsiderable. A productive mine of antimony has been opened in Dumfries-shire. Iron is found in many places; and the quantity is such, as to supply several of the greatest works any where to be seen. The quantity of iron manufactured at Carron alone is very great. Coal is not less plentiful than iron, forming a source of wealth to the country, and greatly aiding the manufacturer in many of his undertakings. It is supposed that the largest untouched field of coal in Europe exists in Scotland, in that singular tract of barren country in Carluke and Cambusnethan parishes, on the north of the Clyde; from thence continuing, at intervals, as far as Douglas parishes, Glenbuck and Muirkirk in Ayrshire, and thence to the town of Ayr. The

Cleugh, or Wilsontown, in Lanarkshire, is the south-east of this extensive coal field, is excluded by the Shotts hills, but extends on the west, along the basin of Clyde. As it is supposed by some experienced mineralogists, that the whole of the coal between the Forth and Clyde will be exhausted in forty years, this inexhaustible supply will be of the greatest importance. Little coal has hitherto been found in the northern parts of Scotland; but whether the search has been properly made seems to be more uncertain. How long this mineral has been worked is uncertain. Pope Pius II., in his description of Europe, written about the year 1450, mentions his astonishment at beholding black stones, so he denominates coals, given as alms to the poor of Scotland. But this mineral may be traced to the twelfth century. The Lothians and Fifeshire abound with coal, which also extends along the Ayrshire coast and Renfrewshire. The great coal tract along the Clyde is in the form of an isosceles triangle, the vertex or top being near Glasgow, and the base towards Carluke, the length being twenty-two miles. Among other Scottish minerals are bismuth, manganese, wolfram, plumbago, and zinc. Marble of various colours, and susceptible of the highest polish, is to be found in many places. Fine statuary marble is found in Assynt and Blair Gowrie, in Perthshire. Fine black marble is found near Fort William, and is fretted with white, like lace-work; and dark brown, mixed with white, occurs in Cambuslang parish, Clydesdale. Jasper is found in various parts; a curious variety is presented at Arthur's Seat, and on the western shore of Icolmkill are many curious pebbles of various descriptions. Fullers-earth is found in Kintyre; and it is supposed that there is a vast mass of talc in the mountains, originating in the Findhorn river, as large pebbles of it are sometimes found in that stream. Agates, garnets, and Cornelians, or Scotch rubies, are abundant, and are no where surpassed in beauty and variety. Chalcedony is found in Fife, and in large masses on the hill near Langholm, and is equal in hardness and water to the Oriental. Most of the mountains belonging to the Grampian chain are granite. According to Williams, the lofty Ben-nevis is one solid mass of red granite, which he traced, at the base, for four miles along the course of a rivulet. The elevation of this mass he computes at 2,600 feet, and above it are stratified rocks, so hard and tough that wrought iron falls short of them. The granite of this mountain is said to equal the Egyptian in beauty. From Portsoy to Trouphead are found vast masses of that singular kind of granite called Moses' tables, which, when polished, resembles Hebrew characters, on a white ground. Whether gems and precious stones, properly so called, are found in Scotland, is yet dubious, because quartz and fluor spar assume various hues; and what are called sapphires, rubies, and emeralds fall under one or other of these descriptions, while the real gems belong to the argillaceous class, and when minutely examined, consist of very thin layers, a form peculiar to the argillaceous class. However this be, what are called sapphires are found in different places, of various shades, from a deep red to a transparent white, and equal in hardness to the Oriental. The topaz is found in many of the Highland mountains, particularly the Cairngorm, and in Goatfell, in Arran; they are generally called Cairngorm stones, from the mountain of that name, and are of various hues, and in hexahedral crystals. The ruby and hyacinth are found near Ely, in Fifeshire, but of inferior lustre and small size. Emeralds are found in several places, and amethysts are pretty frequently to be met with, particularly in the mountain Lochnagaraid, in Aberdeenshire; some of them an inch in diameter, of a good colour, and worth from thirty to forty guineas each. Freestone and limestone every where abound. Mineral waters are numerous. The chief are Aithrey, Dumblane, and Pitcaithly, in Perthshire; Moffat wells, in the south; and Peterhead, in the north.

The wild animals of Scotland are the fox, the badger, the otter, the wild-cat, the hedgehog, the stag, the wild roe, the hare, the rabbit, the weasel, and other small quadrupeds. Formerly Scotland was also the abode of the wolf, the beaver, and the wild ox, but they are now extinct, with the exception of some of the latter still retained in the duke of Hamilton's parks. The domestic animals are the same as those of England; but the native breed of black cattle and sheep is considerably different, being smaller in size and reputed to afford more delicious meat. The Galloway and Shetland ponies, and the colley, or true shepherd's dog, of the unmixed breed, are peculiar to Scotland. Numerous species of the feathered tribes are found here. Pheasants are met with in the woody districts, but they are not common: that beautiful bird called the capercailzie, or cock of the wood, is become exceedingly rare; the ptarmigan, the black cock, and the grouse, or red game, are abundant on the heathy mountains; and in the low grounds are found the partridge, plover, snipe, and others which affords diversion to the sportsman. Most of the English singing-birds visit Scotland, except the nightingale. The coasts and islands are frequented by multitudes of aquatic birds, the eggs and feathers of some species of which are articles of importance to the islanders for food and commerce. Among these sea-fowl are the great hawk, larger than a common goose; the gannet, or solan goose, *(Anser Bernicla)*, the fulmer, or fullumar, a kind of gull, remarkable for the quantity of oil procured from it; the lamhi, or guillemot; the falk, or razorbill; the buigir, or coulterneb; the wild swan *(Cygnus ferus)*: the tufted duck *(Fuligula cristata)*; the eider duck, so famous for its light down; and many kindred species. Here also are found various kinds of eagles, falcons, and hawks. The Scottish rivers and lakes abound with the most delicate sorts of fish; and in the surrounding seas are caugbt great quantities of herrings, mackerel, sturgeon, cod, haddocks, whiting, turbot, skate, and other edible fish; and among those which are taken for the sake of the oil which they furnish, may be mentioned the sun-fish, or cearban. Whales are sometimes cast ashore on the Hebrides, the Orkneys, and the Shetland Isles, and even occasionally appear in the northern bays and firths.

Agriculture.—Scotland was far behind England in cultivation till the middle of the last century. Before that time, and for a considerable period later, farms were mostly small, and tilled in a slovenly manner, with half-starved horses, four of which were yoked in the plough, while parts of each farm were alternately cultivated or left waste, upon the rude plan of infield and outfield. In 1723, Mr Cockburn, of Ormiston, East Lothian, to whom the agriculture of Scotland is much indebted, formed an agricultural society, which exerted itself with considerable success in introducing cultivated

herbage and turnips, as well as in improving on the former methods of culture; but the society was broken up by the commotions attendant on the rebellion of 1745. The abrogating the feudal system in 1748, and the relaxing the rigour of entails, greatly benefited the agriculture of Scotland. The last was effected by an act in 1770, and extended the powers of proprietors, in so far as regards the improvement of their estates and the granting of leases. It was now found beneficial to grant long leases, generally of nineteen years, which greatly increased the skill and industry of the tenants, by rendering them secure of enjoying the benefits of their improvements. A great stimulus was also given to farmers by the rapid rise in the manufactures and commerce of the country, which caused an increased circulation of money and an advance of price on grain. The farmers now of the lowlands generally, but particularly of the Lothians and the carse of Gowrie, made a complete reform in the whole train of their agricultural operations. They brought extensive tracts of common and waste under cultivation, reduced the number of cattle, and improved the breed; cultivated the artificial grasses, and adopted the use of machinery, of which the most important, the threshing machine, was entirely of Scottish invention. In the mountainous districts, also, a new system was introduced. The numerous little farms, hitherto held by tenants or vassals, were thrown into extensive sheep walks. This, whether profitable to the proprietors or not, was heart-breaking to a brave and warm-hearted race, who were forced to quit their native glens, to which they were strongly attached, and to seek support beyond the Atlantic.

In arable husbandry, the farmers of Scotland now greatly surpass those of England; yet owing to the mountainous character of the country, the cultivated lands are but limited. Of 18,944,000 acres, its computed extent of land, only 5,043,000 are reported as under regular cultivation. The Board of Agriculture, in their report, do not calculate more than 1,800,000 acres actually under grain. Of these, only 140,000 produce wheat. Oats, a hardy plant, and adapted to cold climates, is the staple produce: it covers 1,260,000 acres. Barley occupies 280,000, being raised chiefly for distillation; but in the higher districts, it is not barley proper, but that ruder species called bear or big. Flax is raised in some of the higher lands. Such has been the extent and value of the agricultural improvements of Scotland within the last half century, that the country could now supply her whole population with food without importation of corn, while the exports of her manufactured goods pay for all foreign luxuries, and leave a heavy balance in her favour. What is remarkable, Scotland both exports and imports nearly the same kind of grain, and, deducting the one from the other, it appears that she is annually indebted to England and Ireland for 120,000 quarters of barley, and 180,000 of oats, while, on the other hand, she sends these countries 60,000 quarters of wheat. There being from three to four millions of bushels of malt made yearly in Scotland, chiefly for the whisky distilleries, the great demand for barley is accounted for. See the articles *Agriculture* and *Britain;* also, the different counties of Scotland, under their proper heads.

Manufactures and Commerce.—The commerce of Scotland was considerable in the reign of Robert I., and several arrangements relative to the trade with Holland and Flanders were made by that prince with William, earl of Holland. In 1541, Maximilian, duke of Burgundy, granted to the Scots the port of Campvere, in Zealand, as their staple, with ample privileges, under the especial protection of a conservator. An extensive trade was carried on with France during several centuries: but this nearly ceased after the union with England. From that time till about the middle of the last century, the trade of Scotland was comparatively inconsiderable; but, subsequently, a revival took place of the commerce and manufactures of the country; an extensive intercourse was carried on with North America and the West Indies, and with the European nations in general, especially with the Dutch, and those on the coasts of the Baltic: since that period the exports and imports have more than quadrupled.

The manufactures of Scotland exhibit great variety. Flax and hemp are manufactured into different kinds of fabrics, such as sheetings, osnaburghs, bagging, and canvass. The cotton manufactures have been carried, by means of machinery, to a great degree of extent and perfection. Muslins, brocades, lappets of all sorts, imitation shawls, gauzes, spidered, seeded, and numerous species of draw-loom, cambrics, shirtings, sheetings, stripes, checks, pullicates, gingbams, shawls, &c., are manufactured. Cotton is also made into thread, of which large quantities are exported. Glasgow, Paisley, and the surrounding districts, are the chief seats of the cotton manufacture, which gives employment to 150,000 persons, and of which the annual value is £6,000,000 sterling. Calico-printing is also carried to a great extent. The great ironworks established in Scotland deserve particular attention, and that at Carron, near Falkirk, is the largest manufactory in Europe. Ship-building also forms an important branch of national industry; and there are manufactories of glass for all the different sorts of bottle, window, and flint glass; also of soap, candles, and starch, salt, &c. There are tanneries, breweries, and distilleries, and almost all articles of ordinary use are manufactured in Scotland. The whole manufacturing product is estimated to exceed in value £14,000,000 sterling (including the raw material), employing nearly 300,000 persons. The different fisheries have been prosecuted with great industry and success. The whale fishery, to Davis's straits and Greenland, employs a great number of ships. The white fishery is also prosecuted with great industry along the Moray firth, Shetland, and the Western islands, and yields profitable returns. The herring fishery is carried on along the whole coast of the kingdom with great success, as is also the salmon fishery in all the different rivers. From the ports on the eastern coast of Scotland, a great trade is carried on to Holland, Norway, Sweden, and the different states on the Baltic. This trade has greatly increased of late years. The imports principally consist of flax, hemp, yarn, linen, iron, corn, wood, tallow, and other commodities produced in these countries; and, in return, colonial produce, cotton goods, and other manufactured articles, are exported. The chief shipping ports are Leith, Dundee, Arbroath, Montrose, Aberdeen, Peterhead, Banff, and Inverness. The trade with Spain, Portugal, and the Mediterranean, is carried on from Leith and other ports; and the connexion with Canada extends to all the most considerable towns on the east coast of Scotland. The commerce of the west

coast centres almost entirely in the Clyde, which is the grand emporium of the American, West Indian, and South American trade. The chief shipping ports on this coast are Glasgow, Port-Glasgow, and Greenock. The principal canals—the Caledonian canal, the Forth and Clyde canal, &c.—are described in the article *Canal*, under the division *Canals of Great Britain*.

The increase which has taken place in recent times in the trade and manufactures of Scotland, has been more rapid and astonishing than is observable in any other part of Europe. Looking back to the year 1656, we find that the whole vessels belonging to the country amounted only to 137, carrying 5736 tons. Of this number, Glasgow had no more than 12, of a burden of from 12 to 150 tons. At the Union in 1707, the shipping of Scotland had risen to 215 vessels, carrying 14,485 tons. In 1760, the number of ships employed in the fisheries, and in foreign and coasting trade, amounted to 999, carrying 53,913 tons; and in 1800, the shipping amounted to the more respectable number of 2415, carrying 171,728 tons, and employing 14,820 men.

It appears by a parliamentary paper, that in 1828, the number of vessels belonging to Scotland under 100 tons was 2160, and the number above 100 tons 983—total 3143, the total amount of registered tonnage of which was 300,836. We thus find, that from the Union till 1828, the shipping of Scotland rose from 215 to 3143 vessels, being a multiplication of about fourteen and a half times within the period of 121 years. By a table in the parliamentary paper it also appears that Aberdeen owns the greatest amount of tonnage of any port in Scotland. Its tonnage is 46,587, that of Greenock 37,786, Glasgow 36,220, Leith 26,107, and Dundee 24,227. But this does not give a certain idea of the comparative amount of traffic carried on at these ports, for they employ the shipping of one another, and freight the vessels of inferior ports. In 1755, the imports into Scotland, in round numbers, were £465,411, and the exports £535,576: in 1825, the imports had increased to £4,994,304, and the exports to £5,842,269.

It was some years ago calculated by Sir John Sinclair, that the whole amount of manufactures in Scotland annually exceeded in value £14,000,000 sterling including the price of the raw materials. The value of the mineral productions, such as coal, lime, iron, lead, &c., he calculated at £1,597,653, 6s. 8d. The fisheries he reckoned at £1,300,000, and the gross produce of land at £23,261,155, 10s. The rise in the amount of population in Scotland, though steadily progressive since the Union, has not kept pace with the increase of trade and manufactures; consequently the present population must be much more wealthy than their predecessors 120 years since. In 1700, the population of Scotland was 1,048,000, and in 1821 it was 2,093,000, having taken 121 years to double itself; but, perhaps, great allowance should be made for the emigration which has constantly been going on into England, and latterly America. In 1831, the population was 2,365,807. For more minute details regarding the commerce and manufactures of the country, see the articles *Cotton Manufacture* and *Iron Manufacture*; also the articles *Britain*, *Glasgow*, *Paisley*, *Greenock*, *Dundee*, &c.

Political Constitution.—The ancient constitution of the Scottish government is involved in doubt and obscurity; and the respective limits of the royal power and that of the Highland chiefs and barons seem to have been so various and uncertain as to render it probable that they were liable to the influence of accidental circumstances. Much depended on the personal character of those in authority. It was ever the policy of the wisest Scottish kings to restrict the authority of their nobles, and though the struggles thus occasioned were the cause of much misery and bloodshed, yet this course was rendered necessary by the dangerous ambition and ruthless tyranny of the nobles, who often threatened to overthrow the monarchy, and severely oppressed their vassals. In the conflicts for power, some of the kings perished by the hand of violence, and many of the turbulent barons became the victims of their own conspiracies, or the treachery of others, and their order was thinned by proscriptions, assassinations, and judicial executions. These internal commotions, however, ultimately freed the sovereigns from the overwhelming influence of the aristocracy, and restraining the spirit of feudal oppression, made way for the introduction of order, just laws, and a more tranquil administration of government. The parliament of Scotland anciently comprised all who held any portion of land, however small, from the crown, by tenure of military service, till the reign of James I., when the small barons or freeholders were excused from attendance in person, "two or more wise men" being deputed from each county in proportion to its size. It regulated the periods of its meeting and adjournment, and the formation of committees to superintend the administration when the sessions were included. Its powers extended to the executive departments, as the appropriation of public money, and the appointment of treasurers of the exchequer, the levying of troops, and nomination of commanders, the sending of ambassadors to foreign states, and the appointment of judges and officers of state. Parliament could restrain grants from the crown, or alienate portions of the royal demesne; and it assumed the right of bestowing pardons on criminals. The king did not possess even a negative authority over the proceedings of this assembly, without whose concurrence he could neither declare war, make peace, nor transact the most important affairs of the nation; and even so late as the reign of James IV., the parliament pointed out to that monarch his duty as the first servant of the people. But the supreme power, though thus nominally resident in the parliament, was virtually in the king, who by his influence often entirely controlled its proceedings. The parliament in the whole consisted of three estates, the nobility, the dignified clergy, and the lesser barons, or representatives of shires and burghs. The patronage of benefices gave the king a complete influence over the churchmen, whose numbers were equal to those of the lay nobles, and among the commons a majority might generally be found who were dependents of the sovereign. Every measure brought before parliament was previously prepared by a committee, styled the lords of the articles, chosen from each of the three orders, and these by the mode of their election were in effect little better than royal nominees. This institution seems to have been introduced gradually, and it is not certain when or in what manner it originated, but there are traces of the existence of such a committee as early as the beginning of the reign of James I. Before the Union there were four great officers of state; the lord high chancellor, the high treasurer, the lord privy seal, and the secretary; and there were also four lesser

officers; the lord clerk register, the lord advocate, the treasurer depute, and the justice clerk; all which officers, in virtue of their offices, had seats in the Scottish parliaments. Since the Union none of those officers are retained except the lord privy seal, lord clerk register, lord advocate, and justice clerk. The great officers of the crown were, the lord high chamberlain, lord high constable, lord high admiral, and lord marshal, the royal standard bearer, the lord justice general, and the lord chief baron of the exchequer. There were besides many other officers, both of the crown and state, now extinct. The office of lyon king at arms, or grand herald of Scotland, is still retained. This officer, formerly vested with great splendour and importance, used to be crowned in parliament with a golden circle, and he was armed with the authority of the civil law. Previously to the era of the revolution, the privy council of Scotland assumed inquisitorial powers, and even torture was administered under the sanction of its authority; but it is now entirely merged in the privy council of Great Britain. The number of peers in the Scottish parliament was latterly 160, and of Commons 155. The latter were divided into members or commissioners (as they were called) for shires and burghs, and all sat in one house, and voted promiscuously.

At the union of the kingdoms, the political system of Scotland was almost entirely incorporated with that of England. The representation allowed to Scotland was extremely small. It consisted, for the house of commons, of forty-five members, fifteen from the burghs and thirty from the counties. The burghs, however, amounting by the ancient constitution to sixty-six, were divided into classes of four or five, one member being returned by the majority of each class. Edinburgh alone returned one member. The members were elected not by the inhabitants as burgesses, but by the magistrates, who themselves were appointed chiefly by their predecessors in office; thus constituting close burghs, in which a party once obtaining a majority, might retain it for any length of time, with little regard to the wishes of their fellow-citizens. In county elections, the right of voting was attached to the possession of lands held immediately of the crown, and of the valued rent of £400 Scots. But the feudal superiority which entitled to vote was separable from the actual possession of the property. The original proprietor, who, perhaps, had a number of these votes on his estate, might either sell or distribute them among his friends, so as to multiply his own elective influence. The freeholders of Scotland amounted to not quite 3000, of whom a certain number, for the reason stated, had no real property in land. The peers of Scotland are represented by sixteen of their number, elected at the commencement of each parliament. There are besides about thirty-five who are British peers, and who sit in their own personal right.

By the reform bill of 1832, the representatives of Scotland were increased to only fifty-three, notwithstanding the immense strides the country had made in wealth and political importance since the Union. The representatives are thirty for counties, and twenty-three for cities and burghs. (See a table in the article *Britain* for a list of the returning counties and burghs, and their constituencies.) The representatives for burghs are returned, not as formerly, by the town councils, but by every inhabitant paying rent to the value of £10 and upwards, and by proprietors to the same amount. The power of voting in counties, too, is attached, not to feudal superiorities, that were often fictitious, but to the possession of actual property yielding £10 yearly rent, or to the occupying of lands or tenements at a rent of not less than £50 per annum.

Revenue.—The revenue drawn from Scotland, taking its population and the expense of its government into account, exceeds that of England or Ireland. (See the articles *Britain* and *England.*) Formerly the revenue of Scotland was collected separately from that of England; but, under recent regulations, the whole has been placed under the direction of boards resident in London, and the systems have been in a great measure incorporated together. In the year ending 5th Jan. 1831,

The Scottish Excise was, . .	£2,395,490
Customs, . . .	1,357,000
Stamps, ...	526,000
Assessed Taxes, . .	252,000
Post Office, . . .	201,000
	£4,771,490

Nothing demonstrates the peaceful and prosperous state of Scotland, in comparison with the unhappy state of Ireland, more forcibly than a glance at their several revenues and expences. The revenue of Ireland in 1828 was £4,685,642, collected at an expense of £13, 16s. 3d. per cent.; that of Scotland, containing not one-third of the inhabitants, was £4,627,340, collected at an expense of £6,7s.3d. per cent. In 1830 the cost of judicial establishments alone in Ireland was £600,000. In Scotland in the same year, the total expense was only £150,251. In ten years, 1823 to 1833, Ireland received of public money, no less than £3,179,130; Scotland only £256,922, or the fifteenth part of the money. The sneers, which we so often hear about the poverty and rapacity of Scotland, can scarcely be repeated before such facts as these.

Jurisprudence.—The laws of Scotland are founded on a very ancient book, entitled the *Regiam Majestatem*, which again is founded on the Roman law. Regarding the authorship and age of this book, there has been much dispute. Some assert it to have been compiled by order of David I. of Scotland, and others by order of Edward I. of England, with the view of assimilating the Scotch with the English law. The *Regiam Majestatem* was the only written law of the kingdom, until James I. attempted to superadd the enactments of parliament. These enactments, though ultimately the cause of superseding the *Regiam*, were formed on the model of that work, and thus the principles of the Roman law formed the bases on which almost all Scottish municipal law is built. Upon the distinctive character of the Scottish system of jurisprudence, it is impossible to enter in a limited section like this. We can only refer to the works of Mackenzie, Erskine, Stair, Hume, Bell, and other Scottish lawyers, who have all written luminously on the subject, and by their works simplified an otherwise complex judicial code.

The supreme civil court of Scotland, is the court of session or college of justice, established by James V. in 1532, to supply the place of an ambulatory committee of parliament, called the lords of council and session. It consisted of fourteen judges and a president; but in 1807, for the despatch of business, the court was divided into two chambers, the one consisting of eight, and the other of seven judges. These have been recently reduced to six and seven, making the whole in number thirteen.

There lies an appeal, in every civil case, from the court of session to the house of lords, whose judgment is supposed to be generally guided by the opinion of the lord chancellor. In 1815, trial by jury, in civil cases, was introduced, and conducted before a separate court, called the jury court, presided by a lord chief commissioner. This, too, has been recently abolished, and these trials are now carried on under the direction of the court of session. The court of exchequer, which consisted once of five barons, was first reduced to three, and is now abolished; one lord of session is to devote one day of the week to the trial of causes belonging to its jurisdiction. The consistory and the admiralty courts have been abolished, and their jurisdiction transferred to the court of session. All these changes have sadly dimmed the juridical glories of Edinburgh, and tended to wound the national feeling, considering that they were accompanied by no corresponding change in the courts of the sister capitals, some of which lay much more open to reform or more worthy of extinction.

The high court of justiciary is the supreme criminal court in Scotland. It consists of six judges, who are also lords of session, the lord justice clerk presiding. Of the court sitting in Edinburgh three are a quorum. On the circuits, two judges travel together, but one can sit alone. Circuit courts are held in all the districts twice a year, except in Glasgow, which has now three circuit courts a year. The trials are by jury. The jury's number is fifteen; a majority decide the verdict. There is no appeal from the court of justiciary to any other tribunal.

Sheriffs of counties are competent to try housebreaking, theft, and other minor crimes, but neither treason, robbery, rape, murder, nor fire-raising. They cannot transport, but may try capitally, a power now never exercised. Justices of the peace have a criminal jurisdiction in riots, breaches of the peace, poaching, &c.

The *lord advocate* is virtually the minister of the crown for Scotland. He is the public prosecutor of all crimes coming before the court of justiciary. The *solicitor general* is virtually the lord advocate's coadjutor and substitute. The lord advocate has three deputies, called *advocates depute*, who act under him with full powers. The Scottish bar is called the *faculty of advocates*, who have an exclusive right to practise in the supreme court. The *writers to the signet* are the first order of attornies in Scotland. They have the sole right to use the royal signet in writs. There are also *solicitors before the supreme court*, and inferior courts have their own procurators or solicitors.

Language.—The Gaelic or *Erse* (that is, *Irish*) is spoken in the Highlands of Scotland, particularly in the Hebrides and the western and inland parts of Argyle, Inverness, Ross, and Sutherland. English, however, is now very generally understood throughout the Highlands, and threatens, indeed, ultimately to supplant the original language—a circumstance which, however unavoidable, is not to be viewed without regret, when we consider the high antiquity of the Celtic tongue, and that here is the last stronghold where it is to be found in comparative purity.

Throughout the Lowlands, a mixture of Scotch and English is spoken. The English is universally understood, and is generally kept by in good society; yet no Scotsman of sense disdains to draw occasionally, in conversation, on the rich stores of his mother tongue. It is disputed whether the Scotch be really a distinct language, or merely a corruption of the English or Anglo-Saxon. Dr Jamieson, who has examined this subject with great learning and industry, contends that the language of the lowlands of Scotland is as much a separate language as the English, and that its basis, like that of the English, is Teutonic, with a strong mixture of Gaelic or French. To establish this point, he endeavours to prove that the Picts were a Teutonic race, who invaded Scotland about the same time that England was overrun by the Anglo-Saxons. They colonized, he conceives, the whole of the low country, while the Gaelic population, like the Welsh, sought for refuge amid the fastnesses of their mountains. He corroborates these views by facts drawn from history, and considers that no other satisfactory account can be given of the introduction of the common language into Scotland.

Without insisting that the Scotch is a distinct language independent of the English, we conceive that it would be doing it injustice to call it either a dialect of the English or a corruption of the English. No dialect ever abounded with so many words independent of its original—no mere dialect was ever capable of rising above the vulgar, like the Scotch, into the plaintive, the tender, the sublime. As to its being a corruption of the English, some mistake may arise here from confounding Scotticisms with Scotch words. To say, "sit *into* the fire," for "sit *near* the fire," is a Scotticism and a corruption of English; but to use the word *ingle*, instead of *fire*, is not to corrupt the English, or commit a Scotticism, but is simply to use a Scotch word, which has as good a right to be heard as its English counterpart. This distinction is so little attended to, that it is not uncommon to see, in English grammars, "lists of Scotticisms," in which you often find, not Scotticisms, but mere Scotch words, an absurdity which, if carried out with consistency, would embrace the whole of Dr Jamieson's dictionary, in four quarto volumes, including supplement.

The Scottish language is characterized by copiousness and power of expression. Its copiousness is manifest from the number of terms it possesses to express the same thing under the minutest shades of difference, and its power appears from the number of single words it contains, which individually convey an extent and energy of meaning that most modern languages can but imperfectly translate even by a circumlocution. From its disposition to throw out consonants, and produce a concourse of vowels, it is eminently fitted for the melodious and pathetic: while the native strength of its character renders it, when necessary, powerful in the humorous, and terrible in the sarcastic.

Literature.—Scotland has long been distinguished for the prominent place she has taken in almost every department of literature. Even in semi-barbarous times, she cultivated the muses with success. Thomas the Rhymer (see *Rhymer*) stands first, in point of time, on the list of old Scottish poets, and even preceded, by a hundred years, any English poet whose works are extant. John Barbour, the author of the Bruce, was no unworthy contemporary of the great Chaucer. About the same time flourished Andrew Wynton, a rhyming chronicler; and somewhat later, Henry the minstrel celebrated the deeds of Wallace in a style of elegance, from which the modern versions of his works have sadly departed. James I., who reigned

in the early part of the fifteenth century, has left in his "Quair," or Book, a beautiful specimen of his poetical talents. Farther down, we come to Dunbar, undoubtedly the greatest of old Scottish poets; and among his contemporaries we have Henryson, Kennedy, and others of merit. Gavin Douglas, Sir David Lindsay, Bellenden, Alexander Scot, Alexander Montgomery, all follow in succession, until we reach king James the VI., himself no mean "prentice" in the art of poetry.

After king James' accession to the throne of England, Latin and English verses were chiefly cultivated in Scotland, until Allan Ramsay arose, and restored to new and vigorous life the muse of his country. Fergusson, Burns, Hector Macneil, and James Hogg, close, for the present, the list of the more prominent names of those who have distinguished themselves in Scottish verse. But in other strains beyond the vernacular tongue have Scotsmen been eminent. In Latin verse Buchanan has found no equal in modern times; nor has Arthur Johnston been greatly surpassed; while the publication of the *Deliciæ Poetarum Scotorum*, a collection of Latin poems by various Scottish gentlemen, reflects great credit on the learned taste of Scotland during the early part of the seventeenth century. In English poetry, Scotland can name Drummond of Hawthornden, Thomson, Mallet, Armstrong, Arbuthnot, Mickle, Beattie, Blair, John Home, Scott, Campbell, and many others of minor note. In history she has a bright galaxy—Buchanan, Burnett, Spotiswood, Hume, Robertson, Ferguson, Dr Henry, Stuart, Laing. In philosophical and metaphysical disquisition—Hume, Smith, Reid, Beattie, Oswald, Campbell, Lord Kames, Lord Monboddo, Dugald Stewart, Thomas Brown, Sir James Mackintosh. In mathematical and physical science and the practical arts—Napier of Merchiston, the Gregories, Maclaurin, Stone, Simson, Black, Hutton, Robison, Playfair, Ivory, Leslie, James Watt, Murdoch, Rennie, Telford. In medicine and anatomy —Pitcairn, Arbuthnot, Munro, Duncan, Cullen, the Hunters, Gregory, Brown, Baillie. In antiquities —Innes, Lord Hailes, Geddes, Sibbald, Pinkerton, George Chalmers. In fictitious composition—Smollett, Moore, Mackenzie, Galt, and "last, not least," but greatest, Sir Walter Scott.

Such are some of the names that have occurred to us, almost at random, as belonging to Scotland; and merely to name them is all that the limits of this little section afford. But it is sufficient to excite surprise, that so brilliant a list could be produced out of so comparatively small a population—a surprise which will be increased, when it is considered what a poor, distracted, and most unfortunate country Scotland was for many hundred years, during the whole reign of the Stuarts—(her history being almost one continued series of misfortunes)—and that it is only from the middle of the last century that she can date the beginning of her prosperity.

Social State.—"There is no European nation," says Sir Walter Scott, "which, within the course of half a century, or little more, has undergone so complete a change as the kingdom of Scotland. The effects of the insurrection of 1745,—the destruction of the patriarchial power of the Highland chiefs,—the abolition of the heritable jurisdictions of the Lowland nobility and barons,—the total eradication of the Jacobite party, which, averse to intermingle with the English, or adopt their customs, long continued to pride themselves upon maintaining ancient Scottish manners and customs, —commenced this innovation. The gradual influx of wealth, and extension of commerce, have since united to render the present people of Scotland a class of beings as different from their grandfathers, as the existing English are from those of Queen Elizabeth's time." It is the common practice to attribute every beneficial change that has taken place in Scotland to its Union with England; but a mere union would have been of little avail, had Scotland not possessed in itself the germs of future prosperity in the excellency of many of its native institutions, and the enterprising character of its people. Among the institutions peculiar to the country may be mentioned its Banking establishments (see *Banks*) and its Parochial Schools. To the system of banking adopted in Scotland, particularly cash credit accounts, the country owes much of its commercial success. "Looking back," says an intelligent writer, in a popular miscellany, "on the low condition of this northern kingdom, for many years after the Union, and remembering the character of the soil and climate, it is obvious, that, but for the help thrown out by banks to agriculturists and artizans, the country—scarcely cheered by English capital—must have continued long in a withering and gloomy condition. It required at that period little else than the temporary aid of money loans to commence its career of prosperity, or to give the first impetus towards improvement. In the absence, therefore, of the precious metals, the dissemination of paper as the representative of that species of national wealth, which, from its nature, was not susceptible of being put in circulation, was one of the most creditable, and eventually the most successful, devices ever fallen upon by any people to better their circumstances. It was not without much trouble and a lapse of many years, that the system put in operation was perfected; but when the law at length interposed to secure the public, as well as the bankers, from contingent excesses, and defined the powers of lenders and borrowers, the triumph of the Scottish bank notes was complete."

While the banking establishments of Scotland have done much in cherishing and stimulating the commercial spirit of the country, parochial schools have been of still more advantage in placing within the power of the poorest inhabitant the means of instruction. Hence the peasantry and artizans of Scotland are generally distinguished above those of other countries for intelligence and moral deportment. It is rare, indeed, to find a native of the Lowlands of Scotland (at least of Scottish parents) who cannot read, write, and count. But even beyond this humble department of education, Scotland has advantages possessed by few other countries. Her Universities (four in number, St Andrews, Glasgow, Aberdeen, and Edinburgh), are not conducted on the exclusive and expensive scale of those of England, but are so constituted that persons of very moderate means may enter them. Thus a much greater proportion of the people of Scotland receive a college education than in England.

In their habits and manners, the people of Scotland are gradually approximating to those of England. The frequent intercourse that now exists between the two nations, as well as a unity of interests and pursuits, necessarily leads to this. The Scotch are still, however, as formerly, more temperate in their diet, and less temperate in the use of ardent spirits, than the English. In domestic cleanliness, also, the former have still much to learn

from the latter, although Scotland has made great improvements in that respect within the last century, and it is only in the lower walks of life that any great distinction can now be drawn on the subject. In dress and household furniture, the Scottish peasant and artizan are much better provided than the English.

The people of Scotland have long been noted for their intelligence, moral worth, and industry: and the success of a Scotchman in a foreign land has almost become proverbial. Yet the Scotchman is frequently accused of cunning and subserviency in forwarding his fortunes. The *boo-ing* spirit of Sir Archy M'Sycophant is often laid to his charge. Whatever truth there may be in this, in individual cases, the accusation, in general, is clearly the result of chagrin or envy at moral or mental superiority. As a *nation*, at least, Scotland has shown nothing of the *boo-ing* spirit. In the wars of independence, England found her sufficiently inflexible. At the Reformation, she was the first to draw the sword, and did not, like her neighbour, put off and on the new religion at the bidding of her monarch. During the endeavour to establish episcopacy in the land, the people showed little disposition to *boo-ing*, when they took up their testament in the wilderness, and periled all—peace, domestic comfort, goods, life—for the sake of an abstract principle. When the Stuart family was exiled and in misfortune, the Scotch Jacobites were not the first to worship the star in the ascendant, but displayed a devotedness and fidelity to their fallen prince, which we in vain look for among the Jacobites of England. The Scottish nation, in short, has throughout her whole history displayed the reverse of that flexibility and prudence which is commonly attributed to the individuals of the country, and which is supposed to form one of their distinguishing characteristics. Perhaps it may be, that the grave demeanour and slow enunciation of the Scotch, may have led strangers to over-estimate their caution; for under a sober exterior, it is certain the Scotchman cherishes ardent and impetuous passions; and in all the social relations of life—in warmth of feeling, in profuse hospitality, and in strong attachments to kindred and friends—he assimilates more to the character of his Celtic brethren, the Irish, than his Saxon brethren, the English

Population.—In the article *Britain*, will be found Tables of the Population of the United Kingdom. We need only here subjoin the following summary of the population of Scotland from the year 1700 to 1831:

Years.	Population.	Years.	Population.	Years.	Population.
1700	1,048,000	1750	1,403,000	1790	1,567,000
1710	1,270,000	1760	1,353,000	1801	1,649,000
1720	1,250,000	1770	1,434,000	1811	1,865,000
1730	1,309,000	1780	1,456,000	1821	2,093,000
1740	1,222,000	1785	1,475,000	1831	2,365,807

CONTENTS OF THE ARTICLE SCOTLAND.

	Page
Scotland,	140
Civil History,	lb.
Ecclesiastical History,	151
Antiquities,	153
Descriptive Geography,	lb.
Natural Productions,	155
Agriculture,	156
Manufactures and Commerce,	157
Political Constitution,	158
Revenue,	159
Jurisprudence,	lb.
Language,	160
Literature,	lb.
Social State,	161
Population,	162

SCOTT, Michael; a celebrated Scottish philosopher, and reputed magician, of the thirteenth century. He made an early progress in the languages and the mathematics, and, after residing in France some years, repaired to Germany, and applied closely to the study of medicine and chemistry. On quitting Germany, he proceeded to England, and was received with great favour by Edward II. After his return to his native country, he received the honour of knighthood from Alexander III., by whom he was also confidentially employed. He died at an advanced age, in 1291. Michael Scott was a man of considerable learning for his time, and, being much addicted to the study of the occult sciences, passed among his contemporaries for a magician, and as such is mentioned by Boccaccio and Dante. He is supposed to have been buried in Melrose abbey, and his books were either interred in his grave, or preserved in the abbey. He is author of *De Secretis Naturæ; De Natura Solis et Lunæ;* On the Transmutation of Metals; *Mensa Philosophica*, a treatise replete with the visionary sciences of chiromancy and astrology. See Mackenzie's *Lives*.

SCOTT, Thomas, an eminent evangelical clergyman of the English church, was the son of a farmer, and born in 1747, in Lincolnshire. After having acquired some acquaintance with classical learning, he was, at the age of sixteen, apprenticed to a surgeon and apothecary at Alford, in his native county. In this situation he staid only two months; and then, returning home, he was employed in his father's business. Having a strong inclination to enter into the church, he applied himself closely to study, and obtained a considerable knowledge of both the Latin and Greek languages. In 1773, he was ordained. Becoming acquainted with Mr Newton, curate of Olney, he was converted to Calvinism, in the defence of which, both from the pulpit and the press, he greatly distinguished himself. In 1781, he removed to Olney, and, in 1785, to London, having obtained the chaplainship of the Lock chapel, near Hyde-Park corner. In 1801, he was appointed rector of Aston Sanford, in Buckinghamshire, where he died April 16, 1821. He published, in 1779, a tract, entitled the Force of Truth, 8vo., which was followed by several single sermons, and other works; but his principal productions are a Defence of Calvinism, against bishop Tomline; and a Commentary on the Bible, 6 vols. quarto.

SCOTT, Sir Walter, bart., a distinguished poet, but still more distinguished as a novelist, being indeed, in fertility of invention, range of character, and truth of description, the greatest that any age or country has produced, was born in Edinburgh, August 15, 1771. He was a younger son of Mr Walter Scott, writer to the signet, by Anne, daughter of Dr John Rutherford, professor of the practice of medicine in the university of Edinburgh. Sir Walter's father was grandson to a younger son of Scott of Raeburn, a branch of the ancient baronial house of Harden; and his mother was granddaughter to Sir John Swinton, of Swinton, in Berwickshire. Being an ailing child, he was sent at a very early period of life to Sandyknow, a farm near the bottom of Leader water, in Roxburghshire, occupied by his paternal grandfather, where he had ample opportunities of storing his mind with border tradition. The first school he attended is said to have been one in Kelso, taught by a Mr Whale, where he had for school-fellows James and

John Ballantyne, who subsequently became intimately connected with him in public life. He entered the high school of Edinburgh in 1779, when the class with which he was ranked (that of Mr Luke Fraser) was commencing its third season. Under this master he continued during two years, after which he entered the rector's class, then taught by Mr Alexander Adam. In October, 1783, having completed the usual classical course, he was matriculated at the university of Edinburgh, studying Latin, under professor Hill, and Greek, under professor Dalzell. Another year under Dalzell, and a third in the logic class, taught by professor Bruce, appear to have formed the sum of his unprofessional studies at college. He was much devoted at this period to reading; and an illness, which interrupted his studies in his sixteenth year, afforded him an unusually ample opportunity of gratifying this taste. He read, by his own confession, all the old romances, old plays, and epic poems, contained in the extensive circulating library of Mr Sibbald, (founded by Allan Ramsay;) and soon after extended his studies to histories, memoirs, voyages, and travels. On the restoration of his health, he commenced, in his father's office, an apprenticeship to legal business, which was completed in July, 1792, by his entering at the Scottish bar.

The leisure hours of his early life, as an advocate, were devoted to the study of German; and the result was, a translation of "Burger's Lenore," and "Der Wilde Jager," which he published in a small quarto volume in 1796. The success of this attempt was by no means encouraging; yet he persevered in his German studies, and, in 1799, gave to the world a translation of Göthe's "Goetz of Berlichengen." Previously to the latter event, namely, on the 24th December, 1797, he had married Miss Carpenter, a young Frenchwoman of good parentage, whom he accidentally met at Gilsland wells, in Cumberland, and who possessed a small annuity. It is also worthy of notice, that, in 1799, he was appointed sheriff of Selkirkshire, a situation to which an income of three hundred pounds was attached.

Soon after he commenced the collection of those ancient ballads, which, in 1802, were published in two volumes octavo, as the Minstrelsy of the Scottish Border. On the reprinting of this work, in the ensuing year, he added a third volume, consisting chiefly of original ballads, by himself and others. The work was, upon the whole, a pleasing melange of history, poetry, and tradition; and it gained the author a considerable reputation, though certainly not that of an original poet in any eminent degree. In the annotations to the ancient romance of Sir Tristrem, which he published in 1804, he gave still more striking proof of the extent of his acquirements in metrical antiquities.

It was not till the year 1805, when Scott had reached the age of thirty-four, and had a family rising around him, that he attracted decided attention as an original poet. He published in that year his "Lay of the Last Minstrel," an extended specimen of the ballad style, and one which fell upon the public mind as something entirely new in poetry.

In 1806, he received the appointment of a principal clerk of session, through the interest of the Buccleuch and Melville families, which he had conciliated, partly by his talents, and partly by the zeal with which he entered into the volunteer system at the close of the past century. He succeeded Mr George Home, upon an arrangement, by which that gentleman was to enjoy the salary for life; so that it was not till 1811 that the poet reaped any actual benefit from it. The appointment was given by Mr Pitt, but was formally completed under the ensuing administration of Lord Grenville.

In 1808, Scott published his second poem of magnitude, "Marmion," which displayed his metrical genius in greater perfection than the Lay of the Last Minstrel, and greatly increased his reputation. While the latter work had produced him £600, the present secured one thousand guineas. Previously to 1825, no fewer than thirty-six thousand copies of Marmion were sold. In the same year, he published an edition of Dryden's works, with notes, and a life of that poet. In 1809, he edited the State papers and letters of Sir Ralph Sadler; and soon after he became a contributor to the Edinburgh Annual Register, started by Mr Southey.

"The Lady of the Lake," in which his poetical genius seems to have reached the acme of its powers, was published in 1810. His earlier efforts were less matured and refined; and the later are all, in various degrees, less spirited and effective. In 1811 appeared "Don Roderick," a dreamy vaticination of modern Spanish history. In 1813 he published "Rokeby," in which he attempted, but without success, to invest English scenery, and a tale of the civil war, with the charm which he had already thrown over the Scottish Highlands and Borders, and their romantic inhabitants. Rokeby was followed, in 1814, by "The Lord of the Isles;" but partly owing to the public having become satiated with his peculiar style, which had lost the charm of novelty, and partly owing to the appearance of Lord Byron, who had now commenced his brilliant career, Scott's poetry began to fall in popularity. As if to try how far his name now operated in promoting the sale of his writings, he produced, anonymously, two small poems in succession, "Harold the Dauntless," and "The Bridal of Triermain." Neither made any considerable impression upon the public; and he, therefore, seems to have concluded that poetry was no longer a line in which he ought to exercise his talents.

The appearance of the prose romance of Waverley, in 1814, forms an epoch in modern literature as well as in the life of Scott. The circumstances which led him to attempt this new style of composition, and induced him for so long a period carefully to conceal his authorship, are detailed in a very interesting manner in his introduction to the new edition of this extraordinary series of tales. We cannot do more than merely refer to his own narrative. But we may remark in passing, that, however well the secret was kept, and however vehement and ludicrous the controversies to which it gave rise, it was in reality no secret at all to any one (to any Scotchman, at least, of literary sagacity,) who was acquainted with Sir Walter's other works, or with his trains of thought and modes of expression. Among the literary men of Edinburgh, assuredly there was scarcely even the shadow of a doubt from the beginning.

While the Court of Session was sitting, Scott lived in Edinburgh, in a good substantial house in North Castle Street. During the vacations he resided in the country, and entered with ardour into the ordinary occupations and amusements of country gentlemen. After he was appointed Sheriff of Selkirk, he hired for his summer residence the house and farm of Ashiesteil, in a ro-

mantic situation on the banks of the Tweed; and here many of his poetical works were written. But with the increase of his resources grew the desire to possess landed property of his own, where he might indulge his taste for building, planting, and gardening. Commencing with moderation, he purchased a small farm of about 100 acres, lying on the south bank of the Tweed, three miles above Melrose, and in the very centre of that romantic and legendary country which his first great poem has made familiar to every reader. This spot, then called Cartly Hole, had a northern exposure, and at that time a somewhat bleak and uninviting aspect; the only habitable house upon it was a small and inconvenient farm-house. Such was the nucleus of the mansion and estate of Abbotsford. By degrees, as his resources increased, he added farm after farm to his domain, and reared his chateau, turret after turret, till he had completed what a French tourist not unaptly terms "a romance in stone and lime;" clothing meanwhile the hills behind, and embowering the lawns before, with flourishing woods of his own planting.

The desire of becoming an extensive landed proprietor was a passion which glowed more warmly in his bosom than any appetite which he ever entertained for literary fame. Thus it was a matter of astonishment to many, that, while totally insensible to flattery on the score of his works, and perfectly destitute of all the airs of a professed or practised author, he could not so well conceal his pride in the possession of a small patch of territory. It was now the principal spring of his actions to add as much as possible to the little realm of Abbotsford, in order that he might take his place—not among the great literary names which posterity is to revere, but among the country gentlemen of Roxburghshire. Under the influence of this passion, Scott produced a rapid succession of novels, of which it will be sufficient here to state the names and dates. To Waverley succeeded, in 1815, Guy Mannering; in 1816, the Antiquary, and the First Series of the Tales of my Landlord, containing the Black Dwarf and Old Mortality; in 1818, Rob Roy, and the Second Series of the Tales of my Landlord, containing the Heart of Mid-Lothian; and in 1819, the third Series of the Tales of my Landlord, containing the Bride of Lammermoor and a Legend of Montrose. It is to be observed that the series, called "Tales of my Landlord," were professedly by a different author from him of Waverley, an expedient which the real author had thought conducive to the maintenance of the public interest. Having now drawn upon public curiosity to the extent of twelve volumes in each of his two incognitos, he seems to have thought it necessary to adopt a third, and accordingly he intended Ivanhoe, which appeared in the beginning of 1820, to come forth as the first work of a new candidate for public favour. From this design he was diverted by a circumstance of trivial importance, the publication of a novel at London, pretending to be a fourth series of the Tales of my Landlord. It was therefore judged necessary that Ivanhoe should appear as a veritable production of the author of Waverley. To it succeeded, in the course of the same year, the Monastery and the Abbott. In the beginning of the year 1821, appeared Kenilworth: making twelve volumes, if not written, at least published in as many months. In 1822 he produced the Pirate and the Fortunes of Nigel; in 1823, Peveril of the Peak (four volumes) and Quentin Durward; in 1824, St Ronan's Well and Redgauntlet; in 1825, Tales of the Crusaders (four volumes); in 1826, Woodstock; in 1827, Chronicles of the Canongate, *first series* (two volumes); in 1828, Chronicles of the Canongate, *second series*; in 1829, Anne of Geierstein; and in 1831, a fourth series of Tales of my Landlord, in four volumes, containing two tales, respectively entitled Count Robert of Paris, and Castle Dangerous. The whole of these novels, except where otherwise specified, consisted of three volumes, and, with those formerly enumerated, make up the amount of his fictitious prose compositions to the enormous sum of seventy four volumes.

Throughout the whole of his career, both as a poet and novelist, Sir Walter was in the habit of turning aside occasionally to less important avocations of a literary character. He was a contributor to the Edinburgh Review during the first few years of its existence. To the Quarterly Review, he was a considerable contributor, especially for the last five or six years of his life, during which the work was conducted by his son-in-law, Mr Lockhart. To the Supplement of the sixth edition of the Encyclopædia Britannica, he contributed the articles Chivalry, Romance, and the Drama. In 1818, he wrote one or two small prose articles for a periodical, after the manner of the Spectator, which was started by his friend Mr John Ballantyne, under the title of "The Saleroom," and was soon after dropped for want of encouragement. In 1814, he edited the Works of Swift, in nineteen volumes, with a life of the author. In the same year, he gave an elaborate introductory essay to a work, entitled "Border Antiquities," (two volumes, quarto,) which consisted of engravings of the principal antique objects on both sides of the Border, accompanied by descriptive letter-press. In 1815, he made a tour of France and Belgium, visiting the field of Waterloo. The result was a lively traveller's volume, under the title of "Paul's Letters to his Kinsfolk," and a poem, styled "The Field of Waterloo." In the same year he joined with Mr Robert Jamieson and Mr Henry Weber, in composing a quarto on Icelandic Antiquities. In 1819, he published "An Account of the Regalia of Scotland," and undertook to furnish the letter-press to a second collection of engravings, under the title of "Provincial Antiquities and Picturesque Scenery of Scotland," one of the most elegant books which has ever been published respecting the native country of the editor. In 1822, he published "Trivial Poems and Triolets, by P. Carey, with a Preface;" and in 1822, appeared his dramatic poem of "Halidon Hill." In the succeeding year he contributed a smaller dramatic poem, under the title of "Macduff's Cross," to a collection of Miss Joanna Baillie. The sum of his remaining poetical works may here be made up, by adding "The Doom of Devorgoil," and "The Auchindrane Tragedy," which appeared in one volume in 1830.

The great success of the earlier novels of Sir Walter Scott had encouraged his publishers, Messrs Archibald Constable and Company, to give large sums for those works; and, previous to 1824, it was understood that the author had spent from fifty to a hundred thousand pounds, thus acquired, upon his house and estate of Abbotsford. During the months which his official duties permitted him to spend in the country—that is, the whole of the more genial part of the year, from March till November, excepting the months of May and June—he

kept state, like a wealthy country gentleman, at this delightful seat, where he was visited by many distinguished persons from England, and from the continent. As he scarcely ever spent any other hours than those between seven and eleven, A.M., in composition, he was able to devote the greater part of the morning to country exercise, and the superintendence of his planting and agricultural operations; while the evenings were, in a great measure, devoted to his guests. Almost every day, he used to ride a considerable distance—sometimes not less than twenty miles—on horseback. He also walked a great deal; and, lame as he was, would sometimes tire the stoutest of his companions.

Among the eminent persons to whom he had been recommended by his genius, and its productions, king George the IVth was one, and not the least warm in his admiration. The poet of Marmion had been honoured with many interviews by his sovereign, when prince of Wales and prince regent; and his majesty was pleased, in March, 1820, to create him a baronet of the United Kingdom, being the first to whom he had extended that honour after his accession to the crown. In 1822, when his majesty visited Scotland, Sir Walter found the duty imposed upon him, as in some measure the most prominent man in the country, of acting as a kind of master of ceremonies, as well as a sort of dragoman, or mediator, between the sovereign and the people. It was an occasion for the revival of all kinds of historical and family reminiscences; and Sir Walter's acquaintance with national antiquities, not less than his universally honoured character, caused him to be resorted to by innumerable individuals, and many respectable public bodies, for information and advice.

The author of Waverley was still continuing to issue the apparently inexhaustible "coinage of his brain," at the rate of from three to eight volumes a year, exclusive of as much additional poetry and prose "by Sir Walter Scott" as would have built up a goodly reputation for any ordinary author,—when, in January 1826, the house of Constable and Company became bankrupt. It then became known, to the extreme surprise and universal regret of the public, that their great literary benefactor and favourite was involved by the failure to an extent which appeared utterly ruinous. By bill transactions with Messrs Constable and Company, and by other means, he had become responsible for debts to the enormous amount of £120,000, of which not above one half were actually incurred on his own account. How a man of Sir Walter's characteristic prudence and knowledge of business should have been so incautious as to entangle himself in such transactions, is scarcely well accounted for. Probably the very large sums expended in the purchase and embellishment of Abbotsford, amounting, it is said, to from fifty to a hundred thousand pounds, was one chief originating cause of these involvements. But whatever may have been the causes of this crushing misfortune, his conduct under it was admirable; and the honour which rests upon his memory for his gigantic exertions to pay off this immense debt without deduction, is a far nobler heritage to his posterity than the most princely fortune. He encountered adversity with dignified and manly intrepidity. On meeting the creditors he refused to accept of any compromise, and declared his determination, if life was spared him, to pay off every shilling. He insured his life in their favour for £22,000; surrendered all his available property in trust; sold his town house and furniture, and removed to an humbler dwelling; and then set himself calmly down to the stupendous task of reducing this load of debt. The only indulgence he asked for was time; and time was liberally and kindly given him. A month or two after the crash of Constable's house Lady Scott died—domestic affliction thus following fast on worldly calamity. The divulgement of the Waverley secret became, by the exposure of Constable's concerns, indispensable, and took place at an anniversary dinner of the Edinburgh Theatrical Fund Association in February, 1827. The original manuscripts of these works falling into the possession of the creditors, were afterwards sold in London by public auction.

Sir Walter was engaged, at the time of his bankruptcy, in the composition of a Life of Napoleon Bonaparte, which was originally designed to fill only four volumes, but eventually extended to nine. In the autumn of 1826, he paid a visit to Paris, in company with his youngest and only unmarried daughter, in order to acquaint himself with several historical and local details, requisite for the work upon which he was engaged. On this occasion, he was received with distinguished kindness by the reigning monarch, Charles X. The "Life of Napoleon" appeared in summer, 1827; and, though too bulky to be very popular, and perhaps too hastily written to bear the test of rigid criticism, it was understood to produce to its author a sum little short of £12,000. This, with other earnings and accessory resources, enabled him to pay a dividend of six shillings and eightpence to his creditors.

About the same time, the copyright of all his past novels was brought to the hammer, as part of the bankrupt stock of Messrs Constable and Company. It was bought by Mr Robert Cadell, at £8,400, for the purpose of republishing the whole of these delightful works in a cheap and uniform series of volumes, illustrated by notes and prefaces, and amended in many parts by the finishing touches of the author. Sir Walter, or his creditors, were to have half the profits, in consideration of his literary aid. This was a most fortunate design. The new edition began to appear in June, 1829; and such was its adaptation to the public convenience, and the eagerness of all ranks of people to contribute in a way convenient to themselves towards the reconstruction of the author's fortunes, that the sale soon reached an average of twenty-three thousand copies. The author was now chiefly employed in preparing these narratives for the new impression; but he nevertheless found time occasionally to produce original works. In November, 1828, he published the first part of a juvenile History of Scotland, under the title of "Tales of a Grandfather," being addressed to his grandchild, John Hugh Lockhart, whom he typified under the appellation of Hugh Littlejohn, Esq. In 1829, appeared the second, and in 1830, the third and concluding series of this charming book. In 1830, he also contributed a graver History of Scotland, in two volumes, to the periodical work called "Lardner's Cabinet Cyclopædia." In the same year, appeared his Letters on Demonology and Witchcraft, as a volume of Mr Murray's "Family Library;" and, in 1831, he added to his Tales of a Grandfather, a uniform series on French history. In the same year, two sermons which he had written a considerable time before, for a young clerical friend, were published by that individual in London, and, as specimens of

so great an author in an extraordinary line of composition, met with an extensive sale. The profits of these various publications, but especially his share of the profits of the new edition of his novels, enabled him, towards the end of the year 1830, to pay a dividend of three shillings in the pound, which, but for the vast accumulation of interest, would have reduced his debts to nearly one-half. Of £54,000 which had now been paid, all except six or seven thousand had been produced by his own literary labours; a fact which fixes the revenue of his intellect for the last four or five years at nearly £10,000 a year. Besides this sum, Sir Walter had also paid up the premium of the policy upon his life, which, as already mentioned, secured a *post obit* interest of £22,000 to his creditors. On this occasion, it was suggested by one of these gentlemen, (Sir James Gibson Craig), and immediately assented to, that they should present to Sir Walter personally the library, manuscripts, curiosities, and plate, which had once been his own, as an acknowledgment of the sense they entertained of his honourable conduct.

In November, 1830, he retired from his office of principal clerk of session, with the superannuation allowance usually given after twenty-three years' service. Earl Grey offered to make up the allowance to the full salary: but, from motives of delicacy, Sir Walter firmly declined to accept of such a favour from one to whom he was opposed in politics.

His health, from his sixteenth year, had been very good, except during the years 1818 and 1819, when he suffered under an illness of such severity as to turn his hair quite grey, and send him out again to the world apparently ten years older than before. It may be mentioned, however, that this illness, though accompanied by very severe pain, did not materially interrupt or retard his intellectual labours. He was only reduced to the necessity of employing an amanuensis, to whom he dictated from his bed. The greater portion of the Bride of Lammermuir and of Ivanhoe were created under these circumstances. Mr William Laidlaw, his factor, who at one time performed the task of amanuensis, has described how he would sometimes be stopped in the midst of some of the most amusing or most elevated scenes, by an attack of pain—which being past, he would recommence in the same tone at the point where he had left off, and so on for day after day, till the novel was finished. It happened very unfortunately, that the severe task which he imposed upon himself, for the purpose of discharging his obligations, came at a period of life when he was least able to accomplish it. It will hardly be believed that, even when so far occupied with his official duties in town, he seldom permitted a day to pass over his head without writing as much as to fill a sheet of print, or sixteen pages; and this, whether it was of an historical nature, with of course the duty of consulting documents, or of fictitious matter spun from the loom of his fancy. The reader may judge how strong must have been that principle of integrity, which could command such a degree of exertion and self-denial, not so much to pay debts contracted by himself, as to discharge obligations in which he was involved by others. He can only be likened, indeed, to the generous elephant, which, being set to a task above its powers, performed it at the expense of life, and then fell dead at the feet of its master.

His retirement from official duty might have been expected to relieve in some measure the pains of intense mental application. It was now too late, however, to redeem the health that had fled. During the succeeding winter, symptoms of gradual paralysis, a disease hereditary in his family, began to be manifested. His contracted limb became gradually weaker and more painful, and his tongue less readily obeyed the impulse of the will. Since the early part of the year 1831, he had, in a great measure, abandoned the pen for the purposes of authorship. This, however, he did with some difficulty, and it is to be feared that he resumed it more frequently than he ought to have done. In the autumn, his physicians recommended a residence in Italy, as a means of delaying the approaches of his illness. To this scheme he felt the strongest repugnance, as he feared he should die on a foreign soil, far from the mountain-land which was so endeared to himself, and which he had done so much to endear to others; but by the intervention of some friends, whose advice he had been accustomed to respect from his earliest years, he was prevailed upon to comply. By the kind offices of captain Basil Hall, liberty was obtained for him to sail in his majesty's ship the Barham, which was then fitting out for Malta. He sailed in this vessel from Portsmouth, on the 27th of October, and on the 27th of December landed at Naples, where he was received by the king and his court with a feeling approaching to homage. In April, he proceeded to Rome, and was there received in the same manner. He paid visits to Tivoli, Albani, and Frescati. Feeling, however, that his strength was rapidly decaying, his desire to return to his native land became irrepressible, and he hurried homeward with a rapidity which, in his state of health, was highly injurious, and doubtless accelerated the catastrophe which perhaps no degree of skill or caution could have long delayed. He experienced a further severe attack of his disorder in passing down the Rhine, and reached London in nearly the last stage of physical and mental prostration. Medical aid could only, it was found, for a short period postpone dissolution; and to gratify his most ardent dying wish, he was conveyed by the steam packet to Leith, and on the 11th of July, 1832, reached once more his favourite house at Abbotsford,—but in such a pitiable condition, that he no longer recognised his nearest and dearest relations. After lingering in this state till, in the progress of his melancholy malady, mortification had been some time proceeding in different parts of the mortal frame, he expired without a struggle on the 21st of September, 1832. He was interred in his family burial aisle amidst the ruins of Dryburgh abbey,—a spot of great picturesque beauty, lying on the Tweed Side, about half way between Smailholm, the scene of his simple infancy, and Abbotsford, the stately home of his latter years.

Sir Walter left a family of two sons and two daughters. The elder son, the present Sir Walter, is a major in the 15th Hussars; the younger, Charles, is an attaché to the Neapolitan Legation. The elder daughter was married in 1820, to Mr J. G. Lockhart, and died in 1837; the younger daughter, Anne, did not long survive the death of her father. In stature, Sir Walter was above six feet; but, having been lame from an early period of life in the right limb, he sank a little on that side in walking. His person was, in latter life, bulky, but not corpulent, and made a graceful appearance on horseback. His features must be familiar to every reader though the medium of the

innumerable portraits, busts, and medallions, by which they have been commemorated. In private life, Sir Walter was distinguished for uprightness and purity of character, for great simplicity and kindliness of manners, and benevolence of heart.

In the Memoirs of Sir Walter Scott, by Mr Lockhart—a work characterised by manly frankness of detail, and felicity of expression—we are told, that when Sir Walter, in the presence of George IV., denied being the author of Waverley, the king, in a well-turned compliment, said he was glad to hear it, for it was a higher boast to have *two* such brilliant writers as the authors of Marmion and Waverley, than *one*. But although the writings of Scott are sufficient, in extent and variety, to have established a dozen literary reputations, the poet and novelist are, in almost all their distinguishing features, the same. In abandoning poetry for prose, Scott left behind him only the trammels of verse; he brought to the new arena the same charms with which he had fascinated the world in the old, and he gathered fresh vigour from the greater freedom with which he could now wield them, and the wider field which he had chosen for their display. The amazing powers of invention and description, whether of character or situation —the comprehensive knowledge of manners in bygone times—the relish of nature in all her moods—and the healthy elasticity of spirit, which were so largely shown in his poetical works—were displayed even more abundantly in his prose productions; and in addition he was now no longer precluded, by the restrictions of poetical composition, from depicting scenes of every day life and homely feeling, in which he proved so great a master, nor from indulging in that exquisite yet ever charitable sense of the ludicrous, which was so singularly blended, in the composition of his character, with a high sympathy for whatever, in feeling or action, was dignified, generous, or romantic. Of all his works, his early novels, drawn from the resources of a heart fraught with humanity, and a memory stored with observation, are undoubtedly those upon which his fame will eventually rest. His poems, with all their attractions, and even the more ambitious of his prose romances, Ivanhoe, Kenilworth, and the like, being necessarily somewhat built on artificial principles, may, in the changes of literature, cease to be imitated or read; but The Antiquary, The Heart of Mid-Lothian, Guy Mannering, Waverley, and Old Mortality, are, we conceive, imperishable, and can only cease to be relished when mankind cease to venerate nature and truth.

SCOTUS, DUNS. See *Duns*.

SCOTUS, JOHN. See *Erigena*.

SCOUGAL, HENRY, an eminent Scotch divine, born in 1650, was educated in the university of St Andrews, where he became professor of Oriental philology at the age of twenty. In 1673, he was presented by his college to a living, but recalled the following year, and made professor of theology. His great exertions, both in this capacity and as a preacher, threw him into a consumption, and he died, greatly lamented, in 1678, at the early age of twenty-eight. He was the author of an eloquent and able work, entitled, The Life of God in the Soul of Man, which has run through many editions; and also of Nine Sermons, by which he acquired the reputation of being one of the most elegant writers and able divines of his country and age.

SCREW, in mechanics. See *Mechanics*.

SCREW PINE. The species of *pandanus* are all natives of the tropical parts of the eastern continent, and are among the most ornamental productions of the vegetable world. The *P. odoratissimus* is a large, spreading, branching shrub, with very long leaves, which are spiny on the back and margin, somewhat resembling in form those of the pine-apple, and which are disposed in three spiral rows round the extremities of the branches. It grows in all soils and situations in the tropical parts of Asia, and is much employed there for hedges. The tender white leaves of the flowers, chiefly those of the male, yield that most delightful fragrance, by far the richest and most powerful of the perfumes, for which they are so generally esteemed, and for which the plant is cultivated in Japan. The lower pulpy part of the drupe is sometimes eaten by the natives in times of scarcity, but the taste is very disagreeable; the tender white base of the leaves is also employed for food at such times. The leaves are composed of longitudinal tough fibres; and in the South Sea islands these or the leaves of some other species are used for making mats. In the Sandwich islands, the mats are handsomely worked in a variety of patterns, and stained of different colours. The plant is called *wharra* tree, at Otaheite.

SCRIBES, among the Jews, were officers of the law. There were *civil* and *ecclesiastical* scribes. The former were employed about any kind of civil writings or records. The latter studied, transcribed and explained the Holy Scriptures.

SCROFULA, *scrophula;* (from *scrofa*, a swine; because this animal is said to be much subject to a similar disorder); a disease of children, consisting in hard tumors of the glands in various parts of the body, but particularly in the neck, behind the ears, and under the chin, which, after a time, suppurate, and degenerate into ulcers, from which, instead of pus, a white curdled matter is discharged. The first appearance of the disease is most usually between the third and seventh year of the child's age; but it may arise at any period between this and the age of puberty; after which it seldom makes its first attack. It most commonly affects children of a lax habit, with smooth, fine skins, fair hair and rosy cheeks. It likewise is apt to attack such children as show a disposition to rickets. Like this disease, it seems to be peculiar to cold and variable climates, being rarely met with in warm ones. Scrofula is by no means a contagious disease, but is of a hereditary nature, and is often entailed by parents on their children. The attacks of the disease seem much affected or influenced by the periods of the seasons. They begin usually some time in the winter and spring, and often disappear, or are greatly amended, in summer and autumn. The first appearance of the disorder is commonly in that of small oval or spherical tumors under the skin, unattended by any pain or discolouration. These appear, in general, upon the sides of the neck, below the ear or under the chin; but, in some cases, the joints of the elbows or ankles, or those of the fingers and toes, are the parts first affected. In these instances we do not, however, find small, moveable swellings, but, on the contrary, a tumor almost uniformly surrounding the joint, and interrupting its motion. After some time, the tumors become larger and more fixed, the skin which covers them acquires a purple or livid colour, and being much inflamed, they at last suppurate, and break into little holes, from which, at first, a matter somewhat puriform oozes

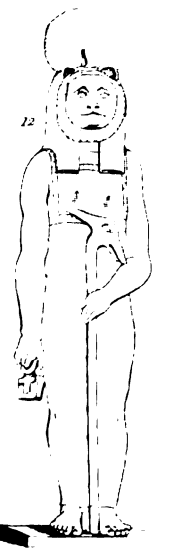
ont; but this changes, by degrees, into a kind of viscid, serous discharge, much intermixed with small pieces of a white substance. The tumors subside gradually, whilst the ulcers at the same time open more, and spread unequally in various directions. After a time, some of the ulcers heal; but other tumors quickly form in different parts of the body, and proceed on, in the same slow manner as the former ones, to suppuration. In this manner the disease goes on for some years; and, appearing at last to have exhausted itself, all the ulcers heal up, without being succeeded by any fresh swellings, but leaving behind them an ugly puckering of the skin, and a scar of considerable extent. This is the most mild form under which scrofula appears. In more virulent cases, the eyes are particularly the seat of the disease, and are affected with ophthalmia, giving rise to ulcerations in the *tarsi*, and inflammation of the *tunica adnata*, terminating not unfrequently in an opacity of the transparent cornea. The joints become affected; they swell, and suffer excruciating deep-seated pain, which is increased upon the slightest motion. The swelling and pain continue to increase; the muscles of the limb become at length much wasted. Matter is soon afterwards formed, and this is discharged at small openings made by the bursting of the skin. Being, however, of a peculiarly acrimonious nature, it erodes the ligaments and cartilages, and produces a caries of the neighbouring bones. By an absorption of the matter into the system, hectic fever at last arises, and, in the end, often proves fatal. The treatment consists chiefly in the use of means adapted to promote the general health, a nutritious diet, easy of digestion, a pure, dry air, gentle exercise, friction, cold bathing, especially in the sea, and strengthening medicines, as the preparations of iron, myrrh, &c. Various mineral waters, and other remedies which moderately promote the secretions, appear also to have been often useful. In irritable states of the system, hemlock has been employed with much advantage. The applications to the tumors and ulcers must vary according to the state of the parts, whether indolent or irritable; where the tumors show no disposition to enlarge, or become inflamed, it is better to interfere little with them; but their inflammation must be checked by leeches, &c., and when ulcers exist, stimulant lotions or dressings must be used, to give them a disposition to heal: but if they are in an irritable state, a cataplasm, made with hemlock, or other narcotic.

SCUDERI, George de, a French writer, born at Havre, in 1601, was descended from an ancient Provençal family. He was a member of the academy (1650), and died in 1667. His dramatic works (sixteen plays), sonnets, heroic poems, romances, &c., have been long forgotten. His sister, *Madeleine*, was born at Havre, in 1607, and went at an early age to Paris, where, though remarkably ugly, she attracted notice by her talents and wit. Her numerous and long-winded romances depict the manners of the French court in the extraordinary taste of the time. She died in 1701. Mademoiselle Scudéri was entitled the Sappho of her time. The most distinguished scholars and wits of Europe were her friends; the academy at Padua chose her a member of their body; the French academy awarded the prize to her Dissertation on Glory. Her principal works were *Artamène, ou Le Grand Cyrus* (10 vols. 8vo); *Clélie* (10 vols.); with 10 volumes of Conversations on different subjects, which are her best productions.

SCULPTURE, or the art of representing visible forms in hard masses, by means of the chisel, had its origin in the art of modelling figures in soft substances (see *Plastic Art*), as the ancient idols of all nations were formed. The more difficult art of carving figures in wood and ivory, and still more of cutting them in stone and casting them in metal, were the inventions of a later period. These inventions were also the offspring of religion; at first only objects of religious worship were represented. In the earliest times, men venerated blocks and rough stones, or Bætylia, which were said to have fallen from heaven, and which are now called *aërolites*, or *meteoric stones*. Blocks of stone were also worshipped as landmarks, and were called *termini*. From the ninth to the seventh century B. C., the Greeks had much intercourse with the Phœnicians. This commercial nation worshipped the god Theut, Thoth, who had taught them the use of letters. They afterward employed his image as their landmarks, calling it their god, and compelled the rude Autochthones to worship it. Such pillars were called *hermæ:* the god of roads and travellers was therefore called, by the Greeks, *Hermes*. They afterwards put a head upon these pillars, which is the origin of busts. The productions of sculpture are divided into insulated pieces, or such as may be viewed from all sides, whether full figures, or *Hermæ*, busts, heads, masks, vases, pedestals, &c., and works in relief. (See *Bass-relief*, and *Relievo*.) The elder sister of sculpture, in insulated forms, is architecture. The first object of sculpture was the ornamenting of temples.

History of Sculpture. We find very early indications of sculpture in the Bible. Laban, who lived in the twenty-third century B. C., had images of his domestic gods, which were called, in Hebrew, *teraphim*. In the very ancient Indian cavern and grotto temples, are found works of sculpture; for instance, in the pagoda of Elephantis, near Bombay, is a colossal statue of Brama. This deity is represented sitting, his arms crossed, with the face and figure of a man in front, and with a female face and form behind; upon his right breast is the sun; upon his left breast the moon and the stars; waters, mountains, animals, and plants are exhibited upon this statue, which the Hindoos believed God to have presented to his Son, as a model, at the creation of the world. The fancy of the Hindoos was very rich, but inclined towards the symbolic and allegoric, so that they never attained to a pure style of art. Their sculpture is highly expressive, but without a feeling of beauty, and exhibits a mosaic of ideas. (See Plate LXXIX, figs. 14 and 15.) The Persians had many works of sculpture, as the ruins of Persepolis prove; but, as they never formed naked figures, they failed to gain a just idea of the human form. (See Plate LXXIX, fig. 16.) In Assyria, the art flourished under queen Semiramis. We find mention of brazen statues of Semiramis, Belus, and Ninus. In Curdistan, very ancient works of sculpture are found, which the inhabitants consider as the images of Chosroes and his beloved Shereen, and call the poet and artist Ferhad, the sculptor. The Egyptians were the first who adopted a certain style of art. The works of art produced by this nation were gloomy and grave, but full of deep sentiment, connected, by the hieroglyphics which covered them, with poetry and history, and by the mummies, with the belief of immortality. But as the kingdom of the dead seemed to them the true existence, so their art is more related to death than

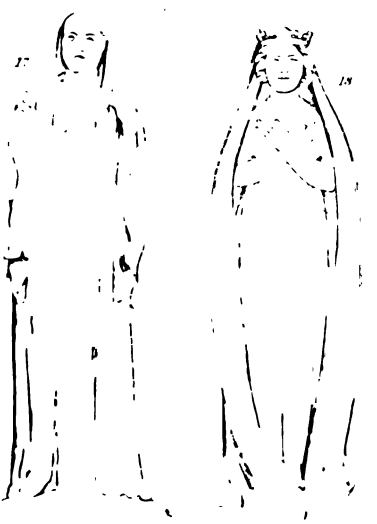
EGYPTIAN



PERSIAN

HINDU

PERSIAN



From Exeter with ENGLISH From York cathedral

EARLY GREEK

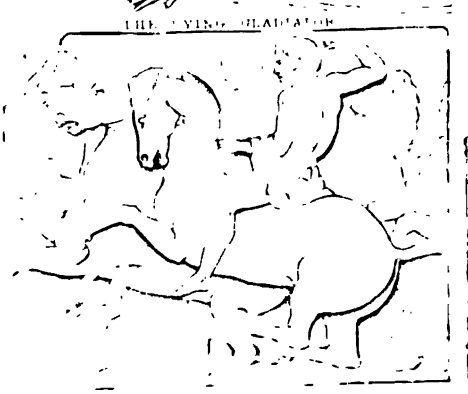
APOLLO BELVIDERE

VENUS DE MEDICIS

ACHILLES

NIOBE

LAPITHUS & MOTHER



ife: their figures are stiff and motionless, like the mmies; even their images of Isis have this charac-

(See Plate LXXIX.) These are connected h the ancient image of Diana at Ephesus, and with most ancient Grecian art; as the use of the human n on the capitals of the columns at Dendera, singularly extended female figures around the iac of that place, and the mixture of human and nal forms in the Sphinx, the Anubis, &c., are dently related to the Indian art. If we consider old Grecian style, we find first the above-men-ned *Hermæ*, the double-headed figures which we l images of Janus, and which originally denoted sun and the moon, numberless variations of the *rmæ*, as the *Hermeraclæ*, *Hermathenæ*, *Hermerotæ*, . From these, which had neither hands nor t, the next step was to images, formed like mmies, made of ebony or cedar wood, in which arms were close to the body, and the feet were ly indicated by an incision, the eyes and the outh only by a slit. The artist next separated e arms from the trunk, parted the feet, and put apons, as a shield and spear, into the hands of e idols: thus the first images of Pallas originated. ther armed idols, which belong to the Cretan mily, were also called *Palladia*, as, for instance, e Taurian Diana. As they were made small, ey were commonly placed upon columns. The ord *statue* is derived from the Latin *statuo*, to set , or from *sto*, to stand. In the larger statues in etal, the body of the image was merely a cylin-rical pillar, as in the colossus of the Amyclean pollo. With Dædalus (q. v.) begins a new poch in the art, about three generations before ie Trojan war. Of him, the Greeks said sym-olically, that his divine genius made statues walk, e, and speak. They considered him the master, rather the inventor, of the art; he was also ie symbol of the first miner: hence the fable of ie Dædalian labyrinth at Crete, or the horizontal assages in the first mine of that island, which bounded in metal. His disciples were called his ons: hence all artists were symbolically called *Dæ-alides*. (See Plate LXXIX, *fig.* 19.) The old Grecian art then became divided into three different ational styles—the old Attic, the Æginetic, and the Etrurian. The arts flourished in the temples, not only by means of statues, but still more by *anathe-mata*, consecrated presents, thrones decorated with igures, coffers, shields, tripods, and vases. The most celebrated are, 1. the coffer of Cypselus in Olympia, made of cedar wood, and inlaid with gold and ivory, and, 2. the throne of Apollo at Amyclæ, a colossal seat of a still more ancient colossus of Apollo, made by the Magnesian Bathycles, probably in the time of Solon. It contained, in twenty-eight panels outside, and fourteen panels inside, the then existing mythology of the gods and heroes. In these two pieces, a peculiar expression, united with the greatest poverty and rudeness of design and proportion, is observable; inscriptions are every where necessary for explanation, and the works are not pleasing; their character is allegory, bor-dering on hieroglyphics. Two temples of this epoch are memorable, as the works of the first Dædalides, Dipœnus, Rhœcus, and Scyllis:—1. the Heræum, or very ancient temple of Here (Juno) of Samos. The most ancient statue of Juno there was made by Smilis of Ægina: it was veiled and provided with supports. 2. The Artemisium at Ephesus: the most ancient statue in it was said to have fallen from heaven, and was dedicated by the Amazons. Afterwards, the black statue of Diana, in the form of a mummy with many breasts, as the goddess of nature, was carried to this temple. At that time, the statues were made of beaten brass plate; afterwards, artists began at Samos to cast them, but only in pieces, which were joined together by swallow-tailed fastenings. Several works of this primitive epoch are still preserved. Every thing in them is exaggerated; the motions are angular, the folds overcharged, the drapery stiff, the contours without regularity or precision. This early style displayed strength and energy, without expression and beauty. Under the Pisistratidæ, the art continued to flourish. But it was not until the splendid administration of Pericles, that the highest conceptions of art were formed. In this short period of twenty years, Athens produced more splendid works than Rome, the mistress of the world, produced in seven centuries. The influence of the great poets of this time, upon the art, was certainly important. It was the age of classic models and the ideal style. Phidias made two chief ideals, Minerva and Jupiter; the former for the Parthenon in Athens; the latter, the famous Olympian Jupiter at Elis. Both were wrought in ivory and gold; the god was beautifully formed, although forty feet high. His throne was splendidly adorned. The expression of Jupiter was a union of power, wisdom, and benevolence; he sat at Elis as the chief judge of the contests in the Olympic games. His size is described in the words of an epigrammatist, who said, "The statue of Jupiter would have thrust off the roof of the temple like a thin shell, if it had ever risen from its golden throne." Phidias began the class of ideal forms, which, for the male figures, was afterwards divided into gods, demi-gods, and heroes; for female figures, various forms were adopted as ideals:—1. The Virgin: this is again divided into two chief branches: *a.* the Doric Cretan, short-waisted, twice-girded figure, used to represent Diana, the Amazons, Nymphs, and Bacchantes; *b.* the Attic-Ionian virgin, seen in the Muses, Canephoræ, and priest-esses. 2. The Matron: the highest ideal of the matronly form is in the Juno of Argos. We have also the ideal of Ceres, Cybele, and later of Ne-mesis, Fortuna, Pudicitia, Pietas, the Roman em-presses and vestals, as well as the beautiful virgins of Herculaneum, in the cabinet of antiquities at Dresden. 3. The Hetæra was elevated to the ideal of Venus Anadyomene. 4. The female war-rior was idealized in the Pallas Athene, as the per-petual Virgin, skilled in war and the arts. To the male figures belongs, also, the gymnastic and athletic class. Polycletus created the first, forming two different ideals of young men; in his Diadymenus, the mild youth, who winds the wreath of victory round his brow, and in his Doryphorus, the ardent and warlike youth, holding the lance before him, which was the famous canon, the model of all proportions. Myron created the athletic class. His athletæ are very celebrated, particularly his Disco-bolus, who supports his left hand on his knee, and, bending, throws the discus, with his right hand raised backwards. He completed this class by the ideal of Hercules, and formed the ideals of the whole animal kingdom. Only one hundred years after Phidias 364, B. C., the high or ideal style gave place to the beautiful. Scopas and Praxiteles were the first in this style; they sculptured all the varieties of the dancing Bacchantes, or Thyades, in which the finest forms of beauty were joined with

enthusiastic frenzy. Scopas invented the group; Praxiteles the ideals of Diana, of Venus, and of Bacchus. He was the father of a numerous family of artists. After him the beautiful style was transformed into the graceful, which gained in expression and purity what it lost in grandeur. Symmetry and proportion were most attended to. In the age of Alexander, Lysippus adopted a new style of art, by forming many portrait statues. He was the only one who was permitted to make the statue of Alexander, as Apelles alone was allowed to paint him. This last flourishing period of Grecian sculpture began 336 B. C. It contained the last class of works of the art, that of the ideal statues of kings and of warriors. Lysippus, though influenced much by Polycletus's rules of proportion, formed his bodies more slender, and his heads smaller; he also bestowed particular care upon the finishing of the hair. His statues are particularly admired for their life. Through the influence of painting, sculpture acquired the expression of feeling, of which the highest perfection, in the pathetic, is the group of Laocoön. The taste for colossal statues extended itself, and contributed to the decline of the art; excess of ornament was also connected with it. After the Macedonian and Syrian wars, 200 B. C., the Romans began to carry off the statues from the conquered countries. Paulus Æmilius adorned his triumph of three days with immense treasures of Grecian statues. The *Forum Romanum* was often hung with costly carpets, and transformed into a theatre, adorned with about 3000 statues; 12,000 were placed in the capital alone. With the statues also the Grecian artists came to Rome; but the art never became naturalized there. After the time of Sylla, the love of the art was increased to a mania. The best flourishing period of the art was Adrian's age. The highest elegance, polish, and perfection was its character. This taste continued under the Antonines, slightly degenerated; but it sunk entirely under Severus and his successors; before Constantine the Great, the art of the ancients was entirely lost. The early Christian works adhere to a fixed type. See the *Notizie dela Scultura degli Antichi e dei varj suoi Stili, del Abate Luigi Lanzi* (2d Italian ed., with annotations and copper-plates, in the *Poligrafia Fiesolana*, 1824). Sculpture revived in Italy in the thirteenth century. The modern artists worked also ably in metal. The greatest master of this first period of modern art was Michael Angelo Buonarotti. Through him and his disciples, sculpture raised its head in Western Europe. All the remains of art which had escaped destruction from barbarian violence, religious fanaticism, and natural causes, were now carefully preserved. We are chiefly indebted to the noble Cosmo and Lorenzo de' Medici for the restoration of a better style. Artists were honoured and supported, the treasures of antiquity were collected and museums instituted. The neighbouring princes vied with the Medici. Yet modern art never attained the sublimity and tranquil grandeur of the ancient. The modern artist reveals himself in his works; the ancient artist did not appear in his work. Through Buonarotti's sublime genius, the art was seduced into extravagance, and through Bernini's affected grace into mannerism and excessive ornament; the true feeling of beauty had disappeared; artists in vain endeavoured to surpass the ancients, not realizing that they had sunk too low to understand them. Through the preponderating example of France, good taste in every art declined more and more; human nature itself was distorted. The folly of fashion prevailed every where. In the eighteenth century, Winckelmann was the first who lighted the torch of modern art, and opened the eyes of his contemporaries to the elevated beauty of antiquity. The cardinal Albani and Mengs supported him; thus the new dawn of the art and of beauty was ushered in. The present age can boast of several sculptors of great merit. An apparent stagnation in art was first to come, bad taste was to be destroyed, before beauty could blossom again. Canova became the founder of a new period. Thorwaldsen stands by his side, and in many respects before him; and to judge by the progress which modern sculpture has made in the last thirty years, and the noble works which have been executed in so short a time, we may hope, that it is upon a safer route than in the sixteenth century.

The most illustrious Sculptors of Antiquity.—Earliest period.—Vulcan and Prometheus are but symbolical figures; and the ingenious Greeks denoted by the lame god and the deified man, the power and skill of art conquering matter, and the divine spirit of the mind immortalizing earthly forms. In Dædalus of Athens we behold the first great sculptor; we may place him about 1400 B. C. At the same time, Smilis, the father of statuary, lived in Ægina. Epeus is said to have made the Trojan horse. Rhœcus of Samos, 700 B. C., invented the art of moulding and casting statues in metal. Theodorus and Telecles, his sons, travelled, for the study of the art, to Egypt. The former is reported to have made the statue of the Pythian Apollo, for the temple at Samos, in two parts—one half at Ephesus, the other half at Samos—a manner of working, which was, perhaps, possible in the condition of the Egyptian art. Dibutades invented the art of making portrait figures in baked earth (*terra cotta*); his daughter Calirrhoe suggested to him this idea, by drawing the profile of her lover's shadow with coal upon the wall. Euchirus of Corinth (B. C. 663) accompanied Demaratus, the father of the elder Tarquin, to Italy, and introduced the art of modelling into Etruria. Dipœnus and Scyllis became the masters of a numerous school. Malas and his followers were among the most illustrious sculptors of that time. Canachus was the greatest master of the Sicyonian school. Perillus made the famous brazen bull (a splendid masterpiece) for Phalaris, who ruled in Sicily 564 B. C., in which the artist himself was burnt. Among the principal works in stone were those of Bathycles of Amyclæ. Callon of Ægina lived 540 B. C. Demeas of Crotona executed the statue of Milo. Iphicrates cast the brazen lioness of Leæna, who was privy to the conspiracy of Harmodius and Aristogiton against Hipparchus, and who endured the torture till death, without confessing any thing. The artist gave no tongue to the lioness, in order to express the heroic silence of Leæna. Onatas of Ægina restored the statue called the *black Ceres of Phigalea*. Ageladas of Argos is considered the master of Phidias.

Second Period.—Ideal Style.—With Phidias of Athens began the period of the high ideal style, which he created. He lived in the time of Pericles. Besides his two masterpieces, Pallas Athene and Jupiter, his Pallas of brass for Athens, his Venus Urania, his Nemesis in the temple at Marathon, and his Amazon, called *Eucnemon*, from the beauty of her limbs, deserve mention. He made but a single boy from life. His favourite disciples were Alcamenes

of Attica and Agoracritus of Paros. The most celebrated works of the former were his Vulcan, his Olympian conqueror, his Cupid, his Mars, and his Venus. The second was a still greater favourite of Phidias; he contended with Alcamenes in the execution of a Venus, and was adjudged to be inferior by the Athenians only out of partiality to their fellow-citizen; he transformed his Venus to a Nemesis, and sold it at Rhamnus. Varro considered this statue the finest ever executed. Polycletus of Argos made Juno, the third chief ideal figure, a companion to the Olympic Jupiter. In the Ludovisian Juno, an imitation of her head is preserved. Polycletus sculptured, besides his famous canon, all the beautiful gymnastic positions of boys, and all the sports of youth: the highest ideal of this class is his Mercury. A tender softness was peculiar to this master, as shown in his charming Canephoræ of Athens. He chiefly cast in metal. His fellow disciple and rival was Myron of Eleutheræ in Bœotia. He executed three colossuses upon one pedestal—Minerva presenting the deified Hercules to Jupiter. The fertile genius of Myron was displayed in the choice of new and bold positions. He despised the softer forms of the Ephebi, and showed his skill in the representation of the most highly finished athletic forms. His Runner, his Slinger, and his Pancratists, are celebrated. His ideal of Hercules completed this class of forms. His Heifer, and his Sea Monster, are famous among his animal forms. But one thing was wanting to this great sculptor—grace of expression: in this he was surpassed by his rival, Pythagoras of Rhegium, who adopted the undulating line as the line of beauty, and first expressed the sinews and veins with accuracy. He created the ideal of Apollo in the position of an archer who has just shot the serpent Python. The imitation of this is the most splendid statue which we possess—the Apollo Belvedere. (See Plate LXXX, fig. 1.)

Third Period.—Beautiful Style.—Socrates, the sculptor of the clothed Graces, with Athenodorus and Naucydes, began this epoch. Praxiteles and Scopas brought the art to its highest perfection, since they united beauty with grace. The most celebrated works of Scopas are his furious Bacchante (the head, bending backwards, united the highest beauty with Bacchanalian frenzy), his Cupid, his Venus (probably the model of the Medicean), and his group,—the Triumph of Achilles, whom Thetis is conducting, after his death, to the happy islands, in which Scopas found an opportunity of introducing numberless Tritons, Nereids and sea monsters in the most charming combinations. Praxiteles, the most feeling of all sculptors, created the perfect ideals of Diana and of Bacchus. He formed the latter as a contrast to the Satyrs and Fauns, who express rudeness and licentiousness; it was soft and tender, without being effeminate; it was perpetual gayety personified in the victorious god, sporting with his companions. The Diana of this artist expressed virgin modesty, with bold activity. Homer's Nausicaa inspired him. He made, also, the admired statue of a Satyr (Periboetos), and the ideal of Eros, or Cupid. The god of love was never represented by the ancients as an infant; the true infantile representation was not admissible till after the Christian era. Eros always had the form of a boy approaching youth. Praxiteles first attempted to represent Venus entirely naked, and thus created the later ideal of the goddess. His most celebrated works are his Venus of Cos and of Cnidos. The former is covered from the hip downward; the latter entirely naked, holding her garment with her left hand over the bath. We possess imitations of both. The group of Niobe is also ascribed to this master. (See Plate LXXX, fig. 5.) His son Cephissodorus was celebrated for his Symplegma (two wrestlers with hands interlaced), and his Æsculapius. After his time, the art degenerated through the introduction of the most voluptuous representations. Praxiteles had already formed, for Phryne, a group in bronze, in which he placed a laughing Hetæra opposite to a weeping matron. Hermaphrodites, groups of Satyrs and Nymphs, were formed with great perfection of art, and equal looseness of moral sentiment.

Fourth Period.—Age of Alexander the Great.—Art could only gain through grace and softness of execution, since the high ideal beauty was on the decline. Lysippus of Sicyon appeared and became the master of elevated portrait sculpture. Among the gods, Hercules was his favourite, and he perfected the ideal figure of Neptune, designed by Euphranor. He represented Alexander from his childhood to his manhood. It is affirmed that he alone made 1500 statues; some limit this number to 610; every figure of his great groups, however, is included in this estimate. The most celebrated among these groups are, Alexander hunting, and the twenty-five equestrian statues, representing the Macedonian friends, who fell in the first attack near the Granicus, at the side of Alexander. His horses are very beautiful. Euthycrates, his son, and Apollodorus and Silanion, were great sculptors of this period. Chares of Lindus cast the famous Colossus (q. v.) of Rhodes. Agesander, Athenodorus, and Polydorus, father and sons, of Rhodes, formed the celebrated group of Laocoön; Glycon of Athens, the Farnese Hercules; Apollonius and Tauriscus, the Farnese bull. The sculptors of Rome were Greeks; we only know of them, Arcesilaus, the friend of Lucius Lucullus, and Praxiteles, the greatest modeller of the age of Pompey. He wrote five books on the most celebrated works of art. Zenodorus had formed, in Gaul, a colossal Mercury in brass, and was invited by Nero to Rome, to make a colossal statue of him, 110 feet high; the casting failed. The reclining statue of the dying Cleopatra was executed in the reign of the emperor Augustus. Cleomenes, an Athenian, made the statue of Germanicus, in the time of Tiberius. The four beautiful horses of brass, above the chief entrance of the church of St Mark at Venice, were cast during the reign of Nero. The beautiful Antinous is one of the most perfect statues of the age of Adrian.

The most Illustrious Sculptors of Modern Times.—Earlier Period.—1. *Italian Sculptors.* In the eleventh century, we find mention of a sculptor named Buono, in the twelfth, of Bonanno of Pisa. Niccolò Pisano, who died in 1270, was called the restorer of good taste in sculpture. Several works of his son Giovanni Pisani are still to be seen in Pisa. Andreas Orgagna, surnamed Buffalmaco, died in 1389. Luca della Robbia varnished his works in *terra cotta*, with great skill. Lorenzo Ghiberti, who died in 1455, was a very able master. His brazen gates at the Battisterio of Florence are celebrated. Michael Angelo declared them worthy to stand at the entrance of paradise. Donatello (born at Florence 1383, died 1466) enriched Venice, Florence, Genoa and Faenza with his works; a bald-headed old man, made by him in Florence, is celebrated. He formed, for the church of St Mark

at Florence, the brazen statues of St Peter, St George and St Mark; the latter is particularly memorable for the question of Michael Angelo: "*Marco, perchè non mi parli?*" (Mark, why dost thou not speak to me?) His brother Simon made one of the brazen gates of the church of St Peter, and the sepulchre of Martin V., in the Lateran church. Andreas Pisano was an illustrious sculptor and engraver. Lorenzo Lotto, called Lorenzetto, was the first who endeavoured to restore antiques. Andreas Verrocchio, from jealousy of his pupils Perugino and Leonardo da Vinci, abandoned painting, and devoted himself to sculpture. He was the first who revived the art of modelling the busts of the deceased in soft substances. Rustici, born at Florence, in 1470, was the disciple of Verrocchio, and afterwards of Leon. da Vinci. The latter taught him the art of modelling, of cutting marble, of casting in brass, and perspective. His most celebrated works are a Europa, a Leda, a Vulcan, and a Neptune. Michael Angelo Buonarotti (q. v.), in his early youth, executed some astonishing works, as the head of an old woman, and the statue of Hercules. Particularly worthy of admiration are his Bacchus, the famous colossal statue of Julius II., for whose tomb he made three figures, among which is his famous Moses, his David, his Victory at Florence, and his statue of Night upon the tomb of Giulio de' Medici. Tatti, called after his birth-place Sansovino, born 1477, when a youth, at Rome, made a model of the Group of Laocoön, which, by Raphael's decision, obtained the prize, and was cast in bronze. He executed many works for Venice, among which the marble statues of the holy Virgin in St Mark's, and of John the Baptist in the church at Casa Grande, are particularly celebrated. The ease of his drapery and the line of his statues are much admired. Baccio Bandinelli, born at Florence in 1487, vied with Buonarotti. He had a great knowledge of anatomy; his manner is energetic but rude. He restored the right arm of Laocoön; his bass-reliefs upon the tombs of Leo X. and Clement VII., are famous. Benvenuto Cellini, born at Florence in 1500, was a sculptor, goldsmith and painter. Properzia Rossi, of Bologna, is the only celebrated female sculptor. Two angels in marble, which adorn the front of the church of St Petronia, and several busts, were the foundation of her fame. She represented, with much skill and delicacy, the passion of Christ, and many figures of the apostles, upon peach-stones, in bass-relief. Eleven of these peach-stones are preserved in the gallery of the marchese Grassi at Bologna. She studied the rules of architecture and perspective, and was an able painter and musician. An unhappy passion caused her early death, in 1530. She sculptured the melancholy story of her feelings in marble, and this bass-relief was her masterpiece. Guglielmo della Porta, of Milan, restored several antiques in Rome; he restored also the legs of the Farnese Hercules so well, that Buonarotti did not consider the genuine legs, which he found twenty-seven years after, superior. The beautiful statue of Justice upon the tomb of Paul III., in the church of St Peter's, is by this master, as well as the four great prophets in the niches between the columns of the first colonnade of the same church. With Bernini, born at Naples, 1598, a *second period* of Italian sculpture begins. He was a man of uncommon genius, but his boldness, his imagination, and particularly his endeavours to please, generally seduced him into irregularities; he attempted to surpass natural beauty, particularly in the dimples in the cheeks. His St Theresa and St Bibiana were his masterpieces. Alessandro Algardi (q. v.), born at Bologna, was the rival of Bernini. He was a disciple of Ludovico Caracci; and the painter is often discoverable in his works. He was the founder of a numerous school. Domenico Guido, Antonio Raggi, Ercole Ferrata, and Gabr. Brunelli, are distinguished among the numerous disciples of the two last masters. Gonnelli, called the blind man of Cambassi, lost his eyesight in his twentieth year, and made himself a sculptor by feeling alone. He executed a statue of Cosmo I., grand-duke of Tuscany, in *terra cotta*. Tubi, born at Rome, 1630, sculptured much for France. He made the famous group upon the tomb of Turenne. Camillo Rusconi, born at Milan in 1658, was an admirer of the ancient works of art, and imitated them in a masterly manner. His masterpiece is the tomb of Gregory XIII., in St Peter's. The attitude of his figures is majestic and beautiful; his style is pure, full of expression, fire and life. Angelo Rossi, born at Genoa in 1671, chiefly distinguished himself by his excellent reliefs. He followed rather the taste of the ancients than the style of Algardi, not cutting so deep, but forming rather demi-reliefs. His work of this kind, for the tomb of Alexander VIII., is the finest bass-relief in St Peter's. Gaetano Zumbo, born at Syracuse, 1656, had no other master than his own genius. He carried the working in coloured wax to great perfection. He made, for the grand duke of Tuscany, the famous representation of putrefaction, showing all its stages in five corpses, coloured after nature, with so much truth as to excite horror. A Birth of the Saviour, and a Descent from the Cross, are among his masterpieces.

2. *French Sculptors.*—Jean Goujon, of Paris, is the first distinguished sculptor in France: and his most celebrated work is the fountain of the Nymphs, in the market-place *des Innocents* at Paris, which he began under Francis I., and finished in 1550, under Henry II. He was also an architect and an engraver. He perished, in 1572, in the massacre of St Bartholomew's. Germain Pilon, of Paris, had much grace, but his style was often impure. He first accurately distinguished the various materials of the drapery. The group of the three Christian Virtues, in white marble, for the church of St Celestine, is a noble work. Jean de Boulogne was born at Douay, in 1524. He went early to Rome, and was Buonarotti's disciple. He was on the point of leaving Rome on account of his poverty, when an amateur at Florence gave him a piece of marble, out of which he formed a Venus, by which he gained celebrity. His most celebrated works are Sampson and a Philistine, at Florence, his colossal Neptune, and his Rape of the Sabine Women, in the same place, his flying Mercury, in brass, and his Jupiter Pluvius, the greatest colossus of modern art. His disciple Tacca made the horse for the statue of Henry IV., upon the Pont-neuf, and the equestrian statue of Philip IV., king of Spain, represented at full speed in *Buen Retiro*. Jacques Sarrassin, born at Noyon, 1590, was educated in Rome, and united genius with taste and grace. The Caryatides, which adorn the great pavilion of the old Louvre, and the Group of Romulus and Remus in Versailles, are among his masterpieces. He founded a productive school, and died in 1660. François Anguier made the

beautiful tomb of the duke of Montmorency, in the church of St Mary at Moulins, and his brother Michael, the statues and reliefs of the Porte St Denis. Théodon made the beautiful statue of St John in the Lateran, and the two Groups in the garden of the Tuileries, Atlas transformed into a rock, and Phaetusa changed into a poplar tree. He died in 1680. Lerambert made several groups for Versailles. Puget, born at Marseilles, in 1622, was a painter, architect and sculptor. If he had more carefully studied the antique models, he would have surpassed all modern sculptors. His style was bold and powerful. His most celebrated works are his two colossal Termini, in the city hall of Toulon, his statue of Milo in the park of Versailles, and his Dying Gladiator. The brothers Marsy, born in 1624 and 1628, at Cambray, made the statues of Bacchus and of Latona in bronze, at Versailles, and the famous Group of Horses at the bath of Apollo, in the same place. François Girardon, born at Troyes, in 1630, was the most celebrated sculptor of the age of Louis XIV. His equestrian statue of this king, twenty-one feet high, which stood formerly on the royal Place Vendome, was the first work of modern times, which was cast in a single piece. Most of the works of Girardon are formed after designs by Le Brun, and adorn the park of Versailles. Pierre le Gros, born at Paris, 1656, lived almost all his life in Rome, and is one of the best French artists. His most celebrated works are, a Roman Maid in the garden of the Tuileries, St Dominic in the church of St Peter's, the Group of St Ignatius, and St Theresa in the church of the Carmelites at Turin. He died in 1790, deeply mortified by the neglect of the academicians at Paris. Nicolas Coustou, born at Lyons, in 1658, had much taste and ease, but entirely a French manner. His brother Guillaume surpassed him, and finished, in bass-relief, the Passage of the Rhine, which the former had commenced. Edme Bouchardon's style was soft rather than elevated, more regular than bold. Lambert Adam, born at Nancy, in 1700, made the two statues, the Seine and Marne, eighteen feet high, at St Cloud, and the Group of Neptune and Amphitrite at Versailles. His style is rude and wild. Lemoyne distinguished himself by his portraits: he was animated, but incorrect. René Slodz, born at Paris, in 1705, worked in a simple style of grandeur: few understood drapery better than he, yet his figures are not always correct. Baptiste Pigalle, born at Paris, 1714, owed his success entirely to his great industry. His Mercury and Venus are celebrated: the king of Prussia purchased them both. The celebrated tomb of marshal Saxe at Strasburg is his work. A Boy with a Cage, from which the bird had escaped, by its truth and expression, gained him universal approbation. He died in 1785. Etienne Falconnet was invited to Petersburg, to make an equestrian statue of Peter the Great, in bronze. Mademoiselle Collot made the model of the head.

3. *German Sculptors.*—Long before Albert Dürer's time, some excellent sculptors flourished in the south of Germany, whose industry and excellence are proved by their works, which adorn the churches, city halls and fountains of Nuremberg and other places. We even find marks of still more ancient sculpture, in the numberless equestrian figures and images of saints, which, in all the minsters, and particularly in that at Cologne, cover even the smallest turrets. The names of these masters are unknown; the first probably came from Byzantium. Albert Dürer, whose genius embraced various departments of the fine arts, produced excellent works of sculpture, large and small, comprehending insulated figures, and figures in relief in wood and stone. Leonard Kern, born at Forchtenberg, in 1580, studied in Italy, and worked with much success in wood, stone and ivory. Gottfried Leygebe, born at Freistadt, in Silesia, 1630, died at Berlin, 1683, was the first who formed small equestrian figures, of cast iron. He represented the emperor Leopold I., at Copenhagen, Charles II. of England, as St George, at Dresden, and the elector Frederic William, as Bellerophon, at Berlin. Rauchmüller worked on the column of the holy Trinity at Vienna, which was finished 1693. Andreas von Schlüter, born at Hamburg, 1662, studied in Italy, chiefly the works of Buonarotti, and was invited to Berlin, where he adorned the arsenal and formed the model of the excellent equestrian statue of the elector Frederic William, which was cast, 1700, by John Jacobi. Balthasar Permoser, born in 1650, in the district of Salzburg, died, 1732, at Dresden, has left many excellent works at Berlin, Dresden and Leipsic. There are also other German sculptors of note.

4. *British Sculptors.*—It is only within the present century, that there could properly be said to exist a British school of sculpture. Nearly all the sculptors who flourished in England during the last century, were foreigners. Our own day, however, can boast of several native artists of the most distinguished excellence. We may mention particularly, Flaxman, Chantrey, Baily, Carew, Westmacott, and others. See Plate LXXXI. for figures by Flaxman, Chantrey, and Baily. See also preliminary dissertation on the fine arts in this work.

5. *Dutch, Swedish and Russian Sculptors.*—Francis Duquesnoy, born at Brussels, in 1594, known under the name *il Fiamingo*. He had, like Algardi, a peculiar genius for representing the beauty of children, and succeeded in flying and rising figures better than any one before him. He formed an intimate friendship with Poussin, and both gave themselves, with an unlimited devotion, to art. His Andrew, twenty-two palms high, in St Peter's at Rome, is one of the finest statues there; and his Susanna at Loretto is much admired on account of the noble attitude of the figure, its mild, pious expression, and beautiful drapery. Buyster, Slodz, Quellius and Van Obstal were Dutch sculptors of merit. Among the Swedish sculptors we ought to mention, above all, Sergel. The Russian Pawloff was a portrait sculptor of reputation. Launitz, the disciple of Thorwaldsen, is distinguished in the present time.

6. *Spanish Sculptors.*—Sculpture has flourished in Spain since the eleventh century, and Aparicio of Castile made, as early as 1033, a bass-relief in gold and ivory, representing, in twenty-two divisions, the Hunt of St Millan, which is preserved in the convent of Yuso, and is admirable for its proportions and grace. The convents and churches gave employment to the artists. A hundred and sixty distinguished Spanish sculptors are enumerated.

Latest Period.—Cavaceppi, in Rome, makes the transition to the great sculptors of the present time. Canova, who died in 1822, was chiefly distinguished for grace of style and perfection of execution. (See representations of his 'Venus' and 'Beneficence,' Plate LXXXI. figures 22 and 25.) The Dane Thorwaldsen, in heroic figures, is superior to his

contemporaries in the grandeur of the forms, and, above all, in strength of expression. Both united, reflect much splendour on the age, and in Thorwaldsen's works especially, much truth, united with a beautiful conception of nature, and a noble composition, is visible, so that he deserves to be called one of the greatest masters of all ages. (See his Hebe, plate LXXXI. fig. 20.) We ought also to mention the names of Dannecker in Stuttgard, whose Ariadne equals the ancient in beauty, Schadow, Rauch and Tieck in Berlin, and Chaudet and Houdon in Paris. Count Cicognara has published a continuation of the works of Winckelmann and Agincourt (*Storia della Scultura dal suo Risorgimento in Italia*, &c.) until Canova (2d ed., Prato, 1824, 4 vols., with copper-plates).

Modelling.—Before any object is executed in stone, it is the practice of sculptors to complete a representation of their design by modelling it in clay, or some other soft material. The genius of the artist is displayed altogether in the model; for the process of afterwards copying the model in stone is chiefly mechanical, and may often be executed by another person, as well as by the sculptor himself. When a clay model is taken, if the proposed figure be large, a frame of wood or iron is erected, to give support to the limbs and different parts of the figure. Upon this frame a proper quantity of wet clay is distributed and wrought into the form of the intended statue. The moulding of the clay is performed with the hands, and with various instruments of wood and ivory. When the model is complete, copies may be taken from it, either by casting them in plaster, or in metal, or by chiselling them in marble. To execute a statue in marble, which shall exactly correspond to a pattern or model, is a work of mechanical, rather than of inventive skill. It is performed by finding, in the block of marble, the exact situation of numerous points, corresponding to the chief elevations and cavities in the figure to be imitated, and joining these by the proper curves and surfaces at the judgment of the eye. These points are found by measuring the height, depth, and lateral deviation of the corresponding points in the model; after which, those in the block are found by similar measurements. Sometimes the points are ascertained by placing the model horizontally under a frame, and suspending a plumb-line successively from different parts of the frame, till it reaches the parts of the figure beneath it. Sometimes an instrument is used consisting of a moveable point, attached by various joints to an upright post, so that it may be carried to any part of the statue, and indicate the relative position of that part in regard to the post. Machines have also been contrived for cutting any required figure from a block, the cutting instrument being directed by a gauge, which rests upon the model in another part of the machine. Marble is wrought to the rough outline of the statue by the chisel and hammer, aided by the occasional use of drills and other perforating tools. It is then smoothed with rasps and files, and, when required, is polished with pumice stone and putty. The hair of statues is always finished with the chisel; and for this object, very sharp instruments, with different points and edges, are necessary. The ancient sculptors appear to have relied almost wholly upon the chisel, and to have used that instrument with great boldness and freedom, such as could have been justified only by consummate skill in the art. The moderns, on the contrary, approach the surface of the statue with great caution, and employ safer means for giving the last finish. Some of the most celebrated antique statues, such as the Laocoön, the Apollo Belvedere, and Venus de' Medici, are thought to have been finished with the chisel alone.—Although marble has been the common material of sculpture, both in ancient and modern times, yet other substances have been occasionally made subjects of the chisel. Statues of porphyry, granite, serpentine and alabaster, are found among the remains of antiquity. Other materials, of a less durable kind, were also employed. Some of the principal works of Phidias were made of ivory and gold, particularly his colossal statues of Jupiter Olympius and Minerva, at Athens.

Bronze Casting.—Statues intended to occupy situations in which they may be exposed to violence, are commonly made of bronze. This material resists both mechanical injuries and decay from the influence of the atmosphere. The moulds in which bronze statues are cast, are made on the pattern, out of plaster and brick dust, the latter material being added to resist the heat of the melted metal. The parts of this mould are covered on their inside with a coating of clay, as thick as the bronze is intended to be. The mould is then closed, and filled on its inside with a nucleus or core of plaster and brick dust, mixed with water. When this is done, the mould is opened, and the clay carefully removed. The mould, with its core, are then thoroughly dried, and the core secured in its central position by short bars of bronze, which pass into it through the external part of the mould. The whole is then bound with iron hoops, and, when placed in a proper situation for casting, the melted bronze is poured in through an aperture left for the purpose. Of course, the bronze fills the same cavity which was previously occupied by the clay, and forms a metallic covering to the core. This is afterwards made smooth by mechanical means.

SCUPPERS; certain channels cut through the water-ways and sides of a ship at proper distances, and lined with sheet-lead, in order to carry the water off the deck into the sea.

SCUPPER-HOSE; a leathern pipe or tube nailed round the outside of the scuppers of the lower decks, and which, by hanging down, prevents the water from entering when the ship inclines under a pressure of sail.

SCURVY (*scorbutus*); a disease of a putrid nature, prevalent in cold and damp climates, and which chiefly affects sailors and such as are shut up in besieged places; owing, as is supposed, to their being deprived of fresh provisions, and a due quantity of acescent food, assisted by the prevalence of cold and moisture, and by such other causes as depress the nervous energy, as indolence, confinement, want of exercise, neglect of cleanliness, much labour and fatigue, sadness, despondency, &c. These debilitating causes, with the concurrence of a diet consisting principally of salted or putrescent food, will be sure to produce this disease. It seems, however, to depend more on a defect of nourishment than on a vitiated state; and the reason that salted provisions are so productive of the scurvy is, most probably, because they are drained of their nutritious juices, which are extracted and run off in brine. As the disease is apt to become general among the crew of a ship, when it has once made its appearance, it has been supposed by many to be of a contagious nature; but the conjecture seems by no means well founded. The scurvy comes on

gradually, with heaviness, weariness, and unwillingness to move about, together with dejection of spirits, considerable loss of strength and debility. As it advances in its progress, the countenance becomes sallow and bloated: respiration is hurried on the least motion; the teeth become loose; the gums are spongy; the breath is very offensive; livid spots appear on different parts of the body; old wounds, which have long been healed up, break out afresh: severe wandering pains are felt, particularly by night; the skin is dry; the urine small in quantity; and the pulse is small, frequent, and, towards the last, intermitting; but the intellect, for the most part, clear and distinct. By an aggravation of the symptoms, the disease, in its last stage, exhibits a most wretched appearance. Scurvy, as usually met with on shore, or where the person has not been exposed to the influence of the remote causes before enumerated, is unattended by any violent symptoms. Slight blotches, with scaly eruptions on different parts of the body, and a sponginess of the gums, are the chief ones observed. In the cure, as well as the prevention of scurvy, more is to be done by regimen than by medicines, obviating, as far as possible, the several remote causes of the disease; but particularly providing the patient with a more wholesome diet and a large proportion of fresh vegetables; and it has been found that those articles are especially useful, which contain a native acid, as oranges, lemons, &c. Where these cannot be procured, various substitutes have been proposed, of which the best appear to be the inspissated juices of the same fruits, or the crystallized citric acid. Vinegar, sour crout, and farinaceous substances, made to undergo the acetous fermentation, have likewise been used with much advantage; also brisk fermenting liquors, as spruce-beer, cider, and the like. Mustard, horse-radish, garlic, and other substances of a stimulating character, promoting the secretions, are useful to a certain extent.

SCURVY GRASS (*cochlearia*); a genus of cruciferous plants, mostly inhabiting the extreme northern parts of the globe. It consists of herbaceous plants, having alternate, and, usually, entire leaves, and their flowers disposed in terminal racemes, and ordinarily white. The horse-radish is one of them, but is much larger, and has a different aspect from the others, but resembles them in the sensible properties of the leaves and stems. The common scurvy-grass (*C. officinalis*) grows wild on the sea-shore of Greenland, Iceland, and the north of Europe: the leaves are small, angular, sinuate and sessile, and are sometimes eaten in salads: the taste is acrid and slightly bitter: they are antiscorbutic, and stimulating to the digestive organs. About twenty species of *cochlearia* are known.

SCUTARI, or ISKIUDAR; a town of Asiatic Turkey, in Natolia, on the Bosphorus, opposite to Constantinople, called by the ancients *Chrysopolis;* population, about 33,000. It is considered a suburb of Constantinople, and serves as an emporium and rendezvous to the caravans of Asia. The Turks at Constantinople are interred at Scutari, and the burying grounds here are the handsomest in the empire. See *Constantinople.*

SCUTARI, or ISKANDERIE, in Albania, the capital of a pachalic, is situated at the end of a lake to which it gives its name. It was anciently the residence of the kings of Illyricum. Population, 15,000.

SCUTTLING; the act of cutting large holes through the bottom, sides or decks of a ship, for various occasions, particularly when she is stranded or overset, and continues to float on the surface, in order to take out the whole or part of the cargo, provisions, stores, &c.—To *scuttle a ship;* to sink her by making holes through her bottom.

SCYLLA; a daughter of Nisus, king of Megara, who became enamoured of Minos, when that monarch besieged her father's capital. She delivered Megara into his hands, on his promising to marry her: but Minos afterwards treated her with such contempt that she threw herself from a tower into the sea; or, according to some accounts, she was changed into a lark by the gods, and her father into a hawk. —A daughter of Typhon or Phorcis, was loved by Glaucus. Scylla scorned his addresses, and the god applied to Circe. But she became enamoured of him herself, and, instead of giving him assistance, attempted to make him forget Scylla, but in vain. To punish her rival, Circe poured the juice of some poisonous herbs into the waters of the fountain where Scylla bathed; and no sooner had the nymph touched the place, than she found every part of her body below the waist changed into frightful monsters like dogs, which never ceased barking. This metamorphosis so terrified her, that she threw herself into that part of the sea which separates the coast of Italy and Sicily, where she was changed into rocks, which continue to bear her name, and which were deemed very dangerous to navigators, as was also the whirlpool of Charybdis, on the coast of Sicily.

SCYTHIANS. This name was very vaguely used by ancient writers. It was sometimes applied to a particular people, and at others was extended to all the nomadic tribes which wandered over the regions to the north of the Black and the Caspian seas, and to the east of the latter. Scythia is used in the same indefinite manner, sometimes for the country of the Scythians, and sometimes for those now called Mongolia and Tartary. The Scythians may be distinguished into Asiatic and European. Among the former, the ancients included a great number of northern nations, with whose origin they were unacquainted, and who were probably of different races. The Scythians were for some time a ruling people in Asia. They are considered as the progenitors of the Turks, Tartars and Manchoos: the ancients considered the Persians, Parthians and Bactrians as their descendants. The European Scythians, in the time of Herodotus, inhabited the country from the Ister (Danube) to the sources of the Dniester and the Dnieper, in the neighbourhood of the Don, and along the northern shores of the Black sea. Of this region, that portion extending from the Danube to the city of Carcinitis, was called *Old Scythia;* and the peninsula (Taurida) to the Borysthenes was called *Little Scythia,* which name, in Strabo's time, included the country as far as the Danube, formerly occupied by the Thracians, and therefore comprised *Old Scythia.*

SEA. See *Ocean.*

SEA-BATHING has been found very salutary in several complaints, as diseases of the glands of all kinds, and of the skin in scrofula and a scrofulous predisposition, exhausting sweats, and tendency to catarrhs, chronic nervous diseases, particularly hysteric attacks, epilepsy, St Vitus's dance; also sometimes in chronic rheumatism. But it must not be used in the case of plethora, inclination to congestions and discharges of blood, diseases of the heart, tendency to pulmonary consumption, ob-

struction and induration of internal organs. The great proportion of salt and of animal substance in the sea-water, the constant motion and swell of the waves, the sea air, and the very sight of the sea, together with the excitement caused, at least in the case of timid persons, from overcoming a degree of fear, contribute to the effect of sea-bathing. Machines are sometimes used for conveying patients into the water. In these, being protected from observation, the bather can enjoy the sea perfectly undressed, which is much preferable to going into the water with a dress on.

SEA BEAR. See *Seal.*

SEA ELEPHANT. See *Seal.*

SEA HORSE. This term is often applied to the walrus, but more frequently to a small, insignificant, bony fish (*hippocampus*), the head of which bears some remote resemblance to that of the horse. The usual length of this fish is five or six inches; the body is compressed laterally, and is encased in prominent, bony, rib-like scales. The tail is much smaller than the body, destitute of a terminal fin, tapering gradually to a point, and curls up when dried; in which state it is common in museums. The mouth is small, and situated at the extremity of a long, tubular snout, as in the other pipe-fish. The species of *hippocampus* are found in almost every sea, and live on small marine insects. As some similarity has been imagined between the head of this fish and that of the horse, the dorsal fin has likewise been compared to a saddle, and the filaments on the back of the neck to a mane.

SEA-KAIL (*crambe maritima*); a cruciferous plant, growing wild in Europe, upon sandy sea-shores. The whole plant is entirely smooth and glaucous; the stems are about two feet high and branching, bearing fleshy leaves, some pinnatifid, and others sinuate, undulate, and crisped; the flowers are disposed in a terminal panicle. From time immemorial, the common people have been in the practice of watching when the young shoots and leaf-stalks begin to push through the sand, and cutting them off below the surface of the ground for boiling as greens. About eight years ago, it was first introduced into the gardens as a culinary vegetable; and now it is very common, as such, in many parts of Europe. It is planted in a deep, sandy soil, and is blanched either by sand, ashes, litter, or by covering with flower pots, or any other opaque cover. It is forced either by taking up the roots, and planting them in a hot-bed, or in the border of a forcing house, or by surrounding them with litter in the open garden. Each plant should have a cover to keep off the dung from the young shoots, as well as to ensure their being blanched. No plant is so easily forced; and, unlike asparagus, it yields produce the first spring after raising from seed.

SEA LION. See *Seal.*

SEA SERPENT. The existence of an enormous marine animal of the serpent shape, and thence called *sea serpent*, or *sea snake*, is mentioned by Pontoppidan (q. v.), in his Natural History of Norway, and has since been noticed by some voyagers. The former represents it to be about 600 feet in length, with apparently about twenty-five folds on its back. Within the last twenty years, a great number of persons, among them many mariners, have asserted, in the most undoubting manner, that they have seen a similar creature on the coasts of the United States of America, chiefly on those of New England. By different witnesses, the size of the animal has been differently estimated at from one hundred to forty-five feet in length; but all accounts agree in regard to the protuberances on its back, its vertical sinuosities, and its serpent-shaped head. A more particular account of the appearance and habits of this animal, as far as they have been observed, may be found in Silliman's Journal of Science for April, 1820.

SEA-SICKNESS (*nausea marina*); the nausea (from ναυς, a ship), retchings and vomitings experienced at sea by those unaccustomed to a sea life. The principal cause of the sickness is, doubtless, the motion of the vessel, and similar effects are sometimes produced by riding in a carriage; but it is often aggravated by the smells and effluvia of the vessel. Noxious gasses are evolved by the bilge-water; and chloride of lime or ammonia have been recommended for counteracting their effects and disinfecting the ship.

SEAL. Linnæus united the seals under the genus *phoca;* but later naturalists have recognised in them a group of marine quadrupeds, composed of several natural genera, which differ exceedingly in their dentition, as well as in external characters. The form of the body bears a general resemblance to that of a fish, and the short limbs are chiefly enveloped in the common integument, the part appearing externally serving the purpose of a fin or paddle; these flippers have five toes provided with nails, and united by a membrane. The tail is very short and rudimentary. The eye is large, the nostrils open or close at the will of the animal, and the external ear, when it exists, is very small. The upper lip is provided with strong whiskers. The interior structure of the seals is precisely similar to that of land quadrupeds; and atmospheric respiration is indispensable to their existence, although they are capable of remaining a long time under water. The seals live in herds more or less numerous, along the shores of the sea, and are fond of sunning themselves upon the sea-beaches, rocks, or ice-banks. Upon uninhabited coasts, they bring forth and suckle their young, and exhibit the most tender solicitude for their welfare. They are easily tamed, become strongly attached to their keepers, recognise them at a distance, and seem to be endowed with an unusual portion of intelligence; in short, they have many traits of character in common with the dog, as well as many points of external resemblance; hence their very common appellation of *sea-dogs.* They are extremely active in the water, but upon land are easily overtaken and killed. The form of their teeth and jaws shows them to be carnivorous, and their food consists of fish, crabs, and sea-birds, which they are enabled to surprise while swimming. In the Arctic regions, seals are often found under the ice, at the distance of many miles from open water, and form circular breathing holes, even though the ice be several feet in thickness; these openings are kept clear, but the surface is permitted to freeze over partially, so as to conceal them effectually, except from an experienced eye. Seals become extremely fat, and their skins and oil have now become a very important article of commerce. The oil is pure, and adapted to all the purposes for which whale-oil is used; and the skins are extensively employed in trunk-making, saddlery, by hatters, &c. Expeditions are fitted out, both in Europe and in the United States of America, for the sole purpose of catching seals.

The common seal of Europe (*phoca vitulina*) grows to the length of three feet; the colour of

the fur is yellowish-gray, with irregular blackish spots. The *phoca lagura* is a species which inhabits Newfoundland. The size is the same as the preceding; the colour silvery-gray, with blackish-brown spots; the sides and under surface almost white; the nails are strong and black; the tail woolly. Three other species of seals inhabit the Greenland seas—*P. Groenlandica*, *P. hispida*, and *P. barbata*. The latter attains the length of ten feet. It is probable that others inhabit the coasts of America; but the species of seal, in general, are not well understood. The hooded seal (*stemmatopus cristatus*) is remarkable for a globular sac, susceptible of inflation, which is situated upon the summit of the head of the males. It grows to the length of seven or eight feet, and inhabits the seas about Greenland and Newfoundland. The sea-elephant (*macrorhinus proboscidea*), next to the cetacea, is one of the largest of the mammalia, attaining the length of twenty-five or thirty feet. It inhabits the Antarctic seas, and is found upon the southern coasts of Australasia, Juan Fernandez, and the neighbouring parts of South America. It is remarkable for the faculty which the male possesses of elongating the upper lip into a sort of proboscis: this power is only exerted at times. The canine teeth form stout tusks. The voice of these animals resembles the lowing of cattle. The sea-bear (*arctocephalus ursinus*), so named from the fur and shape of the head, inhabits the coasts of the North Pacific, and is also said to be found in the southern hemisphere. It grows to the length of five or six feet, and has small external ears. The membrane of the hinder feet is prolonged into as many lobes as there are toes; and the fore feet are placed very far back. The colour of the fur is brown, and when old takes a grayish tint. The sea-lion (*platyrhynchus leoninus*) grows to the length of from six to ten feet, and is said to inhabit both the northern and southern coasts of the Pacific. The colour is yellowish brown; and the males have a large mane upon their necks, which partly covers their head and shoulders. The nails of the fore feet are very small, and in part wanting. The voice of the males is very powerful.

SEAL, SEALING-WAX. To seal important documents is a very ancient custom. Writers on diplomatics mention, besides metals, five substances on which impressions were made, or with which letters and public acts were sealed, viz. *terra sigillata* (q. v.), cement, paste, common wax, and sealing wax. The *terra sigillata* was used by the Egyptians, and appears to have been the first substance employed for sealing. The Romans were acquainted with sealing-earth, and used also clay and common wax, which has been employed for sealing, in Europe, since the earliest times; but writers on diplomatics are not agreed whether white or yellow wax was first used. In the course of time, it was coloured. Impressions on paste or dough are of a much later origin. Proper diplomas were never sealed with wafers; but kings were accustomed to seal their letters with this paste before the invention of sealing-wax. Maltha also was used for seals. (See *Cement*.) Some writers assert that sealing-wax was invented about 1640, by a Frenchman, named Rousseau. It was called, in France, *cire d'Espagne* (Spanish wax). At the time of its invention, a kind of gum lac, that was only once melted, and coloured a little red, was called Portugal wax (*cire de Portugal*). That sealing-wax was either not at all or very little known in Germany, at the beginning of the sixteenth century, may be inferred from its not being mentioned either by Porta or Wecker. The French have supposed that sealing-wax was used earlier in the East Indies than in Europe; but Beckmann, in his History of Inventions, declares himself unable to decide this point. The oldest known seal, made of our common sealing-wax, is that found by Mr Roos on a letter from London, dated August 30, 1554, and addressed to the rheingrave Philip Francis von Daun, by his agent in England, Gerard Hermann. The next seal, in the order of time, is one of the year 1561, on a letter written to the council of Görlitz at Breslau, found in the archives of Görlitz. Mr Beckmann mentions a series of other old seals. The earliest mention of sealing-wax in printed books, is probably contained in the *Aromatum et Simplicium aliquot Historia, Garcia ab Horto auctore* (Antverpiæ, 1574). It was first printed in 1563; and it appears from this that sealing-wax was then in common use with the Portuguese. The most ancient printed receipt for making sealing-wax is in a work by Samuel Zimmermann, of Augsburg, entitled *Neu Titularbuch* (1579); and it is remarkable that nothing is said of gum lac, at present the principal ingredient in sealing-wax, at least in that of the best quality: the composition approaches, on the contrary, very near to that which, in diplomatics, is called *maltha*. This invention, therefore, one might conclude, was not brought from the East Indies. At the time when writing was not a common accomplishment, the seal very often took the place of the name, so that we find eighty-eight seals attached to the instrument which sets forth the election of Ladislaus, by the Hungarian estates, in 1440, and 350 seals attached to the statement of grievances, sent, in 1415, by the Bohemian estates, to the council of Constance, as we find at present crosses made by Indian chiefs when they conclude treaties by written instruments. To protect seals against falsification, a counter seal (*contrasigillum*) privy seal in England) was often put on the reverse of the large seal. In Germany, this was first done under the emperor Henry III.; in France, under Louis VII. These small seals were in later periods used alone in cases of minor importance. As the seal was so important, the keeper of it was always a high officer. With the Greek emperors, the keepers were the *logotheti;* with the Merovingians, the *referendarii;* with the Carlovingians, and later emperors, the chancellors. The elector of Mayence, the arch-chancellor of the German empire, was, down to the latest times of the empire, the keeper of the seals. In France, the chancellor was also, originally, the keeper of the seals; but as the office of chancellor could not be taken from him, a *garde des sceaux* was appointed if the chancellor fell into disgrace. The *garde des sceaux* had the rank, official dress, and privileges of the chancellor. The seals were kept in a silver box, of which he was to carry the keys continually with him. The royal edicts and patents were sealed with green wax. Under the republic, all the royal seals were destroyed. All the impressions made with them were likewise ordered to be destroyed, and the greatest part actually were so. Napoleon adopted a seal with impressions on two sides, according to the fashion of the royal times. The chancellors in France were formerly obliged to seal the royal orders, and it was made their chief duty to attach the seal to none which were inconsistent with law

or justice. In England, the office of the lord chancellor and lord keeper of the great seals have been united since the time of Elizabeth; but for the privy seal there is still a particular officer, the lord keeper of the privy seal,—generally called *lord privy seal*,—through whose hands all instruments pass before the great seal is affixed to them. The English seal has only one side, and there are two great seals, different in dignity. The most important contains the portrait of the sovereign, the second the royal arms. From the privy seal is to be distinguished the signet, which is kept by the secretary of the cabinet. (See *Keeper*.) In Scotland, there is also a lord keeper of the great seal, a lord privy seal, and a particular officer for law papers, called *keeper of the signet*. See *Sphragistics*.

SEAMEN. It is the policy of every nation aspiring to maritime power, to increase the number of its seamen. This is one reason for promoting fisheries, as the nursery for the supply of the navy. The English laws subject men of this class to a peculiar hardship, little consonant to the spirit of the British constitution, as they are liable to be forcibly seized and detained in the naval service. The power of impressing seamen into that service has been a matter of some dispute, and submitted to with great reluctance. Sir Michael Foster has shown that impressments are of very ancient date, and have been uniformly practised for a long series of years; whence he concludes this practice to be a part of the common law. It is also recognised in many statues, such, for instance, as exempted certain persons from impressment, though the power of impressing is not expressly granted in the acts of parliament. Sir William Blackstone says this practice is only defensible from public necessity, to which all private considerations must give way.

SEAPOYS. See *Sepoys*.

SEARCH, Right Of. See *Prize*.

SEASONS. The year is remarkably diversified by the seasons, which depend upon the oblique position of the sun's path through the heavens, whereby this luminary rises to different heights above the horizon, making the day sometimes longer, and sometimes shorter, than the nights. When the sun rises highest at noon, its rays fall most nearly in the direction of a perpendicular, and consequently a greater number is received upon any given spot; their action, also, at the same time, continues the longest. These circumstances make the difference between summer and winter. It is true, that the sun is sometimes nearer to us by one thirtieth of his whole distance than at others. This is evident from his diameter being found, by actual measurement, to be one thirtieth larger at one time of the year than at the opposite. But the greatest proximity in the northern hemisphere takes place in winter; the sun is farthest from us in July, and nearest in January; and the difference between summer and winter temperature would undoubtedly be greater than it now is, if the sun were to remain at the same invariable distance through the year. In southern latitudes mid-winter occurs in July, when the sun is at his greatest distance. This may be one cause of the excessive cold which prevails in high southern latitudes, as at Cape Horn and about the south pole, beyond that which belongs to similar latitudes on this side of the equator. It is found, that the sun does not rise so high in summer, or descend so low in winter, at the present time, as it did formerly; in other words, the obliquity of the ecliptic, which is half the difference between the sun's greatest and least meridian altitudes, is growing less and less continually, and the seasons are thus tending, though slowly, towards one unvaried spring. This diminution of the sun's utmost range north and south, since the time of the earliest observations, or during a period of 3000 years, amounts to nearly a fiftieth part of the whole quantity. This may be one of the causes of a melioration of winter, which seems to be so considerable in those places where there are the means of making a comparison of the degree of cold that has prevailed at different times. The year is naturally divided into four periods by the equinoxes and solstices, or those epochs when the day is equal to the night, namely, 21st of March and 23d of September, and those when there is the greatest difference, namely, 21st of June and 22d of December. Our winter, spring, summer and autumn (q. v.) have reference to these epochs, although their commencement and termination do not correspond exactly to the astronomical times above indicated. We are apt to imagine, that the four seasons are equal to each other, and that spring and summer are together just half the year. This is not the case, however, more especially with respect to the natural periods, so denominated. If, for example, we compare the time from the 21st of March to the 23d of September with the rest of the year, we shall find a difference of about one week, the former being the longer. This benefit of a long summer is confined, at present, to the northern hemisphere; but this natural distinction is not a permanent one. This longer continuance of the sun in the northern hemisphere arises from the particular position of the sun's oval orbit, or path through the heavens. We have already stated, that the sun is nearest to us in the winter season: in other words, the earth is nearest to the sun, and on this account its motion is more rapid, so that the part of the orbit from the autumnal equinox (September 23d) to the vernal (March 21st), is completed a week sooner than the other half, in which the motion is slower. (See *Equinox*, and *Precession of the Equinoxes*.) But the point of the sun's nearest approach, or perihelion, on the position of which the above-mentioned physical advantages depend, is in motion, whereby we are gradually losing the benefit of a prolonged summer, and in about 5000 years shall cease to enjoy any such privilege. In about 10,000 years the condition will be reversed, and the southern hemisphere will be the favoured portion of the globe. It may be worth mentioning, that at the date fixed by chronologists for the first residence of man upon the earth, the sun's influence was equally distributed to the two hemispheres. See *Calendar*, and *Year*.

SEBACIC ACID is obtained from tallow, and was at first called *acid of fat*, but is now known to be *benzoic acid*, contaminated with some unknown substance derived from the fat which alters some of its properties.

SEBASTIAN, St, a saint of the Roman calendar, who, according to the legend, was born at Narbonne, and lived during the reign of Diocletian and Maximian, towards the end of the third century. He distinguished himself in the military service, and rendered great assistance to the Christians, but was finally arrested and carried before Diocletian. The emperor, finding promises and threats vain, ordered him to be shot, and he was left for dead, pierced through with a thousand ar-

rows. A woman, who came by night to inter his body, finding signs of life in him, took him home, and nursed him till he recovered. He then presented himself before Diocletian, and remonstrated with him on his cruelty; whereupon the emperor ordered him to be beaten to death with clubs, and his body to be thrown into the common sewer. His relics were carried to Soissons, in the ninth century, whence they were dispersed through France, Spain, Germany and the Netherlands. St Sebastian is invoked against the plague. His day is the 20th of January. There are many pictures of this saint, by the most eminent painters. He is generally represented tied to a tree, with arrows sticking in his body.

SEBASTIAN, Don, king of Portugal, posthumous son of the Infant John and of Joanna, daughter of Charles V., was born in 1554, and ascended the throne in 1557, at the death of his grandfather, John III. He showed a great love for knowledge, and was educated, unfortunately, in an injudicious way, by his guardian, Catharine of Austria, wife of John III. (sister of Charles V). Fanaticism took the place of piety in his mind, and Quixotism that of bravery. In order to distinguish himself from all other princes, he assumed the title of "Most obedient king," as the king of France was styled "Most Christian king," and the king of Spain "Most Catholic king." His devotion to the church was only equalled by his aversion to unbelievers. He conversed with the Jesuits around him on nothing but the happy moment when he should shed the blood of the Moors. His adventurous spirit appeared in an expedition which he made at the age of twenty years, with 800 or 900 Portuguese, to Tangier, among the mountains of the northern coast of Africa, where he fell upon the unsuspecting inhabitants. His success on this occasion led him to undertake more daring enterprises. The nephew of the sheriff of Fez and Morocco, Muley Mohammed, was involved in an open war with his uncle, whom he aimed to deprive of the throne; and Sebastian promised him his assistance, hoping to effect something for Christianity and the fame of Portugal. He communicated his design to Philip II., who, according to some authors, earnestly dissuaded him from it; according to others, he not only encouraged him, expecting, in case of his death, to be made king of Portugal, but even promised him fifty galleys and 10,000 soldiers. In spite of the admonitions of the widowed queen, and the representations and offers of Muley Moloch, the sheriff of Morocco, who promised to cede to him four fortified places on the coast of Africa, he equipped a fleet and an army, part of which he had collected in Spain, Germany and Italy, and sailed for Africa, June 24, 1578, at the age of twenty-three years. The fleet comprised about 1000 vessels of different sizes, and had on board 9000 Portuguese, 3000 Germans, 700 Englishmen, and 2300 Spaniards. They landed safely at Alzira, and Muley Mohammed came directly with 300 Moors, to offer his son as a hostage. In the mean time, the sheriff of Morocco had collected a force of 100,000 men, and marched to the shore. He again, however, attempted to negotiate a peace, but without success. August 3, the two armies approached. "As the Portuguese is resolved upon his ruin," said Muley Moloch, "let him perish." Sebastian summoned a council of war. Some advised an attack, and others a retreat. The hostile forces were separated by a river. Sebastian's camp was distressed by want of provisions, and the enemy had taken possession of all the heights. Muley Mohammed was himself in favour of a retreat to the coast; for there the fleet was ready to receive the soldiers in case of defeat, and the sickness of his uncle Moloch made him sure of the throne in the event of his death, without unsheathing a single sword. But the king would not be persuaded. He was even unwilling to defer the attack till the afternoon, when the early approach of darkness would greatly diminish the danger of his soldiers, in case of defeat. He rode round and encouraged his men, after they were drawn up in battle array, August 4. But his adversary was not, in the mean while, inactive. The Moorish troops advanced in a large semicircle, having, in the van, the thousands who had been driven by fanaticism out of the south of Spain, and on the wings 10,000 horsemen. Weak as he was, Muley Moloch left his litter, and mounted on horseback. The engagement soon became general. Sebastian was foremost in the contest, and broke through the first and second lines of the enemy. Muley Moloch was obliged to retire from the battle. He died in his litter, but his death was concealed from his troops. The ardour of the young king soon bore him into the midst of the enemy, who were already pouring on the rear of his troops. He had the alternative to die or yield. The friends who surrounded him remained faithful to him to the last extremity. Muley Mohammed was drowned in his flight. Thus fortune baffled the hopes of all three leaders. All the Portuguese troops were killed or taken. There were different reports about the fate of Sebastian. Some said he perished in the thickest of the fight, others that he was taken, but soon killed, because the Moors quarrelled about the possession of him. On the morning after the battle, Moloch's brother was proclaimed sheriff, and immediately ordered a search to be made on the field for the body of Sebastian. A valet of the Portuguese king found a corpse, which he supposed to be that of his master; but it was so disfigured with wounds that it was impossible to identify it. The consequence was, that his death remained doubtful; and after Portugal had come into the hands of Philip, four adventurers appeared successively, pretending to be Sebastian. One was the son of a stone-cutter, and another the son of a brick-maker. One of these ended his life on the scaffold, and the other in the galleys. The last of the four played a most conspicuous part. He appeared, twenty years after Sebastian's defeat at Venice, where he described particularly the mode in which he concealed himself on the battle-field among the dead and wounded, and declared that he remained in Barbary, lest he should disturb the tranquillity of Portugal. After this, he lived as a hermit in Sicily, and at length resolved to make himself known to the pope. He had been plundered by robbers, and by chance recognised by some Portuguese, and carried to Venice. This was his story. He was banished by the senate, returned, and was thrown into prison. In the examination which he underwent, he appeared so innocent and simple, that all Europe was moved with sympathy. The senate set him at liberty, but banished him from Venice. A Dominican friar, Joseph Taxera, in Paris, moved every court in Europe to take an interest in his case. In the mean time, he was apprehended again in Florence, and sent to Naples, where he was treated as a galley-slave, but persisted in his

story. Finally, according to some reports, he was sent to Castile, where he died. Sebastian's enterprise destroyed the flower of the Portuguese nobility, and the treasury was exhausted in the equipment of his fleet. There were no immediate heirs to the throne, and three separate houses claimed it —Parma, Braganza, Spain. The last, under Philip II., succeeded by its superior strength. The conquest of Portugal was the last military exploit of the aged Alba.

SEBASTIAN, San; a town of Spain, at the mouth of the Gurumea; twenty-two miles southwest of Bayonne; lon. 1° 59′ W.; lat. 43° 20′ N.: population, 12,000. It is seated at the foot of a mountain. The harbour lies within two redoubts, between which only one ship can pass at a time. Near its entrance is a fort, with a garrison. The town is surrounded with walls; besides which it is defended by bastions and half-moons; and on the mountain under which it lies is a citadel. The streets are broad, straight, and clean, the houses neat, and the churches fine. A considerable trade is carried on in this place, particularly in iron, steel and wool. San Sebastian has become celebrated for two sieges which it sustained in 1813 and 1823. After the battle of Vittoria, Wellington despatched general Graham to occupy the town, then defended by Ney. He besieged and bombarded it from the beginning of July, and on the 25th attempted to carry it by storm, but was repulsed with the loss of 2000 men, and compelled by a sally of the garrison to raise the siege. The siege was renewed after the defeat of Soult at the foot of the Pyrenees (July 30), and was continued to August 31, during which the British suffered heavy losses in repeated assaults. On that day they became masters of the most important works, at the expense of 3000 men; and the French still remained in possession of the citadel, which did not surrender till September 9. In the campaign of 1823, the French succeeded only after several assaults in getting possession of it by capitulation. They occupied it until 1828.

SECANT. In trigonometry, the secant denotes a right line drawn from the centre of a circle, which, cutting the circumference, proceeds till it meets with a tangent to the same circle. In the higher geometry, it signifies the straight line which cuts a curve in two or more points.

SECESSION; a large body of presbyterians, chiefly in Scotland, whose founders, in 1733, withdrew from the established church of that country, on account of the toleration of certain alleged errors in doctrine—the evils of patronage, and general laxity in discipline. But, as the first seceders appealed to and contended for that establishment of religion, which obtained from 1638 to 1656, it will be proper, for the purpose of exhibiting more clearly the grounds of secession, to glance at the ecclesiastical affairs of Scotland from the former of these periods to 1733, when the secession took place. Charles I., soon after the death of his father, instigated and assisted by archbishop Laud, used every endeavour to introduce into Scotland the episcopal form of church government and worship. But the violent measures which he and his court had recourse to, for this purpose, led to their own defeat; for the majority of the nation were highly indignant at the tyrannical imposition of the book of canons and the liturgy, and after a bold and patient struggle obtained permission to hold a free parliament and general assembly,—the latter of which met 1638. This assembly had much to undo; the six previous meetings of assembly which had assisted James I. in his attempts to substitute the canons and liturgy of the English church for the more plain and simple forms of presbytery, were condemned, and all their acts declared to be "null and void." The office of bishops, the high commission courts, and the civil offices of churchmen, were denounced as unlawful. They then proceeded to censure the chief actors in, what they termed, "the late apostacy." All the bishops were summoned to appear at their bar; and they, in despite of the authority of the king's commissioner, excommunicated nine of them, and passed sentence of suspension and deposition against others. This assembly also restored the presbyterian form of government—prohibited the intrusion of ministers on reclaiming congregations—and enacted a number of rules for the maintenance of order and purity in the church. So determined were they to rectify all abuses, and provide for the future well-being of the church, that they continued to sit in assembly after the king's commissioner had formally dissolved it, affirming that they had both divine and civil authority to hold assemblies when it appeared necessary —that "the sole and only power within this kirk stands in her sessions, presbyteries, synods, and general assemblies." Charles denounced this assembly as an unlawful and seditious meeting, after his commissioner had in due form dissolved it. However, the principal acts then passed, with trifling modifications, were ratified by parliament in 1640. Three years after this "The Solemn League and Covenant" was framed, for the purpose of uniting in one common bond the friends of reformation—that thereby they might the better secure their privileges and promote uniformity in religion. This bond was approved by the general assembly and the convention of estates in Scotland, by both houses of parliament, and by the famed assembly of divines at Westminster, and sworn and subscribed to by persons of all ranks. During nearly eleven years of this reforming period, patronage retained its legal force, but its evils were little felt, great care being taken that no minister should be obtruded upon the people contrary to their desire. And in 1649, it was abolished as an oppressive grievance, and injurious to the interests of the church. But this comparatively prosperous state of things was not of long continuance; men of little or no principle were admitted to places of power, and, obsequious to the will of a profligate prince, abolished presbytery, restored prelacy, and declared the king to be supreme in all ecclesiastical causes. The consequence was, that discord and dissatisfaction pervaded both church and state. Charles, (himself a covenanter) declared the covenants unlawful and not binding on the swearers, and obliged many of his subjects to renounce them. This was a peculiarly trying time for those presbyterians who could not go all lengths with the king and his court, in their foolish attempts to establish episcopacy in Scotland, whose inhabitants have all along manifested an unconquerable aversion to the forms of worship used by their brethren in the south. Those who refused to justify the measures of the court, were subjected either to fine, imprisonment, banishment, or death, and that frequently in its most cruel and revolting forms.

But the revolution in 1688 turned the day in favour of the persecuted presbyterians. The first parliament abolished prelacy, and the king's authority in ecclesiastical affairs—did away with the

hated oaths and declarations imposed by Charles, substituting in their room a simple oath of allegiance and fidelity to king William—ratified the Westminster Confession of Faith—restored the presbyterian form of church government, "as agreeable to the word of God, and conducive to the advancement of true piety and godliness," &c. and placed the power of electing ministers in the hands of heritors and elders, with the consent of the people. The first parliament in the reign of queen Anne ratified the true protestant religion, together with the presbyterian form of government; and declared the unalterable continuance of them "an essential and fundamental condition of the union, in all time coming." But defection soon began to mark the state of things. In 1712, the law of patronage was revived in all its rigour. Mr John Simson, professor of divinity in the university of Glasgow, taught that the heathen, if they use the means of happiness which they possess, will be saved through the redemption of Christ—that all infants are formed as pure and holy as Adam was—that no proper covenant of works was made with Adam as the representative of his posterity—that our own happiness ought to be our chief end in serving God—and that there will be no sinning in hell after the last judgment. These doctrines, all of which the standards of the church condemn as unscriptural, the assembly, after various meetings and much altercation, found to be no more than "opinions not necessary to be taught in divinity—not evidently founded in scripture, and some of them tending to attribute too much to the power of corrupt nature." In order to counteract these and other prevalent errors, the "Marrow of Modern Divinity" was republished, with a recommendatory preface by Mr James Hog. The assembly, 1720, condemned a great many passages in that excellent book, and charged ministers to warn their people against reading it. Against this decision twelve members of court remonstrated, but without effect. Next year the assembly again took up the affair—confirmed the deed of the preceding assembly, and rebuked the remonstrants. Another cause of complaint was the manner in which the assembly passed over the conduct of Mr Campbell, professor of church history in the university of St Andrews, who in some of his published works taught doctrines contrary to the confession of faith. Patronage was now felt to be almost intolerable—presentees were violently forced upon reclaiming congregations, and in 1730, the assembly ceased to record protests relative to these unconstitutional proceedings. Against these and other growing defections, more than forty ministers and 1600 people petitioned the assembly, but their petitions were not heard. From this state of things the secession originated.

Mr Ebenezer Erskine, minister at Stirling, in a sermon preached at the opening of the synod of Perth and Stirling, October, 1732, from Psalm cxviii. 22. "The stone which the builders refused is become the head stone of the corner," boldly condemned several acts of the assembly, and especially the rigorous enforcement of the law of patronage. This greatly displeased a considerable number of the members of synod, who procured the appointment of a committee to collect, what they termed, "the unbecoming and offensive expressions in his sermon," and report next day to the synod. Having heard the report of the committee, and Mr Erskine in reply to the charges contained in it, the synod "found," by a small majority, after three days' warm discussion, "that Mr Erskine was censurable, on account of several indecent expressions used by him in that sermon, tending to disquiet the peace of the church, &c., and appointed him to be rebuked at their bar, and admonished to behave orderly for the future." From this decision twelve ministers and two elders dissented. Mr Erskine, believing that in his sermon he had taught nothing but the truth, refused to submit; protested, and appealed to the next assembly. To his protest Messrs William Wilson, Alexander Moncrieff, and James Fisher, ministers, adhered. The assembly refused to hear the reasons of protest, but took up the case as it stood between Mr Erskine and the synod; and after hearing parties, "found the expressions vented by him, and contained in the minutes of synod, and his answers thereto, to be offensive, and to tend to disturb the peace and good order of the church; and therefore approved of the proceedings of the synod; and appointed him to be rebuked and admonished by the moderator at their bar, in order to terminate the process." Mr Erskine, still convinced that he had uttered nothing but what as a faithful minister he was bound to do, and that the evident tendency of this decision was to prevent every testimony in future against any measure, however unscriptural, which the majority in the supreme court might pass into a law, declared that he could not submit to the censure; and gave in a paper containing his solemn protestation against that deed, and his claim "to the liberty of preaching the same truths of God, and of testifying against the same or like defections of this church upon all proper occasions." To this claim and protestation, the three ministers before mentioned adhered, and, along with Mr Erskine, withdrew from the court. The assembly cited them to appear next day. They obeyed, and a committee was appointed to retire with them, and persuade them to recall their protest. The committee having reported that they still adhered to their protest, the assembly appointed them to appear before their commission in August next; and should they not comply, and testify their sorrow for their conduct, the commission was empowered to proceed against them by suspension or higher censure. In August the commission suspended these four ministers (they still adhering to their protest), from the exercise of their office, and cited them to appear again in November. At this meeting, the commission, finding them still impenitent, "deposed them from the office of the holy ministry." This decision was obtained only by the casting vote of the moderator. It appears that these four ministers had much sympathy from many of their brethren, not only in the commission, as the state of vote proved, but throughout the church generally. Communications from seven synods (the church of Scotland consists of fifteen), were received by the commission, requesting to delay proceeding to a higher censure, and to exercise all lenity and forbearance toward the four brethren. But these were fruitless; the four brethren were thrust out from a church whose principles they loved, and felt constrained to declare a secession, not from the constitution of the church of Scotland, but from the prevailing party in her judicatures; and indeed it is evident from their private correspondence, as well as from their public conduct, that, at this time, they did not contemplate a final separation from their brethren of

the establishment. They appear to have cherished the hope that the assembly would see the propriety of rescinding some of her former acts, and grant that liberty which they required. These men have sometimes been represented as obstinate schismatics, wishing to divide the church for things of trifling or minor importance. But on a careful examination of the whole proceedings, it appears, even by the confession of eminent members of the church of Scotland, that they were actuated by an enlightened and honest zeal; and that they looked on a secession as a painful measure, to which they were compelled. They would willingly have remained in the bosom of the church, if liberty had only been granted them to testify against her corruptions; but this was denied: they were violently expelled. In these circumstances, they deemed it their duty, the better to exhibit truth and testify against error, to constitute themselves into a regular church court: this they did, after fasting and prayer, designating themselves, "The Associate Presbytery." Of course those who had befriended them in the church courts, began to show a difference of opinion on this part of their conduct. Soon after, they framed a "Testimony to the Doctrine, Worship, and Discipline of the Church of Scotland." In this testimony the seceding brethren declared their zealous adherence to their ordination vows, and to the standards of their mother church; and likewise their intention to maintain church fellowship with all her ministers and members who faithfully opposed her defections, as opportunity offered.

In the next assembly, 1734, a very different spirit was manifested; numbers lamented the undue severity which had been exercised toward the four brethren, and were anxious that they should be restored to their former standing in the church. Several of the more obnoxious acts were rescinded, and the synod of Perth authorized to unite the four brethren to the communion of the church, and restore them to their respective charges. The seceding ministers were no doubt glad to see a disposition in the assembly to return to the good old way; but while they thought it did not give a more decided and formal condemnation of those errors in doctrine which several of its members, as they insisted, held and promulgated, and also several acts of assembly, which had been in force several years previous to the assembly of 1734, they could not accept the boon offered by the synod. The assembly evidently was anxious to have the seceders restored, and felt no small disappointment at their refusal. Both parties, indeed, seemed desirous of an amicable settlement of their differences. As a proof of this, at least on the one side, the seceders, for nearly two years and a half, held their meetings of presbytery for almost no other purpose than prayer and conference, wishing and waiting for an untainted return. But they thought they observed the assembly manifesting much carelessness with regard to matters both of doctrine and discipline. They now began to supply with sermon such of the christian people as petitioned for it; and appointed one of their number, Mr Wilson of Perth, to educate such students as might present themselves for the office of the ministry in connection with them.

In December, 1736, they published a second Testimony to the Doctrine, Discipline and Worship of the Church of Scotland. In it they marked out and condemned what they considered the leading defections of both church and state from 1650, and exposed the errors of Professors Simson and Campbell, showing that they were opposed to the word of God and the standards of the church. Mr Ralph Erskine, minister of Dunfermline, and Mr Thomas Mair, minister of Orwell, acceded to the associate presbytery in February, 1737. In September following, Mr Thomas Nairne, minister of Abbotshall, and in June next year Mr James Thomson of Burntisland, also acceded.

The plain and bold statements in the Second Testimony, and the multitudes who were leaving the church and placing themselves under the pastoral care of the seceding ministers, roused the indignation of the leading men in the assembly. The consequence was, the eight brethren were libelled and cited to appear before the assembly, 1739. The assembly intimated their willingness to drop the libel, forget all that was past, and receive them into full communion. To this the brethren would not agree, but gave in a paper called The Declinature, in which they denied the assembly's authority over them or any of their members, and declared that "the present judicatories of this national church are not lawful nor right constituted courts of Christ." For such conduct the assembly now found them worthy of the highest censure, but, delaying to inflict any censure at that meeting, earnestly recommended the next assembly to proceed against them, "unless they returned to their duty and submission." In conformity with this recommendation, the assembly, in 1740, deposed them from the office of the ministry, and appointed that intimation of this sentence should be given to the civil authorities in the different places of their residence, that they might be expelled from their churches. But neither the summary measures of the assembly, nor the reproach which the seceders incurred, prevented the rapid increase of their numbers. In little more than five years after the enactment of their Declaration and Testimony, the associate presbytery consisted of twenty ministers. In order to counteract the Arminian opinions which prevailed in the national church, the presbytery, in 1742, published "An Act concerning the Doctrine of Grace," in which that doctrine, "as revealed in the Holy Scriptures and, agreeably thereto, set forth in our confessions of faith and catechisms, is asserted and vindicated," &c. The secession now rapidly increased—meeting-houses were built in almost every corner of the country, in which the gospel was preached by such of her ministers as the Christian people chose to call. Owing to the number of ministers in the associate presbytery, it was found necessary to divide it into three presbyteries, to meet in one synod, under the name of the associate synod. This synod held its first meeting at Stirling, March 1745, when among other business it was called to consider the lawfulness of certain oaths, especially that termed the burgess oath, necessary to be sworn previous to holding office, or becoming a freeman in some burghs. There was much warm discussion in the synod, with regard to this oath; the first clause of which, by many, was deemed exceedingly objectionable, viz. "Here I protest, before God and your lordships, that I profess and allow with my heart, the true religion presently professed within this realm, and authorized by the laws thereof; I shall abide thereat and defend the same to my life's end, renouncing the Roman religion, called Papistry." Those who held that this oath, as taken by seceders, was proper, or that it was indifferent,

were called burghers: and those who held the swearing of it to be sinful were called antiburghers. The former argued, that the clause objected to contained nothing more than what, in their acts and testimonies, they had already acknowledged and virtually engaged to perform—they had not seceded from the standards or principles of the establishment, but from the prevailing party in her judicatories, which pursued a course contrary to the principles of the church,—and that therefore the secession itself was just a fulfilling the requirements of the oath. The latter (the antiburghers) argued, that the swearing of the disputed clause imported a solemn renunciation and dropping of the whole of their testimony, because that this oath, being administered by magistrates belonging to the established church, ought to be understood in the sense of the magistrate for whose security it is given, and that the "true religion" mentioned in it, was to be understood as reduplicating upon every act of parliament or assembly, however inconsistent with the law of God—as including all the corruptions both of church and state. For the sake of preserving peace, the burghers offered to condescend on an act discharging seceders to swear this clause of the oath,—"as *inexpedient* in present circumstances, there being so much contention with regard to its import." This proposition the antiburghers rejected, and would be satisfied with nothing less than an act declaring the present swearing of the oath sinful for seceders, and inconsistent with their testimony and covenant-bond. After discussing the question at two different meetings of synod, it was proposed and carried, "that the present swearing of the religious clause in the burgess oath should not be a term of ministerial and Christian communion with them, at least till the affair should be maturely considered in presbyteries and sessions, and their opinion returned, and further means of unanimity, by prayer and conference, essayed." Against this decision Mr Thomas Mair protested, and those of his party met next day in a synodical capacity. When both parties had finally mustered their forces, it was found that, notwithstanding the majority of acting members by which the deed had been enacted, nineteen ministers adhered to the antiburgher views, and twelve to those of the burghers. Nor can we help lamenting that the grounds on which the question was argued were so limited. Both parties might well have condemned an oath, which excluded men from civil privileges, not merely because of doctrines held by them, and which might be considered dangerous, but also because of what they might refuse to profess—an oath which, in the present day, would be held as inconsistent with the rights of man and the settled liberties of every British subject.

Thus the associate synod was unhappily rent asunder, to the no small injury of the secession cause, and the interests of religion; for the keen party feelings engendered by the discussions in the synod, soon spread through the churches, and caused much heart-burning and unchristian conduct. However both parties, though it must be admitted that they sometimes did not "provoke one another to love and to good works," continued to maintain the same fundamental principles—and to dispense the ordinances of religion, exercising the presbyterian form of government and discipline in their ecclesiastical assemblies. Considerable exertion was made by them to supply the necessities of their brethren in Ireland, the United States, and British America. Not a few ministers were sent to these parts, at the expense of seceders in Scotland.

The fever of party, which for many years ran very high, began gradually to subside—time smoothed down their mutual asperities; and the chief ground of difference (the burgess oath) being removed, multitudes on both sides began to see that they acted the inconsistent and unchristian part of walking asunder, while in reality they were agreed. Petitions poured in from sessions and congregations to their respective synods, praying that something might be done toward a reunion. A committee, consisting of members of both synods, was appointed to frame a scheme of coalescence. This committee met, drew out, and laid before the synods a series of articles, as a basis of union. After mature consideration, the synods adopted them, with few amendments; and agreed that at their next meeting they would unite into one court. Soon after, both synods met in their separate capacity for the last time; and having finished their own business, each met with the other on the 8th September, 1820, on the very spot where, more than seventy years before, they had disagreed, contended and separated. The basis of union was read, the members standing, in token of their assent to the solemn deed of confederation, who then gave to each other the right hand of fellowship, expressive of union and brotherly love. The scene is said, by those who witnessed it, to have been interesting and affecting in the highest degree. They now took the title of "The United Associate Synod of the Secession Church"—adopted a "Formula of Ordination," and a "Summary of Principles," to be understood also "as a Directory for the admission of members." Since this union, the secession church has continued gradually to increase in the north of England and in Scotland. At present it consists of between three and four hundred ministers, twenty presbyteries, and one synod, which meets twice in the year. The synod employs a number of preachers in home missions to the more destitute corners of the land: and has lately engaged, with great spirit, in foreign missions.

Besides the united church, there are other two small but respectable bodies of seceders. One of these is commonly known by the name of original or old-light burghers, who separated from their brethren about the beginning of this century, chiefly concerning the magistrate's power in religious matters. These at present contemplate a reunion with the national church. The other, commonly called original seceders or old-light anti-burghers, consists of two small parties now united. One of these left the general body about thirty years ago, also because of discontent at the way in which the above question was settled by the synod to which they belonged; the other, because of the union between the burghers and anti-burghers. These, in their united state, hold sentiments favourable to civil establishments of religion, but are not prepared to join with the church of Scotland in its present state.

There are also many seceders in Ireland and North America, who are for the most part in declared friendship and communion with the united secession church in Scotland.

SECHELLES. See *Herault*.

SECKENDORF, Veit Louis von, a German divine and historian, was born in 1626, at Aurach, in Franconia, and received his education with the

children of Ernest the Pious, duke of Saxe-Gotha, to whom he became librarian, privy-counsellor, minister, and consistorial director. In 1664, he entered into the service of the duke of Saxe-Zeitz, and, at length, into that of the elector of Brandenburg, who made him counsellor of state in 1691, and also chancellor of the university of Halle. His death took place in 1692. He was the author of a defence of Luther (in answer to Maimbourg's History of Lutheranism), which appeared in 1688 and 1692, under the title of *Commentarius historicus et apologeticus de Lutheranismo* (2 vols., folio), and a political work, entitled *Deutscher Fürstenstaat* (Hanover, 1656, 4to.)

SECKER, THOMAS, archbishop of Canterbury, was born of dissenting parents, in 1693. Being designed by his friends for the ministry in their connexion, he early directed his attention to theological pursuits; but from scruples of conscience declined the appointment of a pastor, and went to Paris in 1719, with a view of practising in medicine, to the study of which he had devoted the three preceding years. While in this metropolis, he formed an intimacy with Talbot, son of the bishop of Durham, which eventually ripened into the sincerest friendship. By the persuasion of the latter, who promised him his father's interest in promoting his advancement, Secker became avowedly a member of the church of England. In 1722, he was ordained by bishop Talbot; and, in 1733, he received the living of St James's, Westminster, having, in the preceding year, been appointed a king's chaplain, on which occasion he graduated as LL. D. Two years after, he was elevated to the see of Bristol, whence he was translated, in 1737, to that of Oxford, with which he held the valuable deanery of St Paul's. In 1758, the duke of Newcastle, then at the head of the cabinet, placed bishop Secker in the primacy. As a scholar, he was elegant rather than profound, although in some of his writings, especially in his Lectures on the Catechism of the Church of England, he displays much depth of argument as well as perspicuity of style. His works, consisting of charges and sermons, have been collected and printed in twelve octavo volumes (1795), with a life by bishop Porteus, his chaplain. There was also published by him, in his life-time, a reply to Mayhew on the Charter and Conduct of the Society for propagating the Gospel, without the author's name. This controversy relates to a proposed establishment of bishops in the American colonies. Archbishop Secker died at Lambeth palace, in 1768.

SECOND. See *Duel.*

SECONDARY FORMATION. See *Geology.*

SECOND SIGHT (in Gaelic, *Taisch*); a Highland superstition, which supposes certain persons endowed with the power of seeing future or distant events as if actually present. See *Highlands.*

SECRETARY (from *secretus*, secret); an officer, who, by order of his superior, writes letters and other instruments. Secretaries of state in monarchical governments, are officers of the king, whose duty it is to attend to the despatch of grants, orders, &c. This term was first used in France, where the three clerks of the privy council (*clercs du secret*) received the title of *secrétaires des finances* in 1343, and in 1547, that of *secrétaires d'etat.* Louis XVIII. (1814) styled his ministers, *ministres secrétaires d'etat.* In England, the term *secretary* was first applied to those clerks of the king, who, being always near his person, were called "clerks of the secret;" and in the reign of Henry VII. the expression "secretary of state" first came into use. Elizabeth first admitted them to the rank of privy counsellors. There was formerly a secretary of state for North Britain, and at one time also for the American department. At present there are three *principal secretaries of state*, viz. one for the home department, one for foreign affairs, and one for the colonies, each of which has two under secretaries. The secretaries of state have the custody of the signet, and the direction of the signet-office. (See *Ministers.*) The secretary at war belongs to the war-office. In the United States, the four heads of departments are styled *secretaries.* The department of state, created by act of congress (September 15, 1789), embraces foreign and home affairs. The secretary of state conducts treaties with foreign powers, and corresponds with the public ministers abroad, and foreign ministers to the United States He keeps the seal of the United States, but cannot affix it to any commission till signed by the president, nor to any act or instrument without authority from the president. The treasury department was created by act of congress of September 2, 1789. The secretary of the treasury superintends the fiscal concerns of the government. For the settlement of the public accounts, the department is divided into the office of the secretary (who has the superintendence of the whole), the offices of the two controllers, of the five auditors, of the treasurer, and of the register; to each of which is attached the necessary number of clerks. The patent office is under the control of the secretary of state, and the general land-office, in which all patents for land are made out and recorded (established April 25, 1812,) is subordinate to the treasury department. The war department (created August 7, 1789) at first embraced the land and sea service; but the latter now forms a distinct department. The secretary of war superintends every branch of military affairs, and has under his direction a requisition bureau, a bounty-land-office, a bureau of Indian affairs, a pension bureau, an engineer office, an ordinance office, an office for the commissary-general of subsistence, a paymaster-general's office, and a surgeon-general's office. The office of secretary of the navy was created April 30, 1798; a board of three navy commissioners is attached to the office. A *secretary of embassy* or *legation* is an officer appointed by the sovereign, and attached to an embassy, for writing of despatches, &c. He is to all intents a public minister, and as such has the same immunities as the head of the embassy himself. See *Diplomacy*, and *Ministers, Foreign.*

SECRETION. Many of the component parts of the animal system become, in the course of its operations, changed, and unfit for further use. For the preservation of the system, it is not less necessary that these parts should be removed, than that the constant consumption should be supplied; and in this double process the whole organic system is continually changing its ingredients, although it retains the same external form. This supply of new matter is derived from the blood, and the process itself is called *secretion.* Most animals secrete both solids and fluids. The solids are deposited by the capillary vessels at the places of their destination, and supply the continual wear of the system. The liquids are not intended to preserve the form directly, but serve to assimilate the food by pro-

moting digestion (as, for instance, the saliva, gastric juice, and bile.) In these secreted fluids are contained all the component parts of the blood, slightly changed, together with an alkali. Distinguished from these are the secretions, which are produced in a similar manner, and are designed to carry off from the system useless matter.

SECTS. The term *sect* is generally applied to a party in religion or philosophy, which holds a particular body of doctrines. Thus, in ancient philosophy, there were the Ionic and Italic sects, the Epicurean, the Stoic, the Peripatetic sects. But the philosophical sects are often termed *schools*, and the word *sect* is, in its narrower sense, applied particularly to religious parties. Among the Jews, there were the sects of the Pharisees, Sadducees, and Essenes, and, of a more strictly religious character, those of the Caraites, Rabbinists, and Samaritans. The Mohammedans are divided into two great sects, the Sunnites and Shiites, besides numerous smaller sects, as the Ishmaelites, Wahabees, Nosairians, &c. (see the several articles, and also *Islam*, *Mohammed*, and *Koran*), who differ from each other not only in their interpretations of the Koran, but in their various views in regard to the genealogy of the prophet's family. The Hindoos are divided into the Sivaites, or those who worship Siva, and the Vishnooites, who pay particular reverence to Vishnoo. The Christian world has, from the first introduction of Christianity, been divided into an almost innumerable variety of sects. We have already given a hasty view of the earlier sects under the head of *Heretics*. The Cathari of the middle ages, who, under various names, opposed the pretensions of the papal see, and to whom the Albigenses and Waldenses mostly belonged, were, with the exception of the latter, extirpated by the inquisition and the inquisitorial tribunals of the church. (See *Cathari*, and *Paulicians*.) In the thirteenth century arose a new species of sects and schismatic fraternities, whose object was the introduction of a new spirit of sanctity among the monastic orders. (See *Fraternities*.) A party grew up among the Franciscans, which was denounced by the popes, and by their own less rigid brethren, and which insisted upon absolute poverty. They were called, in contempt, *fratricelli*, and *spiritual friars*. (See *Franciscans*.) They did not meddle with points of faith, but attacked the existing priestly government, and announced its fall. They wandered about, occupied in praying and asking alms, the excommunication which hung over them preventing them from founding monasteries. Many of the lower classes of both sexes, in France, Germany, and the Netherlands, attached themselves, as a third order, to the Fratricelli, and from these Tertiarians sprang the fraternities of Beghards, Beguines, and Lollards, whose purity of manners and benevolent institutions, for the care of the sick and the instruction of youth, rendered them more respected than their predecessors, whom they resembled in their frequent prayers, the asking alms, and their secret religious exercises. The Apostolics, an order which arose in 1260, at Parma, but did not obtain the papal confirmation, continued to subsist in Italy, Switzerland, and France, till the fourteenth century. The Brethren and Sisters of the Free Spirit, remnants of whom are discoverable during the Hussite disturbances in Moravia and Bohemia, under the names of Picards and Adamites, aimed at restoring the state of innocence, by appearing naked in their assemblies, without regard to sex or age. Other fraternities, not acknowledged by the church, were distinguished, in the fourteenth century, for their voluntary penances and gross superstitions: such were the Flagellants and the Brothers of the Cross. The Wickliffites in England, and the Hussites in Bohemia (see *Huss*), resembled the Waldenses in their zeal for conformity with the Scriptures, and their opposition to the abuses of the papacy. These, with the Hussite sects, the Calixtins, or Utraquists, the Horebites, the Taborites, and the Bohemian Brethren, preceded the reformation of the sixteenth century. The Protestant churches which that event created, were, with the Greek church, considered as sects by the Catholics; but by Protestant writers the word *sect* is commonly applied only to the smaller parties, disconnected with the Calvinistic and Lutheran churches. The Jansenists, Quietists, and Molinists, notwithstanding the deviations on some doctrinal points, were still orthodox Catholics; the Jansenists even have distinct congregations and clergy in the Netherlands, but yet are by no means considered as forming a separate sect, since they acknowledge the supremacy of the pope, and observe all the Catholic usages, only disputing the pope's infallibility. The Appellants, Convulsionists, and Securists, Naturalists, and Figurists, Discernants and Melangists, who were produced by the Jansenist controversy, merely had a short existence in France, in the beginning of the eighteenth century. (See *Jansenius*, and *Quietism*.) In the Greek church, although it has, in later times, been little addicted to religious speculations, there are some sects. These the tolerant government of Russia treats with indulgence. (See *Greek Church*.) In the fourteenth century, the Strigolnicks seceded, from aversion to the clergy, but soon became extinct. In 1666, arose the sect of the Roskolnicians, from whom proceeded the Philippones. The Anabaptists, Socinians, and Schwenkfeldians, though not Protestants in the strict sense of the word, agree with them in the rejection of the papacy. Besides the great division of the Protestants into Calvinists and Lutherans (see *Reformation*, and *Reformed Church*), the former have been much divided. Thus the different views of Calvin and Zuinglius, in regard to church government, formed a ground of distinction which (notwithstanding the *consensus Tigurinus* of 1549) separated the Zuinglians, or older Swiss reformers, and their adherents in Hungary, from the Calvinists of Geneva, France, Holland, Germany, and England, and the controversy concerning predestination, at the synod of Dort (1618), produced the permanent separation of the Remonstrants or Arminians, from the strict Calvinists. The Reformed in France, under the name of Huguenots (q. v.), acquired a political importance in the sixteenth and seventeenth centuries, and the persecutions to which they were subjected produced its usual effects of religious extravagance and fanaticism. (See *Camisards*.) The English church is Calvinistic, but many of the clergy are Arminian. (See *England, Church of*.) Presbyterianism, which in England forms a dissenting sect, is the established religion of Scotland. (See *Presbyterians*.) From the bosom of the English church have proceeded the Puritans, Independents, Methodists, Quakers, Baptists, with other less considerable sects. (See these articles, and also *Nonconformists*.) Unitarians and Universalists, who differ from the established church more

widely than the sects above mentioned, on doctrinal points, are also pretty numerous in England. Seceders (see *Secession*), Cameronians, &c., are among the more noted of the Scotch sects. The Herrnhutters (see *United Brethren*), and Swedenborgians, or members of the New Jerusalem church (see *Swedenborg*), have proceeded from the Lutheran church. In the United States, where perfect religious freedom prevails, and where emigrants from all countries seek refuge, it is not strange that there should be representatives of almost all the modern sects of the Christian world, and also some sects of native origin. (See *Christians, Shakers, Tunkers.*) Besides the various sects which have formed independent religious communities, there were also, during the course of the seventeenth and eighteenth centuries, numerous theological parties and religious enthusiasts, who were united only by the bonds of common opinions, but did not form distinct ecclesiastical societies. Such were the Labadists, whose founder (1666) was Labadie, an ex-Jesuit and preacher at Middelburg, and who received the doctrines of the Reformed church, but endeavoured to form a family similar to the primitive Christian societies, by acts of penance, monastic discipline, and community of goods; the Bœhmists, or followers of Böhme, also called Gichtelians, from the theosophist Gichtel, who proposed to restore the priesthood of Melchizedek, and Angelic Brethren, from their efforts to attain angelic purity of life (see *Bœhme*); the Philadelphists, or Angelic Brethren of England, a short-lived theosophical party, collected by Jane Leade, on Bœhmistic principles, towards the close of the seventeenth century; the Dippelians, so called from their founder, Dippel, a physician, who agreed with the Gichtelians in their reverence for the writings of Böhme, but occupied themselves much with alchemy; the Pietists (see *Pietism*), and the Chiliasts or Millennarians, under their various forms. (See *Millennium.*)—See, further, the articles *Abrahamites*, *Theophilanthropists*, and *Theosophists;* and the work of Grégoire, *Histoire des Sectes Religieuses* (2 vols., 1814).

SECULAR CLERGY; in those countries in which there are monastic orders, the clergy who do not live shut up in monasteries, and subject to monastic rules. They are so called in contradistinction to the monks, or *regular clergy*, who have taken the vows, and are bound by the rules of their order.

SECULAR GAMES (*ludi sæculares*); solemn games, celebrated by the Romans about once a century (*sæculum*), in honour of Apollo and Diana. They lasted three days and three nights; and the secular ode (*carmen sæculare*), composed by Horace on one of these occasions, is yet extant.

SECULARIZATION is the act of rendering secular the property of the clergy. The first great secularization in Germany took place in 1648, on the occasion of the peace of Westphalia. The second took place after the peace of Luneville, in 1801. In England, the first great secularization was made under Henry VIII.

SECUNDUS, Johannes. See *Johannes Secundus.*

SEDGE (*carex*); an extensive genus of grass-like plants, mostly inhabiting the northern and temperate parts of the globe. They are easily distinguished from the grasses by having the stem destitute of joints. The flowers are monœcious or more rarely diœcious, and are disposed in one or several dense, scaly spikes. The seeds are triangular, and are enveloped in a sort of capsule, composed of a ventricose scale, which enlarges after flowering, and often renders the spikes of these plants conspicuous. The roots are perennial and fibrous, the leaves hard and rough on the edge. The sedges in general are but of little utility to man. They furnish coarse fodder, containing little nutriment, especially after the flowering season is over, or when dried, and which is rejected by most of the domestic quadrupeds. The roots and leaves decompose with difficulty, and in the course of time, contribute largely to turn the soil of marshes into peat. More than 300 species are known. They are found in all soils, but the greater proportion are marsh plants. The *C. acuta* form in marshes the little elevations called *tussocks*. It grows in dense tufts, and the fibrous roots interlace very closely, so as to retain a portion of the soil, which in places subject to occasional inundation, is liable to be washed from around them. At the same time, the mass increases above by successive generation. The *C. Fraseri* is the handsomest of the genus, resembling, at a short distance, when in flower, one of the *liliaceæ*. It was discovered in the southern part of the Alleghanies, but has not been seen in a wild state by any later botanists.

SEDLEY, Sir Charles, a celebrated wit, of the age of Charles II., was the son of Sir John Sedley of Aylesford, in Kent, where he was born in 1639. At the age of seventeen he was entered at Oxford, but quitted the university without a degree, and retired to his estates till after the restoration, (1660). His credit with the king was heightened by his never asking favours, although the debauchery into which he plunged soon dissipated his pecuniary resources. A fine of £500 was imposed upon him by chief-justice Hyde, for an indecent riot committed at a public house, where he harangued the mob, naked, from the balcony, in company with lord Buckhurst and Sir Thomas Ogle. Being returned member of parliament for the borough of New Romney, in Kent, in 1661, he sat for that place in four successive parliaments. James II. carried on an intrigue with his daughter, afterwards created by that monarch countess of Dorchester. Sir Charles was so little pleased by this elevation, that it is said to have been the principal cause of his subsequently taking a strenuous part in bringing about the revolution; and to a gentleman who taxed him with a want of loyalty, he replied that, "as the king had made his daughter a countess, the least he could do was to assist in making his majesty's daughter a queen." Sir Charles died about the commencement of last century. He was the author of six dramatic pieces, printed with his miscellaneous poems, in 1719, in two octavo volumes. The latter consist of pastorals, prologues, songs, epilogues, and occasional pieces, which, though not free from the licentiousness of the age, are clear of much of its grossness.

SEDLITZ, or SEIDLITZ WATER; a mineral water obtained from the village of Sedlitz, in Bohemia. The waters are saline and purgative, limpid, sparkling, and of a bitter and salt taste. They contain sulphates of magnesia (Epsom salt), soda (Glauber's salt), lime, and carbonates of lime and magnesia.

SEEBECK, a distinguished German natural philosopher, born in 1770, at Reval, studied medicine in Berlin and Göttingen, is known by the discovery of thermomagnetism. He also partook in the dis-

covery of the *metalloides*, discovered the *entoptic* phenomena, for which he received a prize from the French institute, and enlarged in other ways the field of optics. Since 1818, he lived in Berlin, where he was elected a member of the academy of sciences, and died in December, 1831.

SEED; that part of organic bodies which serves to continue the species. The seeds of plants present the greatest variety of form and appearance. In shape, they are conical, round, oval, oblong, flat, kidney-shaped, &c., with smooth and shining surfaces, or rough and provided with all sorts of appendages. They consist of an external covering, a shell or membrane, within which are the kernel and the germ. The external envelope is designed merely for the protection of the kernel, and generally consists of several membranes. When hard and woody, it is called a *nut* or *stone*, and, in this case, the kernel is enveloped in an inner, soft, and thin covering. The kernel consists of farinacious and mucilaginous matter of more or less hardness, and possesses the property of absorbing moisture from the earth, by means of which it is softened, swells, and affords the first nourishment to the germ. Seeds are formed of one, two, or several lobes. At the point by which the kernel was attached to the capsule or seed vessel, a scar or mark is visible, beneath which lies the germ, which contains the future plant. Besides the wonderful provision which nature has made for the dispersion of seeds, some being wafted through the air by the light downy appendages attached to them, and others being fitted, by their form and envelope, for being carried down rivers, their vitality or dormancy is also wonderful. Seed may be kept out of the ground, for a century, and still retain the power of germinating when committed to the soil. So also where seeds have been found deeply buried in the earth, or in soils not adapted for their germination, in positions in which they have lain quiescent for years they have been known, on exposure to the air, or removal to a different soil, to exercise a vegetative power. See *Botany*

SEED LAC. See *Coccus*, end of the article.

SEELAND. See *Zealand*.

SEETZEN, Ulric Jasper, a German traveller, a native of East Friesland, was educated at Göttingen, where he particularly studied philosophy and natural history, under professor Blumenbach. Having published some tracts on natural history, statistics, and political economy, he was appointed aulic councillor to the czar in the principality of the Jever. He was desirous of visiting Africa and the East; and being encouraged by the dukes Ernest and Augustus of Saxe-Gotha, he set off, in August, 1802, for Constantinople. He proceeded to Syria, and remained a considerable time at Aleppo, making excursions into the neighbouring territories. In 1806, he explored the course of the river Jordan and the Dead sea, travelled through Palestine, and went to Hebron and mount Sinai. His enthusiastic desire of knowledge prompted him to profess Mohammedanism, that he might undertake a pilgrimage to Mecca and Medina, which he visited in 1809 and 1810. In the month of November, 1810, he was at Mocha, whence he wrote the last letters which arrived from him in Europe. Having had his property seized by the Arabs, under the pretext of his being a magician, he proceeded towards Sana, in December, 1811, to complain to the iman of that place; and a few days after his departure, he died suddenly at Tïes, probably from the effects of poison given him by order of the iman. No complete account of the researches of this unfortunate traveller ever appeared; but his letters, which he addressed to baron von Zach, were inserted in the Geographical and Astronomical Correspondence, published at Gotha; and a translation was printed in the French *Annales des Voyages* (1808—14). Extracts from his letters to Blumenbach, and others also, were published in the *Magasin Encyclopédique*.

SEGARS. See *Tobacco*.

SEGUIDILLA; a Spanish form of versification, consisting of four lines, generally assonant lines, of seven and five syllables alternately. It usually has a close of three verses, called *estribillo*, of which the first and last lines rhyme.

SEGUR; an ancient French family, which has produced several distinguished men, including the following:

Joseph Alexander, born at Paris in 1752, died in 1805, was the author of several comedies and operas, which still remain popular, of the *Correspondance secrète entre Ninon de l'Enclos, le Marquis de Villarceaux et Mad. de Maintenon*, and a romance *Sur les Femmes* (3 vols., translated into English).

His brother *Louis Philip*, born in 1753, died in 1830, peer of France, and member of the French academy, served in America under Rochambeau, and, after the peace of 1783, was ambassador to St Petersburg. In 1790, he was sent to Berlin; but, after the deposition of the king, he retired from public affairs, and in 1798 published his *Théâtre de l'Hermitage*—a collection of plays which he had composed for the private theatre of the empress of Russia. In 1800, appeared his masterly *Histoire du Règne de Frédéric Guillaume II.*, or *Décade historique*. In 1803, he was chosen a member of the Institute, and Napoleon appointed him one of the council of state. After the restoration, he was received into the chamber of peers. In 1824, appeared his *Œuvres Complètes* (30 vols., 2d ed., 36 vols., 1828), and, in 1825, his *Memoires, Souvenirs et Anecdotes* (3 vols.)

His son *Paul Philip*, born 1780, served with distinction on various occasions, and executed several diplomatic missions. In 1812, he was created *marechal de camp*, and distinguished himself in several bloody actions in 1813 and 1814. In December, 1831, he was made peer for life, being one of the thirty created for the purpose of giving ministers a majority on the question of a hereditary peerage. His *Histoire de Napoléon et de la Grande Armée pendant l'Année* 1812, has passed through numerous editions, and given rise to several controversies, particularly one with Gourgaud, which resulted in a duel between the parties.

SEIDELMANN, James, professor in the academy of fine arts in Dresden, was born in 1750. He perfected himself in painting, under Mengs, at Rome, and subsequently invented an entirely new manner of drawing in *sepia*, chiefly for the representation of the antique. His pieces, executed in this manner, and his copies in oil, are numerous, and have gained him much reputation. In his style of drawing in *sepia*, he and his wife are still unrivalled, though they have had many imitators. His wife was born in Venice, and perfected herself in miniature painting under Theresa Maron, sister to Raphael Mengs. She made the drawing of the Madonna del Sisto, from which Müller prepared his admirable engraving.

SEIDLITZ WATER. See *Sedlitz*.

SEIGNIORIES, in Lower Canada; a remnant

of the feudal system which prevailed in France at the time of the settlement of Canada, and many of the details of which were transferred to the Transatlantic colony. All the lands of the colony were granted under the old feudal tenure, but many modifications were successively introduced, tending to abridge the rights of the seigneur, or lord, and extend those of the tenant. On the conquest of Canada by the British, the institutions of the colony were left unchanged; but about thirty years afterwards, the tenure of free and common soccage was introduced, and all the lands not previously granted have since been considered as soccage lands. The seigneurs have no longer any jurisdiction, and the feudal services of the tenants are light. See Bouchette's *British Dominions in North America*, vol. i., chap. xiv.

SEIKS. See *Sikhs*.

SEINE, one of the four great rivers of France, rises in the mountains of Burgundy, flows northward, through Champagne, to Troyes, receives the Aube, and, turning to the west, is joined by the Yonne, a river from the south, and before reaching Paris, by the Marne, a larger stream flowing from the west. At Paris, the Seine varies from 300 to 500 feet in width; and it soon after receives an addition to its streams, by the influx of the Oise, when, pursuing a winding course to the north-west, it passes Rouen, and discharges itself into the sea at Havre de Grace; length of its course, 400 miles. It becomes navigable at Troyes, and large vessels can go up to Rouen.

SEINE; a department in the north of France, which is, in fact, nothing more than the capital. Its district forms a tract nearly square, of which the breadth is about sixteen miles. See *Department*.

SEINE, LOWER; a department in the north of France, comprising the north-east part of Normandy. See *Department*.

SEINE AND MARNE; a department in the north-east of France, occupying the western part of Champagne. See *Department*.

SEINE AND OISE; a department of the north-east of France, adjacent to that of the Oise, and to that of the Seine and Marne. See *Department*.

SEISIN, in law, signifies *possession*.

SEJANUS, the favourite of Tiberius, was the son of a Roman knight. Although he knew how to dissemble his ambition and pride before his master, yet he spared no means of gratifying his passion. He acquired the confidence of the suspicious Tiberius, so as to govern him completely; and the servile senate paid the greatest respect to the powerful favourite. The pretorian cohorts were also favourable to him, and there was no obstacle in the way of his attaining the supreme power, but Drusus, son of Tiberius, and the sons of Germanicus, the nearest of kin to the emperor. Drusus was put out of the way by poison; the latter, with their mother, were banished and thrown into prison —a step which they did not long survive. Several distinguished Romans, friends of Germanicus, were beheaded at the instigation of Sejanus; and when Tiberius finally retired from Rome, and withdrew from the government, Sejanus governed with absolute power, and the senate ordered that the statues erected in his honour should be publicly worshipped. But at the moment of his highest elevation, the suspicions of Tiberius were awakened, and his measures were taken so cautiously, that Sejanus suspected nothing, until he was openly accused by the emperor before the senate (A. D. 31). He was then imprisoned, condemned to death, and executed on the same day.

SELAM. See *Flowers, Language of*.

SELBY; a town in the west riding of the county of York, situated on the great road from London to Edinburgh, and west bank of the Ouse, 181 miles north by west from London. The town is well built, paved, and lighted, and has a handsome Gothic market-cross. It has latterly been greatly improved by the erection of a new street, called the Crescent. It contains manufactories for sail-cloth, and leather, an iron-foundery, and a shipyard, for the building of small vessels, which can now clear out for any part of the kingdom, as a branch custom-house has lately been erected here; by means of the canal from the Ouse, to the Air and Calder navigation, a communication has been opened with Leeds, and Selby has thus become the unloading-post for the west riding. Many of the poorer people are employed in flax-spinning. Population in 1831, 4600.

SELDEN, JOHN, a distinguished English scholar, was born in 1584, at Sabington, in Sussex, and received his education at Oxford. After a residence of three or four years, he repaired to Clifford's Inn, London, and about two years after removed to the Inner Temple, and, on being called to the bar, acted principally as a chamber counsel. The first object of his studies was the history and antiquities of his own county; and, in 1607, he drew up a work entitled *Analectum Anglo-Britannicum*, a treatise on the civil government of Britain before the coming of the Normans. It was succeeded, in 1610, by England's Epinomes, and *Jani Anglorum Facies altera*, a treatise on the progress of English law. In 1614, appeared his largest English work, Titles of Honour, a standard authority in regard to all that concerns the degrees of nobility and gentry in England. This was followed, in 1617, by his *De Diis Syriis*, an inquiry into the Syrian idolatry. In 1618, he entered the field of politics by his History of Tythes, the object of which was to deny their divine right. This publication highly offended James I., and the author was brought before the high-commission court, on which, without retracting his opinions, he declared his sorrow for publishing the work. In 1621, James I., in his speech to parliament, having asserted that their privileges were grants from the crown, Selden spoke so freely in opposition to this doctrine, and was so instrumental in drawing up their protestation, that on their dissolution he was committed to custody. He was discharged at the expiration of six weeks, on petition. In the following year, he was elected member of parliament for Lancaster, and was again a member in the two first parliaments of Charles I., in the second of which he was appointed to support the impeachment of the duke of Buckingham, and otherwise became a leading opposer of the arbitrary measures of the court. In 1629, he drew up his learned treatise entitled *Marmora Arundelliana*. (See *Arundelian Marbles*.) On the dissolution of the parliament, Selden was one of the eight members of the commons who were imprisoned in the tower on a charge of sedition, and who refused to give security for their good behaviour. This confinement lasted two or three years; but, at length, he was admitted to bail, and finally released in the beginning of 1634. During this period, he wrote some of his treatises on Jewish antiquities, and, in 1635, published his treatise entitled *Mare Clausum*, in answer to the *Mare Liberum* of Grotius; in op-

position to which he endeavours to establish the British right of dominion over the circumjacent seas. Some of the following years of his life were occupied in Hebrew studies, the result of which appeared in a work entitled *De Jure Naturali et Gentium juxta Disciplinam Ebræorum*—a valuable but not very well digested repertory of all the matter afforded by history or tradition, in relation to the subject. In 1640, memorable for the meeting of the long parliament, Selden was unanimously elected member for the university of Oxford. His name appears on several committees, appointed to inquire into abuses; but he neither concurred in the prosecution of lord Strafford, nor seemed desirous to abrogate the episcopal form of church government, although anxious to check the encroachments of ecclesiastical power. When the differences between king and parliament were manifestly tending to open hostilities, he opposed the attempts of both parties to gain possession of the sword, and, when he failed, withdrew, as much as he was able, from public business. He remained, however, with the parliament, and was one of the synod which met at Westminster for the establishment of church government. In 1643, he was appointed, by the house of commons, keeper of the records in the Tower, and, the year following, subscribed the solemn league and covenant. In 1645, he was elected one of the twelve commissioners of the admiralty; and, in 1646, the parliament voted him £5000, as a reward for services. He continued to sit in parliament after the execution of the king, and employed all his influence for the protection of learning. He refused to gratify Cromwell by writing an answer to the Eikon Basilike. He died in 1654. In private life, he was universally esteemed for his goodness of heart and urbanity of manners; and, as a scholar, he must be deemed one of the most learned men of his day. His style is often laboured and uncouth, although his speeches and conversation were peculiarly luminous and clear. Some opinion of the latter may be collected from his Table Talk, published, after his death, by his amanuensis. His library and museum were added to the Bodleian library. His whole works were collected in three folio volumes (usually bound in six), by doctor David Wilkins (1726), with a life of the author. See also Aikin's *Life of Selden*.

SELENIUM; a new elementary body, detected by Berzelius, in the sulphur of a sulphuric acid manufactory, at Fahlun, in Sweden. The sulphur was derived from iron pyrites, found at the copper mine of Fahlun. After the combustion of the sulphur in the acid manufactory, there remained at the bottom of the leaden chamber, a red or brownish matter, which, when heated before the blowpipe, emitted a very strong odour, resembling that of horse-radish. The name applied to this substance comes from σελήνη, the moon, indicating its relation to *tellurium*. The purification of the selenium, as found above, is a tedious process; it being mingled with no fewer than eight foreign substances. When pure, however, it exhibits the following properties: Exposed to a heat higher than that of boiling water, it melts, and on cooling becomes solid: in this state, it has the metallic lustre, a deep brown colour, and a conchoidal fracture. The powder of selenium is a deep red. In very thin slivers, it is transparent, with a ruby-red colour. It crystallizes with difficulty in cubes or four-sided prisms, terminated by pyramids, specific gravity, 4·3. It is easily scratched by the knife; is brittle, and readily reduced to powder. When heated in a retort, it begins to boil at a temperature below that of a red heat, and assumes the form of a dark-yellow vapour, not so intense as the vapour of sulphur: the vapour condenses in the neck of the retort in black drops, which unite into larger drops, as in the distillation of mercury. Selenium is a very bad conductor of heat, and a non-conductor of electricity. It combines with three portions of oxygen, forming three separate compounds; viz. *oxide of selenium*, *selenious acid*, and *selenic acid*. The first of these is formed whenever selenium is strongly heated in the open air, and is distinguished by the smell above alluded to. It is not absorbed by water, nor is it capable of uniting with acids. *Selenious acid* may be formed by burning selenium in oxygen gas, or by heating it in contact with nitric acid, or nitro-muriatic acid. When the solution cools, the selenious acid is deposited in large prismatic crystals, longitudinally striated, and similar to those of nitrate of potash. Its vapour resembles, in colour, chlorine gas. Its taste is acid, and it leaves a slightly burning sensation upon the tongue. It is very soluble in water and in alcohol. Selenious acid consists of selenium 100 and oxygen 40·43. *Selenic acid* is formed by detonating an intimate mixture of one part of selenium and three of nitre, in small quantities at a time, in a red-hot crucible. The residue, which contains seleniate of potash, is to be dissolved in water, and nitrate of lead added to the neutralized solution till all the selenic acid is thrown down in the state of seleniate of lead. This powder is carefully washed, diffused in water, and a current of sulphureted hydrogen gas passed through it till the whole lead is converted into sulphuret. The liquid being now filtered and heated to expel the sulphureted hydrogen gas, the result is an aqueous solution of selenic acid. It may be concentrated by evaporation till its temperature reaches 536°; but if the heat is raised higher, oxygen gas is given out, and the acid changed to the selenious. Its specific gravity is 2·6. It resembles sulphuric acid in its consistence, and in the heat evolved when it is mixed with water. It contains about 16 per cent. of water. The acid is composed of selenium 100 and oxygen 60·66. Thus it appears, that the selenious and selenic acids resemble sulphurous and sulphuric acid in their constitution. Chlorine and selenium appear to combine in two different proportions, and to form a *chloride* and a *bichloride;* the former of which is liquid, and the latter solid. No experiments have been made to determine the nature of the combinations of selenium with iodine and fluorine. Selenium combines with hydrogen, and forms a gaseous substance, which has been distinguished by the name of *selenieted hydrogen gas*. When selenium and potassium are fused together, a compound is formed, which dissolves in water: the liquid has the colour of beer. When muriatic acid is added, a considerable proportion of the selenium is precipitated, and the liquid acquires the smell of sulphureted hydrogen. When muriatic acid is poured upon this concentrated fluid in a retort, the seleniet of potassium becomes red, an effervescence takes place, and selenieted hydrogen gas is driven off. The gas is colourless, and is possessed of an odour like sulphureted hydrogen; but it speedily acts with great energy upon the organs of smell and the throat, occasioning a painful feeling, destroying the sense of smell, and producing a severe cough. It is more soluble in water than

sulphureted hydrogen: the solution precipitating all the metals from their solutions. It reddens vegetable blues, and has other acid characters. When selenium is dropped into melted *phosphorus*, it dissolves rapidly, and the compound sinks through the liquid phosphorus in red streaks. When phosphorus is saturated with selenium, we obtain a very fusible compound, of a dark brown colour, a good deal of lustre, and a vitreous fracture. A *sulphuret of selenium* may also be formed: it has a deep orange colour; softens at 212°, and becomes liquid at a temperature a few degrees higher. Nothing is known respecting the combinations of selenium with nitrogen, carbon, boron, and silicon. Selenium is still a very scarce substance. The analogy between it and sulphur is very remarkable. We have recently found selenium in several interesting metallic combinations in the Oriental Hartz:—1. *Seleniuret of lead* is the most frequent of these. It consists of 27·7 selenium and 72·3 lead. 2. *Seleniuret of lead and cobalt.* Its constituents are

Lead,	63·92
Cobalt,	3·14
Selenium,	31·42
Iron,	0·45
Loss	1·07
	100·00

3. *Seleniuret af lead and copper.* Of this mineral there are two varieties, composed as follows:—

Selenium,	29·96	34·26
Iron, with traces of lead,	0·44	2·08
Lead,	59·67	47·43
Iron,	0·33	
Copper,	7·86	15·45
Silver,		1·29

4. *Seleniuret of lead and mercury* contains

Selenium,	24·97
Lead,	55·84
Mercury,	16·94
Loss,	2·25
	100·00

SELEUCIA; the name of several cities in Asia, founded by Seleucus Nicator. One of the most celebrated was that which was made the capital of Babylonia, in place of Babylon, situated about thirty miles distant from the latter city. The Tigris and Euphrates flowed near its walls, and rendered it one of the richest commercial cities of ancient times. The number of its inhabitants is estimated to have been about 600,000, chiefly Greeks. It was destroyed in the time of the Roman emperor Verus.

SELEUCIDÆ. See *Seleucus.*

SELEUCIDES, ERA OF THE. See *Epoch.*

SELEUCUS NICATOR, OR NICANOR; son of Antiochus, one of the most distinguished generals of Alexander the Great, who invested him with the government of Babylonia and Media. After the death of Alexander, Seleucus assumed the title of king of Syria, and reduced to his sway all the countries from the Hellespont to India and the Jaxartes. His descendants were called, from him, the *Seleucidæ*, and the era of the Seleucidæ dates from his reign. (See *Epoch.*) After several successful wars against Antigonus, Demetrius, and Lysimachus, he was murdered in the seventy-eighth year of his age (B. C. 280), by one of his courtiers, Ptolemæus Ceraunus. Seleucus was eminent for his courage, prudence, and humanity. He encouraged letters, and restored to Greece the books and monuments of art that had been carried off by Xerxes. The Athenians, from gratitude, erected a statue in honour of him at the entrance of the portico of the academy. This prince founded thirty-four cities in Asia, which he peopled with Greek colonies. He was the father and benefactor of his subjects.

SELIM III. See *Ottoman Empire*, and *Mahmood II.*

SELJOOKS, OR SELJUKS; a Turkish dynasty, whose empire extended over Asia Minor and Syria, and whose power declined in the period of the crusades. The name was derived from *Seljuk*, a Turkman, who had been in the service of the chagan of the Chazars, and had been obliged to flee from the camp of his master. He became the leader of a horde composed of various tribes; and his grandson Togrul Beg or Bey conquered Bagdad, 1060, was made sultan by the caliph, and left the dignity of Emir el Omrah to his descendants, who held it till 1152. The most celebrated of his successors, Malek Shah, surnamed Gelaleddin, died in 1092. In 1104, the empire was divided among several dynasties, of which that of Iconium (1074—1308) survived the longest. It was succeeded by that of the Ottomans. See *Ottoman Empire;* also the work of Wilken and Raumer *CCI Emendationes in Lohmeieri et Gebhardii Tabulæ genealogicæ Dynastiarum Arabicarum et Turcicarum* (Heidelberg, 1811).

SELKIRK, ALEXANDER. See *Robinson Crusoe.*

SELKIRK; a small royal burgh of Scotland, the capital of Selkirkshire, is situated on the banks of the Ettrick, at the distance of thirty-six miles south from Edinburgh. It is a place of considerable antiquity, and long continued to be a part of the demesnes of the crown. The inhabitants of Selkirk distinguished themselves by their bravery at the battle of Flodden field. Of one hundred townsmen who followed James IV. to the field, only a few returned, but they brought back some trophies of their valour, including a standard yet in the possession of the corporation of weavers. Selkirk has long been noted for the manufacture of shoes. The town, within the last twenty or thirty years, has been greatly improved, the streets having been levelled and paved, some buildings removed from the middle of the street, and many new houses erected, together with a town-house, comprising apartments for the courts, for the use of the corporation, and also a library. At the outskirt of the town a new prison has been built, surrounded by a high wall, including an area in which the prisoners may take exercise. Population of burgh and parish in 1831, 2833.

SELKIRKSHIRE; a county in the south of Scotland, anciently called the sheriffwich of Ettrick or Ettrick Forest, from an extensive forest there, in which were numerous herds of red and fallow deer, kept by the Scottish princes, who had several hunting-seats in this part of the country. The woods have been nearly all cut down, and where the deer formerly roved, large flocks of sheep now find pasture. This is a mountainous district, but it is intersected by valleys, through which flow the Ettrick, the Yarrow, the Gala, and the Tweed, with many smaller streams, whose beauties have been repeatedly celebrated in pastoral song. Selkirkshire is twenty-seven miles long from south-west to north-east, and sixteen miles broad, exclusive of a small detached part on the east. It comprises a superficies of 263 square miles, or

168,320 statute acres. With the exception of a very narrow portion, on its eastern side, the county may be said to be a continued alternation of hill and dale, and many of the eminences rise to a considerable height. It has some small lakes, the chief being St Mary's Loch and the Loch of the Lowes, lying at the head of Yarrow. Of minerals, none of the more useful have yet been found in this pastoral county; coal, lime, and sandstone being equally wanting. It has, however, abundance of whinstone, and a good deal of granite. From the hilly nature of the county it is chiefly pastoral. The mountain ranges of Ettrick and Yarrow afford most extensive and excellent sheep walks. In no district in Scotland are so much skill and care directed to sheep raising. The sheep are chiefly of the white-faced breed. This county contains many pleasant seats of the nobility and gentry, chiefly belonging to the families of Ker, Scot, and Pringle. The arrangement of the parochial districts is extremely irregular, the parishes are very large, and only two of them are entirely comprehended within the bounds of the county. The only towns here are the royal burgh of Selkirk and Galashiels. Population of Selkirkshire in 1821, 6637; in 1831, 6833.

SELTZER OR SELTER'S WATER; a mineral water belonging to the class of acidulous waters, which is found in the village of Niederselters, near Limburg, in Nassau. It is drunk unmixed at meals, or with wine and sugar. The water is exported in great quantities, in stone bottles containing about three pints. More than one million are filled annually. On the spot, 100 bottles, pitched, &c., are sold for eleven guild. Rhenish. It is composed, according to Bergmann, of carbonic acid, 60 cubic inches; muriate of soda, 109·5 grains; carbonate of magnesia, 29; ditto of lime, 17; ditto of soda, 24; in about five pints of water. See *Mineral Waters*.

SEMEIOTICS, also SEMEIOLOGY (*doctrine of signs*; from the Greek σημεῖον), is used in medical science to denote that branch which teaches how to judge of all the symptoms in the human body, whether healthy or diseased.

SEMELE; a daughter of Cadmus, by Hermione, the daughter of Mars and Venus. She was beloved by Jupiter; but Juno, jealous of her husband's amours, determined to punish this successful rival. She persuaded Semele to entreat her lover to come to her arms with the same majesty as he approached Juno. This rash request was heard with horror by Jupiter; but, as he had sworn by the Styx to grant Semele whatever she required, he came to her bed attended by lightning and thunderbolts, and Semele was instantly consumed with fire. The child, however, with which she was pregnant, was saved from the flames by Jupiter, who placed him in his thigh the rest of the time which he ought to have been in his mother's womb. This child was called Bacchus, or Διώνυσος. Semele, after death, was honoured with immortality; or, according to some, remained in the infernal regions till Bacchus, her son, was permitted to bring her back.

SEMI-ARIANS. See *Arians*.

SEMIGALLIA. See *Courland*.

SEMI-METALS; a term that expresses those metallic substances not possessing ductility and malleability, these properties being deemed characteristic of real metals.

SEMINOLES. See *Creeks*; also *Indians, American*.

SEMI-PELAGIANS. See *Pelagians*.

SEMIRAMIS; a queen of Assyria, whose history is enveloped in fable. Ctesias is our only authority for the early Assyrian history. Semiramis, when grown up, married Menones, the governor of Nineveh, and accompanied him to the siege of Bactra, where, by her advice, she assisted the king's operations. These services, but chiefly her uncommon beauty, endeared her to Ninus. The monarch asked her of her husband; but Menones refused to yield her, and, when Ninus had added threats to entreaties, hanged himself. Ninus resigned the crown to her, and commanded her to be proclaimed queen of Assyria. Semiramis rendered Babylon the most magnificent city in the world. She visited every part of her dominions, and left every where monuments of her greatness. She was not less distinguished as a warrior, and conquered many of the neighbouring nations. Having been completely defeated on the Indus, she was either put to death or compelled to abdicate the throne, after a reign of forty-two years, by her son Ninyas. She has been accused of abandoned licentiousness. The whole history of Semiramis has the appearance of an Oriental tale; and there is nothing to indicate the date of her reign, although her existence has not been called in question.

SEMITIC LANGUAGES; one of the great families of languages. They have been divided thus: 1. Aramæan (in the north), including Eastern and Western Aramæan; the Eastern embraces (*a.*) the Assyrian, which is lost, excepting a few names of kings; (*b.*) the Babylonian, from which several dialects originated in Palestine, after the return of the Jews from the Babylonish captivity, as the Chaldaic, in which some portions of the Old Testament are written; the Syro-Chaldaic, used at and about Jerusalem; the Galilean, and the Samaritan. The Western Aramæan includes (*a.*) the Syriac dialect (the common written language of the Western Syrians, of which the Syriac translation of the Bible is the oldest, to this day the ecclesiastical language of all the sects in Syria, but used as a popular idiom only in a few districts; the purest is spoken in Mesopotamia; (*b.*) the Palmyrene (see *Palmyra*), preserved only in a few inscriptions; and (*c.*) the Sabian idiom, a corrupted Syrian dialect, in which the religious works of the Sabians (q. v.) are written. 2. Canaanitish languages, or those of the earliest inhabitants of the country between the Arabian desert and the Mediterranean. This comprises (*a.*) the Phœnician language (of which remains exist only on coins and inscriptions), with its dialect, the Punic; (*b.*) the Hebrew (see *Hebrew Language and Literature*), and the Rabbinic dialect (see *Rabbinical Language and Literature*), which grew up after the decline of Jewish science, in the middle ages, among the Spanish Jews, who chiefly sprung from the Jews of Jerusalem, whilst the Polish and German Jews were mostly Galileans. 3. The Arabic language (see *Arabian Literature*), from which originated the Ethiopian or Abyssinian (see *Abyssinia*), and, from the modern Arabic, the Maltese.

SEMLER, JOHN SOLOMON, one of the most influential German theologians of the eighteenth century, was born at Saalfield, in 1725. His father was a clergyman, and his education was good. The duke of Saalfield and his whole court were *Pietists*; and morbid and gloomy views of religion pervaded all classes, from which Semler was at first

preserved by the influence of his mother; but, after her death, he yielded to the influence of his father and brother, became desponding, and wept and prayed the whole day. He went to the university of Halle in 1742, where he became acquainted with some young men who had brighter views of life, and his gloom wore off. He became a pupil of the liberal professor Baumgarten, partook in his literary labours, and in the dissertation which he wrote on taking the degree of master of arts, defended the genuineness of some passages in the New Testament, which had been attacked by the English writer Whiston, and went, in 1750, to Coburg, where he edited the Coburg Gazette. A diplomatic paper gained him the favour of the duke, and he was appointed professor of history and poetry at Altdorf; but after the lapse of a year, he was made professor of theology at Halle, where he and professor Baumgarten were opposed to all the rest of the theological faculty. His lectures on ecclesiastical history, hermeneutics and dogmatics, were fully attended, and, in 1757, he was made head of the theological seminary, after the death of Baumgarten, whose life he published in 1758. His works are full of learning, but exhibit little elegance. He died in 1791, after having endured many severe trials, owing partly to his particular views of religion, and his hatred of all restrictions on conscience. Semler, though sometimes imprudent from want of tact, was a man of strict virtue, a most tender conscience, and a pious heart. Griesbach was his pupil. The value of Semler's labours towards illustrating the history of the sacred text, and contributing to a right understanding of the New Testament by a reference to the condition and opinions of its authors, and the fearlessness with which he proceeded in his historical method of exegetics, and thus showed the human origin of many theological dogmas (in his notes to Wetstein's Prolegomena and critical works; his Introduction to Theological Hermeneutics, and his apparatuses for a liberal interpretation of the Canon), will be long remembered, and acknowledged even by those who are opposed to many of his views.

SEMLIN; a Sclavonic military community, and fortified frontier city (see *Military Districts*), not far from the junction of the Save with the Danube, only a quarter of a league distant from the Turkish city of Belgrade, which lies opposite to it, on the Danube. Semlin contains seven churches and chapels, one convent, 1200 houses, with 8000 inhabitants, not including the soldiers. It carries on an important commerce with Turkey. There is a daily fair on the Belgrade meadow, where, however, the Turkish merchants are separated from the Hungarian by barriers, to prevent the transmission of the plague.

SENASSY. See *Fakir*.

SENATE. This term has been applied to bodies of very different powers and constitutions in different countries. The Roman senate (*senatus*), in the early periods of the city (see *Patricians*), participated in the judicial and executive powers of the king, and even in the management of military affairs, by means of its influence with the people. Historians commonly attribute its creation to the wisdom of Romulus; but it may be asserted, without exception, that, among all the civilized nations around the Mediterranean, a senate, or select body of elder citizens, was considered no less essential and indispensable than a popular assembly. Such a council, says Aristotle, there always is, whether the constitution be aristocratical or democratical. It is also generally said that the number was increased, under Tarquinius Priscus, to 300. However this may be, it is plain that it corresponded to the tribes, the 300 houses (*gentes*), which originally composed the three tribes, being represented in the senate, each by its *decurio*, or head. At a later period, the choice (*lectio*) of the senators was connected with the censorship. Every lustre (i. e. every five years), the censor read aloud the names of the senators, the worthiest first; and the one first named was called *princeps senatus*. Those who were unworthy of the dignity were degraded by the omission of their names. The equestrian order was the nursery from which the senate was supplied. In the time of the republic, a senator was required to have property of the value of about £4,000; in the time of Augustus, of £6,000. The supreme officers of government assembled the senate, which acted on propositions laid before it by them, article by article, and decided by a majority of voices. A decree of the senate was called a *senatus consultum*. If a tribune opposed the decree, or the senate was not full, the act was called *senatus auctoritas*, and was submitted to the people. The tribunes of the people could reject every proposition before the senate by their veto. All matters of public administration—the choice of public officers, legislation, and questions of peace and war—were within the jurisdiction of the senate, which likewise superintended the financial concerns of the republic. The authority of the senate was styled *auctoritas;* that of the people, *potestas:* the former decreed (*decernebat*), the latter ordered (*jubebat*). Still, in those cases in which it was subject to the decisions of the people (*plebis-scita*), the authority of the senate was extensive; and in other matters its acts (*senatus consulta*) had the force of laws. Under the emperors, the senate gradually lost its political consideration; but until the time of Constantine the Great, many imperial decrees, which the senate issued by the command of the emperors, were called *senatus consulta*, and took the place of the laws enacted by the people (*leges*). It finally became so submissive, that it often decided on the propositions of the emperors, without deliberation, by acclamation.

The French senate came into existence after the revolution of the 18th Brumaire, which placed Bonaparte at the head of the government, when he caused a new (the fourth) constitution to be drawn up (Dec. 13, 1799), which, besides three consuls, the tribunate, and the legislative body, established a conservative senate (*sénat conservateur*), consisting of eighty members, of at least forty years old. The senate was to choose its own members for life, on the nomination of the first consul, the tribunate, and the legislative body; preserve the constitution, and, with this view, inspect the acts of the legislative body; choose the consuls, tribunes, and members of the legislature, from the lists presented by the departments; and supply vacancies by the choice of one of the three individuals nominated by the three other branches of government. Each senator had a yearly pension of 25,000 francs, afterwards increased (exclusive of the senatories) to 36,000. This body soon became a tool in the hands of the first consul, for the conversion of the republic into a monarchy. This took place when the senate sanctioned the decree proposed by the council of Bonaparte, for a new change in the constitution of France. The fundamental law, or

senatus-consulte, of August 15, 1801, declared the dignity of consul to be for life, and rendered the senate dependent on the first consul, by giving him the power of choosing or nominating the greater part of them, and appointing them ministers, &c. The first consul was bound to give the senate information of all treaties, before making them public. Bonaparte, as president of the senate, now caused the senators to take the oath of allegiance to him. By the *senatus-consulte* of Jan. 4, 1803, a *senatorerie* was created in each district of the courts of appeal, endowed with a palace and a yearly income of from 20,000 to 25,000 francs, from the national domains: these (thirty-two in number) the first consul conferred on the members of the senate for life. At a later period, the senate was composed of the imperial princes, the dignitaries of the empire, and 136 members. Two committees were appointed, one for personal liberty and the other for the freedom of the press, which, however, made no opposition to the wishes of the emperor. It is well known that a *senatus-consulte* of the same body which had declared Napoleon emperor (May 18, 1804), declared the throne vacant (April 3, 1814). (See *Bonaparte*.) The new constitution granted by Louis XVIII. (see *Charte*) substituted a hereditary chamber of peers for the imperial senate. In 1831, the peerage was limited to the life of the incumbent. (See *Peer*.)

The Russian senate is a supreme council of state, constituted by Alexander I. in 1810, and consisting of thirty-two members, and four presidents, all named by the emperor. It has no power over the will of the emperor, but is merely a medium for transacting all affairs of the empire, except foreign affairs. It is divided into four departments; of legislation, justice, war, and finance.

The senate of the United States is composed of two senators for each member of the confederacy, chosen by the states for a term of six years. (See *Congress of the United States*.) The vice-president of the United States is the presiding officer. Besides its legislative capacity, it has, in some measure, the character of an executive council, its consent being necessary for the ratification of treaties, and for the appointment of ambassadors, other public ministers and consuls, judges of the supreme court of the United States, heads of departments, and some other officers. (See *President*.) The senate is also a high court of impeachment.—In most of the states, the legislatures are divided into two houses, one of which is called the senate (in New Jersey, the *legislative council*; in Vermont, there is but one house), and is, in most instances, chosen for a longer term of service, and sometimes for larger districts than the more popular branch (the assembly, house of representatives, house of commons.) In some states, it performs the functions of an executive council, and generally forms the high court of impeachment for the state. See *Constitutions*.

SENATUS CONSULT. See *Senate*, and *Civil Law*.

SENECA, Marcus Annæus, a rhetorician, native of Corduba, in Spain, went to Rome during the reign of Augustus, and there taught rhetoric with great success for several years. He was the author of some rhetorical works, the remaining fragments of which are often contained in editions of the works of Seneca the Philosopher, and have been published separately.—*Lucius Annæus*, his son, accompanied his father to Rome at an early age. He was born in the first year of the Christian era, and received from his father a careful education. Gifted by nature with excellent talents, and being fond of study, the young Seneca made rapid advances in knowledge. The Stoic philosophy had peculiar charms for his grave character, and he cultivated it with ardour. His reputation soon extended to the imperial court, and his various learning and practical wisdom caused him to be appointed tutor to the young Nero, and procured him several important places. His life, however, was by no means without reproach. He is accused of an excessive love of money, and of obsequiousness towards his unworthy pupil. Although he at first exerted a beneficial influence upon the government, he did not long retain it, and suffered himself to be prevailed upon by the prince to attempt a public apology for his murder of his mother. Calumniated by envious enemies, suspected by the jealous prince, whose rapacity was probably also tempted by the wealth of the philosopher, he was accused of being an accomplice in the conspiracy of Piso, and condemned to death. The only favour which the tyrant was willing to grant him, was the choice of the manner of his death. Seneca caused his veins to be opened; but, impatient at the slowness of this mode of death, he took poison, and was finally drowned in a warm bath. He died with the calmness of a Stoic philosopher, A. D. 66. We have several works under his name, partly prose and partly poetical. The former consist of letters and treatises on different subjects of philosophy; the latter of tragedies. The former are replete with just, profound and excellent remarks, conveyed in a form not entirely unworthy of them; yet they bear marks of the influence of the spirit of the age, —the inclination to the Stoic philosophy, and the style is too often artificial, antithetical, and swollen. His tragedies are much inferior to his letters and some of his philosophical works. It is by no means settled that the tragedies are actually by him; and the *Octavia* must necessarily be rejected as spurious, since the death of the heroine, which forms the subject of the piece, took place subsequently to his own. Some of them have been attributed to his father. They are formed on the Greek plan, but are far behind their models in every respect. They have so little of a dramatic character that they seem to have been composed merely to be read or declaimed. Although it is not to be denied that in these solitary remains of the tragic poetry of the Romans, there are some pleasing passages and powerful scenes, it must be allowed that they are wanting in unity of plan, truth, elevation of sentiment, dignity and strength of thought, and elegance and vigour of expression. The best editions of Seneca's philosophical works are the Elzevir (Amsterdam, 1672), Ruhkopf's (Leipsic, 1797—1811, 5 vols.), and Lemaire's, with the notes of Bouillet (Paris, 1827—28, 3 vols.) We have translations of his works by Lodge and L'Estrange, and of his Epistles by Morell. Of the ten tragedies which go under his name, the best editions are, the Gronovian (Amsterdam, 1682), that of Schröder (Delft, 1728), the Bipontine, and, more recently, that of Baden and Bothe.

SENECA; a beautiful lake of New York, about thirty-five miles long, and two and a half wide. It lies north and south, parallel to Cayuga lake, from which it is distant from six to fifteen miles. It discharges Seneca river from its north end, which runs east to the north end of Cayuga lake.

SENECA OR GENESEE OIL. See *Bitumen.*

SENECA INDIANS; one of the Six Nations formerly inhabiting the state of New York. There are reservations still owned and occupied by them on Cataraugus creek and Buffalo creek, and a few reside in Ohio. Their numbers may equal 1500. See *Iroquois.*

SENECA ROOT. The *polygala senega* has a woody, branched, contorted root, about half an inch in diameter, and covered with ash-coloured bark. It is inodorous. The taste is at first sweetish and nauseous, but, after being chewed for a moment, becomes pungent and hot, producing a very peculiar tingling sensation in the fauces. Medically, it is considered stimulating, expectorant, and diuretic, and, in large doses, emetic and cathartic. It has been celebrated as a cure for the bite of the rattlesnake, and, on a basis equally destitute of foundation, has been cried up as a remedy in pulmonary complaints. In certain stages of these complaints, however, it is not entirely destitute of utility. The plant grows to the height of about a foot, producing several herbaceous stems from the same root. The leaves are alternate, entire, oval-lanceolate, smooth and sessile. The flowers are small, white, disposed in a slender, terminal raceme, and somewhat resemble in form the blossoms of a pea.

SENEGAL; a river of Africa, the largest that flows into the sea on the western coast. It rises in a mountainous country, about lon. 7° W., lat. 11° 50′ N., about eighty miles west of the source of the Niger, and not much farther distant from the sources of the Gambia. It flows into the Atlantic in lat. 16° 5′ N., having a bar at its mouth, which prevents ships of 500 tons from entering the river. The country through which the river flows, from the coast to about sixty miles above Gallam, is a level. Above Gallam, the country becomes mountainous and broken, intersected with numerous streams, the sands of which are impregnated with gold dust. Sixty miles above Gallam is the cataract of Flau, which forms the limit of European navigation; and about forty higher is that of Govinea. A great abundance of fish, with crocodiles and hippopotamuses, are found in the river.

The *government of Senegal* is the French settlement at the mouth of the Senegal, formed in the reign of Louis XIV. The principal article of commerce is gum, called *gum Senegal*, superior to the gum Arabic. The quantity purchased by the French, from 1785 to 1787, amounted to 800,000 pounds. Besides gum, there were exported from the Senegal, in 1786, 2200 slaves, valued at 2,440,000 livres; gold, valued at 90,000 livres; ivory, &c., 130,000 livres. St Louis is the capital of the settlement. The great gum fair is on a barren, desolate spot on the river, about thirty leagues above St Louis.

SENEGAMBIA; the name applied to an extensive region on the western coast of Africa, lying chiefly between the Senegal and Gambia, in which are included many kingdoms and states. Among the principal nations are the Foulahs, the Jaloffs or Yaloffs, and the Mandingoes. Upper Senegambia, to the north of the Senegal, is inhabited by Moors, who carry on an extensive trade in gum with Europeans.—Middle Senegambia, between the Senegal and the Gambia, is inhabited by the negro tribes above mentioned, who practise agriculture, and have some manufactures. The soil is fruitful, and produces grain of all sorts, fine fruits, cotton, indigo, tobacco, pepper, &c. Elephants, lions, rhinoceroses, hippopotamuses, antelopes, and various other wild animals, are found here.—Lower Senegambia, to the south of the Gambia, has a similar soil, climate, and productions.

SENESCHAL (*seneschallus*); originally a steward or major-domo, whose duty it was to superintend the affairs of his lord's household; whence the name, from *senne* (house), and *schalk* (servant). (See *Steward.*) In France, the *sénéchaussée* was the jurisdiction of a *sénéschal*, as, in the course of time, that officer came to be invested with judicial functions, and the leader of the nobility within a certain district. The royal seneschal was called *grand sénéschal*, in contradistinction to the seneschals of the feudal princes, the dukes of Normandy, Brittany, Guienne, Burgundy, &c.

SENN is the name given to the cowherds, in Switzerland, who drive the cattle high into the Alps, and remain with them during the whole summer. These herdsmen sell the milk on their own account, paying over a certain sum to the owners of the cows.—The herd is called *senne.*

SENNAAR; a negro kingdom in Africa, which is generally considered as a part of Nubia, lying between the Nile and the Tacazze, and comprising the isle of Meroe. To the north, it borders on Turkish Nubia; to the east, on mountains which separate it from the coast of the Red sea; to the south, on Abyssinia; and to the west, on Nigritia, or Soudan. It is separated from Darfour by Kordofan; lat. 14°—17° N., lon. 31°—39° E. The soil is, for the most part, level, in some parts barren, but, on the Nile and the Tacazze, fruitful and well cultivated. Among the animals are camels, sheep, cattle, swine, and the African wild animals. Rice, grain, melons, tobacco, sugar, senna leaves, ebony, and sandal wood, and palms, are among its productions. The climate is warm; in summer, insufferably hot. The rains which follow the hot weather, render the air unhealthy. The inhabitants are negroes, who bear the name of *Shillooks*, and conquered the country from the Arabs in 1504. They are rude, ignorant Mohammedans, governed by an absolute despotism. Besides the Shillooks, there are also nomadic Arabs, and Bedouins, who are tributary, and the Daheras, or heathen Nubians, who have been purchased, or carried off from the neighbouring countries. The Daheras form the main strength of the military establishment of Sennaar. 14,000 of them, armed with spears and shields, guard the capital, with 18,000 Shillooks on horseback. The manufactures of Sennaar are inconsiderable; but the commerce carried on, by caravans, to Suakem, Jedda, Mecca, Abyssinia, Nigritia, and Egypt, is extensive. The country has been little visited by Europeans, and is but imperfectly known. Cailliaud—*Voyage à Méroë, &c.* (1824) and English—Expedition to Dongola and Sennaar—are among the most recent travellers who have given accounts of it. The capital, Sennaar, on the Nile, has about 16,000 inhabitants. The houses are poorly built, with flat roofs. The royal palace is constructed of mud, and is surrounded with a high brick wall.

SENNE is a large heath in Westphalia, extending from Paderborn to Münster and Osnabrück. In that part of it which belongs to Lippe is the *sennestud*, where wild horses are made fit for service.

SENNEFELDER, ALOYS, the inventor of lithography, born in 1771, was the son of a performer at the theatre royal of Munich, and was placed, for education, in the university of Ingoldstadt, as a

student of jurisprudence; but, after his father's death (1791), he attempted a theatrical career. Not succeeding in this, he became an author, though his poverty prevented him from publishing his works. He tried many plans with copper-plates and compositions, as substitutes for letter-press, in order to be his own printer. He found, in the course of his experiments, that a composition of soap, wax and lamp-black, formed a good material for writing on his plates; that, when dry, it became firm and solid, and that it resisted aquafortis. Wanting facility in writing backwards on the plates, he got some pieces of Kilheim stone, as cheap materials on which he could practise after polishing their surfaces. One day, being desired, by his mother, to take an account of some linen about to be sent to be washed, and having no paper at hand, he wrote the account on a polished stone, with his composition ink, intending to copy it at his leisure. When he was afterwards about to efface this writing, it occurred to him that he might obtain impressions from it; and having eaten away the stone with acid for about the hundredth part of an inch, he found that he could charge the lines with printing ink, and take successive impressions. This new mode of printing appeared to him very important, and he persevered through all difficulties in applying his discovery to practical purposes, and in improving it. In the course of many experiments, he found that it was not necessary to have the letters raised above the surface of the stone, but that the chemical principles by which grease and water are kept from uniting, were alone sufficient for his purpose. This point obtained, lithography may be said to have been fully discovered. All that was required was the improvement of the materials, and the mode of working with them, and the construction of a proper press for taking the impressions. The perseverance with which he followed up his experiments, in order to overcome the difficulties which successively arose in his progress, was remarkable, and the more so, considering the want of method in his proceedings. Often did he waste months in surmounting a difficulty which a little knowledge, or a very little reasoning, would have enabled him to conquer immediately. The first essays to print for publication, were some pieces of music, executed in 1796; afterwards he attempted drawings and writings. The difficulty he had in writing backwards led him to the process of *transfer;* and the use of dry soap, which was found to leave permanent traces, which would give impressions, naturally led to the mode of chalk drawings. Having made considerable improvements, Mr Sennefelder obtained, in 1799, a patent privilege for Bavaria, when he made known his process, and afterwards entered into partnership with Mr André, of Offenbach, who proposed to establish presses, and take out patents in London, Paris and Vienna. For this purpose Sennefelder went to London with a brother of André's; and, the invention having been much spoken of, under the name of *polyautography*, most of the principal English artists made trials of it. Unfortunately, however, the art of printing from the stones was not then fully understood, and the difference between the materials of Germany and those of England, used both for the purposes of drawing and printing, caused constant failures; and the artists, in succession, abandoned the practice of it. In August, 1800, Sennefelder, who had separated from André, went to Vienna, where, after much difficulty, a patent was obtained, and extensive preparations were made for applying his process to print cottons; but bad management, and some unfortunate circumstances, prevented his success, and he returned to Munich in 1806, leaving the establishment in other hands. Mr Mitterer, professor of drawing at the public school of Munich, now (1806) practised lithography to multiply copies for the pupils, and is said to have invented the chalk composition in its present form, or, at least, to have improved it greatly. From this period, the practice of the art has extended and improved rapidly, and more particularly at Munich, where several establishments were formed, for the purpose of applying it to the fine arts, as well as for printing writings and official forms, for the different departments of the government. In October, 1809, Sennefelder was appointed inspector of the royal lithographic establishment at Munich, for printing, from stone, a complete map and survey of Bavaria; since which period he devoted his time to experiments, and to writing the history of his invention. (See *Lithography.*) In 1819, Sennefelder published his Elements of Lithography (in German). In 1826, he invented a new process for taking impressions on coloured sheets, so as to imitate oil-painting. This art he called *mosaic printing*. He died at Munich, 26th February, 1834.

SENSES. The internal organs of the five senses —seeing, hearing, feeling, smelling and tasting—are the nerves, small, thread-like fibres, distributed all over the body, and all connected with the brain. (See *Nerves.*) Few subjects, in comparative anatomy and physiology, have given rise to more various and contradictory opinions than the external organs of sense in some classes. Much misunderstanding on this point has arisen from the hasty application of inferences drawn from the human subject to other animals. Thus it has been supposed that those which possess a tongue must have it for the purpose of tasting, and that the sense of smell must be wanting where we are unable to trace the existence of a nose. But, in many instances, the tongue cannot, from its substance and mechanism, be considered as an organ of taste, and must be merely subservient to the ingestion and deglutition of food; while in many animals, particularly insects, an acute sense of smell seems to exist, although no part can be pointed out in the head which analogy would justify us in describing as the nose. The sense of touch appears to exist only in four classes of animals, —in most mammalia, in a few birds, in serpents, and probably in insects; and although all animals may possess that feeling which makes them sensible to the impressions of warmth and cold, very few possess, like the human subject, organs exclusively appropriated to the sense of touch, and expressly constructed for the purpose of feeling, examining and exploring the qualities of external objects. (See *Touch.*) The sense of taste, as we have above remarked, does not appear to be confined to the tongue, that member being wanting in many animals which do not seem destitute of the sense; and in many which possess it, the tongue is employed for other and different purposes. (See *Taste.*) The sense of smelling prevails much more extensively in the animal kingdom than that of taste, since it not only assists several genera in selecting their food, which they have not afterwards the power of tasting, but is also of service in finding out proper objects for the satisfaction of their sexual appetites. (See *Smell.*) We should naturally expect to find an organ of hearing in most

[illegible]

[illegible] *Philosophy*

SEPIA, in natural history; the cuttle-fish, of which the generic character is as follows: The body is fleshy, covering the breast in a sheath, with a triangular appendage at its base: it has eight arms near each other, become warts or suckers, and in most species two pedunculated tentacula: the head is erect; the eyes large; the mouth resembling a parrot's beak. These animals inhabit various seas, and in hot climates some of them grow to an enormous size. They are armed with a dreadful apparatus of holders, furnished with suckers, by which they fasten upon their prey and convey it to their mouths. They have the power of squirting out a black fluid resembling ink, and which is said to be an ingredient in the composition of Indian ink. The bone in the back is converted into pounce. The eggs are deposited upon sea-weed, and resemble a bunch of grapes. At the moment when the female deposits them, they are white; but the male goes over them to impregnate them, and they then become black. They are round, with a little joint at the end, and in each of them is enclosed [illegible]

[illegible] from sea, sea, or river. The principal weapon of the Hindoo soldier [illegible] same given in India to the forces [illegible] [illegible] Europeans adopt the European manner. The French were the first to see that the transportation of troops from Europe to their Indian colonies was too expensive, and that Europeans would perish in great numbers by the exposure at sea and in the climate of India. They therefore took Hindoos into pay and the English adopted the same policy. The East India company at present has a native force of nearly 200,000 men. There are several regiments of cavalry, and some companies of artillery manned by native troops. The pay of the sepoys is about fourteen shillings per month. Their dress is a red jacket, with a white cotton vest underneath, trowsers reaching only about half way down the thighs, and a light turban. Though not generally equal in courage and dexterity to European soldiers, they are manly, and capable of enduring much, and very temperate in their food.

SEPTEMBER, from the Latin septimus, seventh; the ninth month of our year, but the seventh of the old Roman year, which began in March. See *Calendar* and *Epact*.

SEPTEMBRISERS: the name given to the authors and agents of the horrible massacre of prisoners in Paris, on the second and third of September, 1792. See *France, History of*.

SEPTENNIAL ELECTIONS. The members of the British house of commons are elected for seven years, as were those of the French chamber of deputies before the revolution in July, 1830. The period of seven years was introduced into England, with a reservation of the king's right to dissolve the house at his pleasure, and order a new election, under the administration of Sir Robert Walpole, in 1716; and into France in 1824, under Count Villele. This innovation was a shorter attack upon the constitution of England than of France. In England, it had always been the custom to elect the whole house of commons at the same time. In France, the fifth part of the chamber of deputies had, for many years, been renewed annually. In the former country, the existing state of things depended on a particular law; in the latter, the constitution had established the period of five years, and the partial renewal of the chamber of electors. The septennial election of the British house of commons was proposed in the house of lords, April 10, 1716, by the duke of Devonshire, on the ground that the election for three years, which had been practised till then, not only gave too frequent occasion for the great expenses of an election, but also too often produced party excitements, and afforded frequent opportunities for the intrigues of the Papists and Jacobites, who then threatened the tranquillity of the state, by means of their connexion with France, and had been with difficulty subdued, when the

pretender had effected a landing in Scotland, in 1715. After a spirited debate, the bill passed in the house of lords by a majority of thirty-five votes; but thirty members signed a protest against it, on the ground that the triennial election comported with the spirit of the constitution, whereas a longer term would unduly restrict the electoral franchise, while corruption would become more frequent, and elections more expensive. In the house of commons, the bill was opposed with still more warmth; but after forty persons had spoken for and against it, it was passed by the house, 264 against 121. It deserves notice that the bill was advocated and carried by the whigs, notwithstanding the opposition of the tories. The former probably viewed it as a protection for the new dynasty against the house of Stuart, and as the most effectual means to exterminate Popery and Jesuitism, and to establish the superiority of Protestantism. In 1734, a new controversy arose about this act in the house of commons. The tories and the Jacobites (friends of the house of Stuart) proposed, in the lower house, to repeal it, and even some whigs were in favour of so doing; among them the celebrated Pulteney, the most zealous advocate of the bill in 1716. The two parties, however, were principally actuated by the desire of power. Lord Bolingbroke wished to put down the minister Walpole. Walpole, however, triumphed by a majority of 247 votes against 184, and Bolingbroke retired to France. But the opinion that the long duration of the house of commons is injurious to the freedom of elections, and favourable to every kind of corruption, has always prevailed in England. Pitt himself, when he advocated parliamentary reform in the session of May 7, 1783, called the Septennial election one of the greatest defects in the system of popular representation. His bill to restore triennial elections, in which he was supported by Fox, was rejected by a majority of only eleven. In 1824, the same subject was broached by celebrated statesmen in the French chambers. The French constitution of 1791 required an entirely new election; that of 1795, an election of a third part of the members; and that of 1799, the election of a fifth every year. The last regulation was retained in the charter of 1814, and the age required for every voter was thirty years, and for every representative forty. April 5, 1824, count de Corbiere, the minister of the interior, proposed, in the house of peers, that the whole chamber of deputies should be chosen at once, and that a new election should take place every seven years. The most distinguished speakers, in both chambers, viewed the proposed measure as a violation of an essential part of the charter. Its advocates maintained that it would prove a means of promoting public peace, by diminishing the occasions of public excitement, of producing a greater uniformity in the transactions of business, and of enabling the legislators, by means of their prolonged experience, to make better laws. The bill passed the chamber of deputies June 8, 292 to 87, and was confirmed by the king on the 9th.

SEPTUAGESIMA SUNDAY, the third Sunday before Lent, is supposed to take its name from its being about seventy days before Easter (*septuagesimus*, seventieth).

SEPTUAGINT, THE SEVENTY, or LXX; the Greek version of the Old Testament, which, according to the story of Aristæus, whom Josephus follows in his Jewish Antiquities, was made on the island of Pharos, near Egypt, by seventy-two learned Jews (whence the name *Septuaginta*, seventy), by command of Ptolemy Philadelphus, king of Egypt. The story further states, that although the translators were separated from each other, yet, through the operation of divine inspiration, their versions were, word for word, the same. This version is also called the Alexandrian, because it is said to have been prepared at Alexandria. (See *Alexandrian Copy*.) We probably owe it to some Alexandrian Jews, who, having lost the knowledge of the Hebrew, caused this translation to be made by some of their learned countrymen, for the use of the synagogues, about 285 B. C. At first, only the Pentateuch was translated; and the version of the remaining books of the Old Testament was accomplished gradually.

SEPULCHRE, HOLY. See *Palestine*.

SEPULTURE. See *Burial*, *Burying Places*, and *Cemetry*.

SEQUESTRATION; the act of separating a thing in controversy from the possession of both parties, till the right is determined by course of law. It is either voluntary or necessary: voluntary when it is done by consent of the parties, and necessary when it takes place by order of the official authority. The thing sequestered (*sequestrum*) cannot be claimed by either party till the dispute is decided. Persons may, in some cases, be sequestered, as well as things.

SERAGLIO, properly SERAI (q. v.); the palace of the Turkish sultan in Constantinople. It stands in a beautiful situation, on a point of land projecting into the sea. (See *Constantinople*.) Its walls embrace a circuit of about nine miles, including several mosques, spacious gardens, and buildings capable of accommodating 20,000 men, though the number of the sultan's household does not amount to above 10,000, including gardeners and menials. From the sea, it makes a fine appearance; but from the land side, the domes, the gilded cupolas, &c., are concealed by the thick and gloomy walls; and on passing by the great gate, the spectator is shocked by the sight of the heads of recently executed victims. The harem is the part of the seraglio occupied by the women of the sultan. (See *Harem*.) The principal gate of the seraglio is called *Babi Humayum* (Sublime Porte). The sultan is served by the *itch' oglans* (pages), called also *itch' agassys*, who are Asiatics of humble origin, and are divided into four chambers, according to their rank and service. The fourth and last of these chambers is called the *khasne odasshy* (treasury). The pages of this chamber are under the direction of the *kislar aga*, and are intrusted with the care of the treasures. It has been supposed that the seraglio contained treasures of great value. The sultans piqued themselves upon leaving large sums in the treasury. Whatever, therefore, the sovereign could collect during his life, was shut up at his death in his *khasne* chamber, with an inscription in letters of gold, *This is the treasure of the sultan A. B.*, which was never touched except in extreme cases. The mutes of the seraglio, about forty in number, are the court fools: they were formerly obliged to perform all the capital executions in the empire. The dwarfs are also subjects of mirth at court, and are often used as footstools for the sultan to mount his horse. The *capidgibaschis* (see *Capi Aga*) are the door-keepers of the seraglio; and the *bostangi* (q. v.), a numerous corps who serve in the interior of the seraglio. We may

here remark, that among the 5—6000 men employed in guarding the interior of the seraglio, not a single fire-arm is to be found. The *bostangi-baschi* is, after the *kislar aga*, the second person of the seraglio, and is the only individual, except the sultan, allowed to wear a beard within the palace. The *baltagis* (wood-cutters) are of the same condition as the preceding, and make a part of the household guard and servants. Besides these, the sultan has also a life-guard (*peicks* and *solacks*), who accompany him when he leaves the seraglio.

SERAI; a large building for the accommodation of travellers, common in the Eastern countries. In Turkey, these buildings are commonly called *khans*; in Persia, *caravanserais*, by corruption *caravansaries;* but in Tartary and India, simply *serais*. The erection of them is considered a meritorious act by Hindoos as well as Mussulmans. See *Seraglio*.

SERAMPORE, OR SERAMPOUR; a town in Bengal, belonging to the Danes, on the west bank of the Hooghly, twelve miles north of Calcutta; lon. 88° 26′ E.; lat. 22° 45′ N.; population, about 5000. It is pleasantly situated, the territory extending one mile along the river, and half a mile in breadth. The houses are built of brick and plastered, but few of them are of more than two stories, with flat roofs, balconies, and Venetian windows. It is not fortified, but has a battery with twelve pieces of cannon, and carries on a trifling trade with Europe, China, &c. This town is the head-quarters of the Baptist missionaries in India. They commenced their establishment here in 1799, and have ever since been engaged in propagating Christianity, and translating and printing the Scriptures. (See *Missions*.) A college for the education of native preachers has also been established here, which lately received a charter from the king of Denmark, with power to confer degrees.

SERAPH (in the plural, *seraphim*); the name applied, by the prophets of the Old Testament, to the highest class of angels that surround God's throne. (See *Hierarchy*.) The word is Hebrew, signifying *nobles*, the *great*, who surround the royal throne. The Franciscans are styled the *seraphic order* (see *Francis of Assisi*); and Bonaventura was called the *seraphic doctor*.

SERAPIS; tutelary god of Egypt, by some considered as an old deity identical with Osiris, by others as introduced from abroad. In Alexandria he was the chief deity.

SERASKIER, with the Turks; the generalissimo of a whole army. He has very extensive power, but is under the grand vizier, and is chosen from among the pachas of two or three tails. Sometimes, also, commanders of a lower rank are called *seraskiers*.

SERENADE (Italian, *serenata*, from the Latin *serenus*, clear); properly, music performed in a clear night; hence a musical entertainment provided by a lover under the window of his mistress. It consists, generally, of instrumental music, but vocal is sometimes added. The practice existed even among the Greeks and Romans. Such music is sometimes performed merely as a mark of esteem and good will towards distinguished persons, and then is not unfrequently accompanied by long processions with torches. Hence the different character of serenades. A single singer may accompany his song with the guitar, mandoline, lute, &c.; or wind instruments may be used, as flutes, horns, clarionets, hautboys; or, as is the fashion in some of the largest cities of Northern Germany, many singers may join. Serenades are also sometimes used as concert pieces, and then, of course, experience some change of character.

SERENDID; one of the names of Ceylon.

SERGEANT, OR SERJEANT, in war, is an inferior or non-commisioned officer in a company of foot, or troop of dragoons, appointed to see discipline observed, to teach the soldiers the exercise of their arms, and to order, straighten, and form ranks, files, &c.

SERGELL, JOHN TOBIAS, a celebrated Swedish sculptor, born at Stockholm, in 1740, began his career as a stone-mason, but afterwards became a pupil of L'Archeveque, whom he accompanied to France. He subsequently went to Italy, at the expense of the king of Sweden, and acquired great celebrity. In 1778, he returned to Sweden, visiting Paris in his way, where he was nominated a member of the academy of fine arts. He then visited London, reached Stockholm in 1779, and, on the decease of his preceptor, succeeded to his place. In 1784, he accompanied Gustavus III. on his travels to Italy; in 1795, was made a knight of the Pole Star; and, in 1810, received letters of nobility, and was appointed superintendent of the police. His works are chiefly confined to Sweden. He died February 26, 1814. Depth of thought and vigour of conception, energy and grace, are the characteristics of his style. His Cupid and Psyche; Diomedes carrying off the Palladium (in England); Mars and Venus; a Faun; Oxenstiern dictating the History of Gustavus Adolphus to the historic Muse,—are among his principal statues. Among his groups are the monument of Descartes; the Resurrection of Christ; a bass-relief; two angels over the altar in the cathedral of Carlstadt, &c. Byström is his most celebrated pupil.

SERIES, in general, denotes a continued succession of things in the same order, and having the same relation or connexion with each other.

Series, in mathematics. See *Progression*.

Series, Infinite, consists of an infinite number of terms, so that, let the series be carried to any assignable length or number of terms, it can be carried yet farther without limitation.

SERINGAPATAM, OR SRI-RANGA-PATANA; a city of Hindoostan, in Mysore, and, for a considerable time, the capital of the province; 215 miles south-west of Madras, lon. 76° 51′ E.; lat. 12° 26′ N. The population in 1800 was estimated at upwards of 20,000; in 1820, it was stated at less than 10,000; the diminution is owing to the removal of the court. It is situated at the upper end of an island in the Cauvery, and has existed as a fortress from a remote period. During the reigns of Hyder Aly and his son Tippoo Sultan, it rose to a degree of wealth and splendour before unknown, and was supposed to contain 150,000 inhabitants. In 1792, Seringapatam was invested by the British and allied armies, under lord Cornwallis, amounting to 400,000 men. Tippoo Sultan, terrified, relinquished half his dominions, and paid to the conquerors £3,500,000 sterling. In 1799, it was again invested by the forces of the British and Nizam, and taken by storm, May 4th, Tippoo Sultan and nearly 8000 of his men having fallen. Seringapatam afterwards became the property of the British, and is the residence of a judge, collector, &c., but has greatly declined from its former importance.

SEROUX D'AGINCOURT, JEAN BAPTISTE, born at Beauvais in 1730, died in 1814. He passed a great part of his life in Italy, devoted to the study of the arts. Besides his *Recueil de Fragments de Sculpture antique en Terre cuite* (4to., 1814), we have from him a very learned work, entitled *Histoire de l'Art par les Monuments, depuis sa Décadence au cinquième Siècle, jusqu'à son Renouvellement au quinzième Siecle* (3 vols., folio, 325 plates, Paris, 1810—1823).

SERPENT. The serpents, or *ophidia*, form a very natural class of reptiles, in general easily distinguished by the total absence of feet, not the slightest vestige of which is discoverable on the most minute dissection. Their motion is, notwithstanding, very rapid in some species, and is accomplished by means of the sinuosities, or folds, which they form with their bodies. When in a state of repose, they usually dispose themselves in coils, with the head in the centre; and many are enabled to spring to a certain distance by the sudden unfolding of these coils. Serpents are destitute of moveable eyelids, or distinct tympanums. All have teeth, but they serve only to retain their food, and are not adapted to the purpose of mastication. They are long, very sharply pointed, and incline backwards. The venomous species have the maxillaries very small and moveable, and in them are implanted two teeth much longer than the rest, and traversed by a canal, for the purpose of transmitting the poison. These fangs are projected forward in the action of biting, but at other times, are disposed along the roof of the mouth, in such a manner as hardly to be discoverable at first sight. The jaws of serpents are united by ligaments in such a manner as to admit of great extension, which enables them to swallow animals of much greater diameter than their own bodies. The tongue is remarkably extensible, and terminates in two long cartilaginous points. They have only one lung. The skin, in different genera, is annulated, coriaceous or granulated, or, most frequently, covered with scales. They feed on quadrupeds, reptiles, insects, or worms, and swallow their prey entire. They do not drink, and the power of digestion is slow, one meal serving them for weeks, or even months; but when an opportunity offers, they take an enormous quantity of food. The ribs are very numerous, and surround a great portion of the trunk. The muscles, even in the smaller species, are endowed with an astonishing power of constriction; and those species which attain the enormous dimensions of thirty feet or more, are enabled to destroy the larger quadrupeds by involving them in their folds. Serpents inspire an instinctive horror in man and most animals. Their hissing, in some species, is truly startling; but, notwithstanding, most of them are perfectly harmless. In northern climates, they pass the winter in a torpid state, and change the epidermis in the spring. The eggs are rounded, and agglutinated in bead-like rows by a mucous substance, and, in the venomous species, hatch before they are excluded from the oviduct, and the young are born living. The females often take care of their young for a time, and, on the approach of danger, have been seen to receive the whole family in their throats, and, when it has passed, to restore them again to the open air. More than three hundred species are enumerated, most of which, including all the gigantic species, inhabit tropical climates. South America, in particular, abounds with them. The venomous species compose about one fifth or one sixth of the whole number; and among these are some whose bite is fatal in a few hours, and even minutes. But few species, and these mostly harmless, inhabit cold climates; and towards the poles, they seem to be entirely wanting. The venom of the European viper is neither acid nor alkaline, neither acrid nor caustic; is insipid to the taste, and harmless when taken internally; in short, possesses most of the external characters of simple mucus. It preserves its power after the death of the animal which furnished it. Its strength varies in intensity according to the warmth of the climate and season of the year, being much more dangerous in summer than in winter; as also according to the lapse of time which has intervened since the last bite, and the degree of irritation with which the action is performed. It is much more fatal to small animals than to large, and especially when they are much terrified.

The boas or anacondas inhabit tropical America, and are, in general, easily distinguished by having the plates under the tail undivided. Some attain a gigantic size, and curl their tails about the trunks or branches of trees, and, in this position, lie in wait for the larger quadrupeds. The pythons equal them in size, and pursue the same mode of life. They inhabit the tropical parts of the eastern continent.—The species of hydrus are small aquatic serpents, having the extremity of their tails enlarged, and very much compressed; which conformation gives them greater facility in moving through the water. They inhabit the intertropical parts of Asia, and the neighbouring islands, and in some situations are very abundant.

The rattle-snakes (*crotalus*) are exclusively American, and are celebrated for the violence of their poison. They are easily distinguished by the noisy instrument at the end of the tail, composed of horny sacks loosely inserted into each other. The banded rattle-snake grows to the length of four or five feet. It inhabits the Northern and Middle States from about lat. 46°, and is also found in the Western States, and beyond the Mississippi. —The diamond rattle-snake (so called from a row of large black rhomboidal figures disposed along the back) attains larger dimensions, and inhabits the Southern States. The same, or a very similar species, is found in South America.—The ground rattle-snake (*C. miliarius*) is a small species, inhabiting the Southern as well as the Western States. It has but two or three rattles on the tail, and is much dreaded, as its small size, and the slight noise of its rattle, render it more liable to be overlooked.—The copper-head (*trigonocephalus tisiphone*) is as dangerous as the rattle-snake, which it much resembles, but is destitute of the rattle at the extremity of the tail. The colour is brown, with clouded spots of a deeper hue. It is widely diffused through the United States.—The *elaps fulvius* inhabits the southern and south-western parts of the United States. The length is about two feet, and the tail very short. It is marked with about twenty broad black rings, alternating with about as many yellow ones. The last are speckled with brown, and are whitish on the margin. The above are the principal poisonous American serpents.

The following are entirely harmless:—The hog-nose snake (*heterodon*) is a remarkable reptile. The nose is slightly turned up, and flattened in front, bearing a remote resemblance to the snout of the animal whose name it bears. It possesses the

power of dilating laterally the head and upper part of the neck, and, in this state, makes a formidable appearance. It is widely diffused through the United States, but, like many others, is not found eastward of the Hudson river.—The black snake (*coluber constrictor*) is found throughout the United States. The colour is black, inclining to slate colour beneath, with the throat and lips white. The scales are smooth. It grows to the length of six feet, and its motions are very rapid.—The chain snake (*C. getulus*) is an allied species also, with smooth scales. The colours are black and white, the black predominating. The white often forms transverse lines on the back, which unite on the sides, thus forming the semblance of a chain. The markings are, however, extremely variable; and individuals are found entirely black, thickly sprinkled with regularly oval white specks. It inhabits the Southern States, but is sometimes found as far north as New Jersey.—The coach-whip snake (*C. filiformis*) is a very long and slender species, rarely found, and only in the more southern states.—The water snake (*C. sipedon*) is found in all parts of the United States, and is very common in the vicinity of Philadelphia. Its usual colour is brown on the back, beneath pale, with indistinct dark spots; but the markings vary exceedingly, and it is often found transversely banded with white. This variation has given rise to much confusion in the books, where it is repeatedly described under different names. The body is thick in proportion, and it attains large dimensions, sometimes growing to the length of five feet. It frequents exclusively the borders of streams, and, when disturbed, often takes refuge in them, and conceals itself at the bottom.—The striped or garter snake (*C. sirtalis*) is the most common species in most parts of the United States. The colour is brown above, with black specks, and three longitudinal lines of greenish yellow.—The collared snake (*C. Edwardsii*); a small species, of a dark leaden colour on the back, having a whitish band disposed across the back of the head. It is found under the bark of trees, from lat. 43° to South Carolina.—*C. Amœnus* (Say); a still smaller species, with a remarkably small head; the colour brownish above, and reddish beneath; the scales smooth. It is found, beneath stones and logs, in the vicinity of Philadelphia, but is rare.—*C. septemvittatus* (Say); with seven longitudinal blackish lines, three above, and four beneath; the general colour, brown above, and yellowish beneath; a small species, inhabiting the Middle and Western States.—The scarlet snake (*C. coccineus*), beautifully marked with scarlet, black, and yellow, inhabits the Southern States.—The green snake (*C. æstivus*); a small species, entirely of a bright green colour. The scales are carinated. It is found in the Southern States.—*C. vernalis;* another green snake, resembling the former, but with smooth scales, inhabiting the Northern and Middle States.—The pine snake (*C. melanoleucus*); one of the largest species, attaining the length of eight feet. The colour is whitish, with large blackish spots. It is common in New Jersey, and is found in all the more southern and western parts of the United States, and even beyond the Mississippi. It is of a gentle disposition, and is sometimes tamed and kept about houses.—The chicken snake, or house snake (*C. guttatus*), is a beautiful species. The body is elongated, somewhat flattened on the back, with smooth scales; the colour whitish; a row of large brownish spots, bordered with black, upon the back; a second series of smaller and darker ones on each side, alternating with the former; beneath, with small, square, black specks. The abdominal plates and subcaudal scales are very numerous. It attains a large size, and inhabits all parts of the United States, from Canada to Florida, as also the trans-Mississippi region. Although it is pretty constant in its markings, no one of the snakes has been the occasion of so much confusion among systematic writers; and it appears repeatedly in the books under a great variety of specific names. The glass snake of the Southern States is destitute of feet, and possesses many of the external characters of a serpent; but its anatomical structure shows it to belong to the family of lizards. It is excessively brittle, and is broken with the slightest blow; which circumstance has given rise to the name.

SERPENT-EATER (*serpentarius*); a remarkable South African bird, belonging to the *rapaces*, or birds of prey, but differing from the hawks and owls in having feet incapable of grasping, and very long legs. Accordingly, it keeps constantly on the ground, in sandy and open places, and wages continual war against reptiles, especially serpents, which it pursues on foot. It runs with great rapidity. In every respect except the feet, the anatomical structure is the same with that of the eagle. When this bird attacks a serpent, it covers its breast with one wing, to protect itself from the bite, and with the other strikes violent blows, until it has stunned its prey. It then breaks the cranium with the beak, and tears the reptile in pieces, or, if small, swallows it entire. The serpent-eater is easily tamed, and is often kept in poultry-yards by the inhabitants of the cape of Good Hope, for the purpose of destroying lizards, snakes, rats, &c. It soon becomes habituated to the poultry; but care must be taken not to leave it fasting too long, for on such occasions it does not scruple to satisfy its hunger with the young chickens. The wild bird is very shy, and difficult of approach. This bird is sometimes called the *secretary*, from some long feathers on the back of the head, in allusion to the custom of placing pens behind the ear.

SERPENTINE; an abundant mineral, which almost invariably occurs destitute of a regular crystalline form. A few instances of crystalized serpentine, however, have been observed, and the form appears to be a right rectangular prism. The massive varieties have a granular, or impalpable composition, and present red, brown, black, yellow, and gray colours, in veined, spotted, and other delineations. Fracture flat, conchoidal, or uneven; surface almost dull; lustre resinous, indistinct; streak white, acquires some lustre; translucent to opaque; sectile; hardness about that of calcareous spar; specific gravity 2·5. Serpentine is generally divided into two sub-species, the *common* and *precious* serpentine, the former of which consists of those varieties which are destitute of handsome colours, while the latter includes all such as, from the intensity and arrangement of their hues, are suited to purposes of ornament. Serpentine hardens on being exposed to the fire, and melts only (with great difficulty) on the edges. According to John, it consists of

Silica,	42·50
Magnesia,	38·63
Alumine,	1·00
Lime,	0·25
Oxide of iron,	1·50
Oxide of manganese,	0·62
Oxide of chrome,	0·25
Water,	15·20

Serpentine forms mountain masses, and beds in primitive rocks, and frequently contains crystals, grains, or compound nodules of various other species. Precious serpentine, in particular, is often mixed with granular limestone. It is met with in most European countries. Serpentine is turned, on the lathe, into vases, and also worked into different ornaments.

SERRA DA ESTRELHA (*Mons Herminius*); a lofty range of granite mountains in Portugal, a continuation of the Spanish chain of Guadarrama, extending into the province of Beira. Its highest summit (the Cantaro Delgado) is 8000 feet high, and is covered with snow from October to June. The ridge contains some remarkable lakes, part of which are tepid. The mountain streams Condieira and Unhaes form fine cascades over the rocks. The scenery around is highly picturesque.

SERRE, COUNT DE. See *De Serre*.

SERTORIUS, QUINTUS, a distinguished Roman general, was born at Nursia, in Italy, and at an early age served with reputation under Marius, against the Cimbri, and in Spain. As questor, in Cisalpine Gaul, he led a body of troops to the aid of his native country in the Social war (A. U. 663), and lost an eye in the war, in which he fought with his usual bravery. In the quarrel of Marius and Sylla, Sertorius at first took no part; but, in consequence of Sylla's opposition to his election as consul, he joined the party of Cinna, and thus became connected, contrary to his intention, with Marius. After the death of Marius and Cinna, Sylla again acquired the ascendency, and Sertorius was proscribed, and fled to Spain. Here his talents found a wide sphere of action. He endeavoured to gain the affections of the Spaniards, and to organize a force capable of resisting Sylla, who had sent a large army for the subjugation of Spain. The means of Sertorius were unequal to the conflict, and he embarked at New Carthage, passed into Africa, and took part in a war between the king of Mauritania and his subjects, on the side of the latter. Having gained several victories, and liberated the Mauritanians, he was requested by the Lusitanians, who were threatened with war by the Roman general Annius, to take command of their forces. Sertorius eagerly seized this opportunity of encountering Sylla. Invested with unlimited powers, he appeared at the head of the Lusitanians, who placed the most implicit confidence in him. Opposed to much superior forces, he displayed the talents of a skilful general, fatiguing the enemy by hasty marches, harassing them by ambuscades, attacking them in defiles, and avoiding a general engagement where he was not sure of the victory. With 8000 men, he was thus enabled to resist four Roman generals, at the head of 120,000 foot soldiers and 6000 cavalry, and to hold nearly all Spain against them. Even Marcellus, whom Sylla finally sent against him, and constantly reinforced with new troops, could effect nothing, and suffered several severe defeats. The youthful Pompey (q. v.) who, after the death of Sylla, led an army into Spain, and acted in concert with Marcellus, met with no better success. Yet Sertorius, from love of his country, would have consented to submit, had the proscription against him been revoked. His fame even reached Mithridates, who offered him 3000 talents and forty ships of war, on condition of his forming an alliance with him. Sertorius, who fought with reluctance against Rome, and was unwilling to see the republic humbled or enfeebled, accepted the offer, on Mithridates consenting to restrict himself to the recovery of Bithynia and Cappadocia. He accordingly received the sum agreed upon, and was making preparations for pushing the war with greater vigour, when he perished by the treachery of his friends. Perpenna, who had formed a conspiracy against him, assassinated him at a feast, A. U. 682. Thus was Rome delivered from a formidable enemy, who equalled the greatest heroes of antiquity in military talents, while he surpassed most of them in the virtues of his character.

SERUM. See *Blood*.

SERVANT. See *Master and Servant*.

SERVETUS, MICHAEL, a learned Spaniard, memorable as a victim of religious intolerance, was born in 1509, at Villa Nueva, in Arragon. He was the son of a notary, who sent him to Toulouse for the study of the civil law. Excited by the discussions of the Reformers in that city, he printed a tract in disparagement of the orthodox doctrine of the Trinity, entitled *De Trinitatis Erroribus* (1531), which production was followed the next year by his *Dialogorum de Trinitate Libri duo*. His circumstances being depressed, he engaged for some time with the Frelons, booksellers of Lyons, as corrector of the press. He then went to Paris, where he studied physic. He graduated at Paris, but quarrelled with the faculty, and repaired to Charlieu, near Lyons, where he practised three years, whence, at the instance of the archbishop of Vienne, he removed to the latter city. During this time he was in constant correspondence with Calvin, with whom he discussed points of controversy, consulting him in respect to his writings and Arian notions. Of this confidence Calvin subsequently made a base use, by producing his letters and manuscripts as matters of accusation against him. In 1553, Servetus published his matured theological system, without his name, under the title of *Christianismi Restitutio;* but Calvin took care that the magistrates of Vienne should be duly informed of it, and Servetus was committed to prison, whence he contrived to escape, and thereby avoided that fate from Catholic hands which he was soon after to suffer from those of the reformers. Purposing to proceed to Naples, he imprudently took his way through Geneva, where Calvin induced the magistrates to arrest him on a charge of blasphemy and heresy, advanced against him by a person who had been a servant in Calvin's family. In order to ensure his condemnation, his various writings were sifted for accusations; and, as a proof of the malignity and injustice which he encountered, it may be mentioned that one of the charges was extracted from his edition of Ptolemy's Geography, in which he asserted that Judea had been falsely extolled for its beauty and fertility, modern travellers having found it both sterile and unsightly. The magistrates of Geneva were, however, aware that many eyes were on them, in respect to this extraordinary treatment of a person who was neither a subject nor a resident, but, properly speaking, a traveller kidnapped in his passage. They thought proper, therefore, to consult the magistrates of all the Protestant Swiss cantons, who referring the matter to their divines, the latter unanimously declared for his punishment. As he refused to retract his opinions, therefore, he was condemned to the flames, which sentence was carried into execution the 27th of October, 1553, in the forty-fourth year of his age. Servetus is numbered among the anatomists who made the nearest

approach to the doctrine of the circulation of the blood, as appears from a passage in his *De Restitutione Christianismi*. The life of Servetus has been written in Latin by Mosheim (Helmstädt, 1728).

SERVIA (Turkish, *Serf-Vilajeti*); a province of European Turkey, bordering on Walachia, Bulgaria, Macedonia, Albania, Bosnia and Hungary, from which last it is divided by the Danube. It contains 19,500, or, according to some, 21,200 square miles, and 960,000 inhabitants. This thin population is owing, partly to the desolating wars to which the country has been exposed for centuries, but principally to the oppression of the Turkish government. Servia contains immense forests; but the soil is very fertile, and cattle are raised in large numbers. Agriculture and commerce are in a very low condition. There are no manufactures except some of cotton. The country forms a part of Rumili, and is subject to a pacha, who resides at Belgrade, the capital. Besides Belgrade, Semendra and Nissa are the most important cities. In the fortified village of Passarowitz, July 21, 1718, a peace was concluded between Austria and the Porte, very advantageous to the former. On the plains of Cossova or the Amselfeld, on the borders of Bosnia, the Turkish sultan Amurath I., in 1389, defeated the Servians; and, Oct. 19, 1447, in the same place, Amurath II. triumphed over the Hungarian and allied forces under John Hunniades, and was stabbed in his tent by Milosch Kobilitschk, a Servian. Servia is a part of ancient Illyria, which the Romans reduced under their dominion. The proper name of the province was Mœsia. Belgrade (Taurunum) belonged to Lower Pannonia. About the middle of the seventh century, Sclavonic tribes overspread all these regions. One of those tribes, the Servii (Serbi), a branch of the Sarmatians, to which the emperor Heraclius had previously assigned a portion of Macedonia, expelled or subdued the aborigines, the Illyrians, and kept possession of their country. From them it derived the name of *Servia*, which at that time included Bosnia.

The Servians were almost incessantly involved in quarrels with the Greek emperors, Hungary, and the republic of Venice, and, notwithstanding their valour, were generally worsted. After they had been under the dominion of the Greek emperors for many years, though governed immediately by their own princes, they formed an alliance, in 1150, with Hungary, to oppose the emperor Manuel Comnenus. Manuel defeated them in 1151. A second attempt to make themselves independent was equally unsuccessful. Isaac Angelus, the Greek general, afterwards emperor, defeated them, in 1193, on the Morava. In the ninth century, Budimir, the first Christian prince, divided the country into several provinces. One of them, Bosnia, afterwards withdrew from the general government, and eventually came into subjection to Hungary, though it retained its own rulers. In the beginning of the fourteenth century, Milatin Urosch, king of Servia, was compelled by Charles I., king of Hungary, to cede a part of his territory. King Stephen Duschan (who reigned from 1336) made many successful expeditions against the Greek emperors, and subdued some of the neighbouring provinces. He assumed the title of emperor, and distributed the empire of Servia into several governments; but he thus prepared the way for its fall and subsequent dissolution. During his reign, Amurath I., the Turkish sultan, as above related, defeated the Servians, June 15, 1389, on the Amselfeld. Bajazet, Amurath's successor, divided Servia between Stephen, son of Lazar, the last ruler, and his son-in-law, Wuk Brankouitsch. Both were compelled to pay tribute to him. Servia now became the chief theatre of the unhappy wars between the kings of Hungary and the Porte. After the battle on the Amselfeld in 1447, in which Amurath II. conquered the Hungarians under Hunniades, Servia was completely subdued by the Turks. The successes of Eugene, indeed, procured for Austria, at the peace of Passarowitz, in 1718, the largest part of Servia, that is, the northern part, with the capital, Belgrade. But by the peace of Belgrade, in 1739, Austria again lost all this territory, and it was transferred to Turkey. The barbarity of the Turkish governors and the arrogance of the janizaries led to an insurrection in 1801. George Petrowitsch, a man of courage, known by the name of *Czerny George*, placed himself at the head of the malcontents, and fought, for eleven years, with the greatest ardour. The Servians received assistance secretly from the Russians, and their army was at length increased to 30,000 men. Czerny George, taking advantage of the weakness of Turkey, demanded that Servia, like Moldavia and Walachia, should be elevated to a principality, under a Greek hospodar. The demand was rejected. After the Servians had gained some successes over the Turks, Russia declared in their favour, and a Russian army marched into Moldavia to their aid. Supplied by the Russians with warlike stores, particularly with cannon and engineers, Czerny took Belgrade, in December, 1806, and, some time after, Shabacz and Nissa. The Servian army was now increased to 80,000 men. The Turks, occupied with other troubles in the interior of their country, and repeatedly defeated by the Servians and Russians, at length proposed an armistice, which was concluded, July 8, 1808, at Slobosje, at the Servian headquarters. Czerny George, with the other chiefs of his nation, now prepared a constitution for Servia, under the protection of Russia. Having been before appointed chief ruler by the people, he was formally declared prince of Servia, and recognised by the Russian emperor, who, at the same time, made him lieutenant-general of the Russian army, and knight of the order of Alexander Newsky. When the war broke out again, in March, 1809, between Russia and the Porte, Czerny George, with his Servian troops, took part in it, and essentially aided the Russian arms. But the invasion of Russia by the French, in 1812, put a sudden end to the war, and led to the peace concluded at Bucharest, May 28, 1812, between Russia and the Porte. It was agreed, in the conditions of the peace, that the Porte should treat the Servians with kindness, and grant them a full amnesty. The fortresses erected by them in their country during the late war, were to be demolished, and the remainder to be put into the hands of the Turks. The administration of its internal affairs was committed to the nation. The Servians were to enjoy the same advantages with the Turkish subjects in the islands of the Archipelago and in other countries. At the end of July, 1812, the Russian troops left Servia. Many of the Servian chieftains, who were most devoted to their cause, accompanied them. The war between Servia and the Porte began anew in July, 1813, and was prosecuted with much bitterness, and with various success. After it had continued nearly four months, the Turks prevailed. Czerny George and his adherents fled

to the neighbouring states. The conquerors treated those who remained with the greatest cruelty. The country was made a desert. Finally, under the conduct of Milosch, the Servians concluded the treaty of December 15, 1815, which made them not so much the subjects as the dependants of the Porte. The attempt of Czerny George, in July, 1817, to kindle a new war, cost him his life. Till 1820, negotiations with the Servians were continued in Constantinople. They demanded that no Turk should possess property in Servia without the walls of Belgrade. It was granted. From that time the country has been governed by a senate, which consists of a president, Milosch, who was made prince in 1817, and four members or Servian representatives. The senate holds its sessions at Semendra, a fortified city on the Danube, containing 8000 inhabitants and an archbishop; also the residence of the hospodar Milosch Obrenowitsch, formerly a general under Czerny George. The Servians have their own judges and local magistrates, and have an agent constantly at the Porte. They pay to the Porte only the *kharadsh*, which amounts to one ducat for every father of a family, and one piaster for every other member. No Servian is permitted to reside permanently in Turkey, and no Turk in Servia. Belgrade and all the Turkish fortresses in Servia are occupied by Turkish troops. In case of a war between the Porte and any foreign power, the Servians are to furnish 12,000 men. The orders of the vizier, who remains with the Turkish garrison in Belgrade, are committed for execution to prince Milosch. This ruler, in 1825, put down, with an iron hand, a rebellion excited by his own severity, and was rewarded for it with the high office of hospodar. In the war of Russia with the Porte in 1828, the Servians were ready to rise in support of Russia. —See Ranke's *Serbische Revolution* (Hamburg, 1829).

Servian Language and Literature. The Servian language, generally called the *Illyrian*, is a Sclavonic dialect, and, among all the southern Sclavonic idioms, the most powerful. It is spoken by five millions of people, from the Culpa to the Timeck. The Sclavonic dialect, spoken in Bulgaria and Bosnia, differs little from the Servian. Recently the Servian has been more cultivated. In 1814, Wuk Stephanowitsch published, in Vienna, a Servian grammar (translated into German, with a preface by J. Grimm, and remarks by Vater, Berlin, 1824). In 1819, he published his Dictionary of the Servian Language, with German and Latin Definitions, containing above 30,000 words in common use. In the Servian poetry, the excellence of which Göthe and Grimm have acknowledged, a Sclavonic character of rude energy is united with an Oriental warmth. In 1823, Wuk Stephanowitsch published three volumes of Servian poetry, at Leipsic, which have been translated into German. Some of the songs are uncommonly fine. In 1826, he published *Danitza* (i. e. Morning Star), an annual for ladies, in Servian. The most recent publications in Servian literature are Simeon Milutinowitsch's *Serbianka*, a series of Servian heroic songs, which celebrate the insurrection of Servia, of which he was an eye-witness (4 vols., 12mo., Leipsic, 1827), and two Servian translations of Horace's *Ars poetica* (Vienna, 1827), in hexameters, and in the heroic measure of the Servians. Both are by Johannes Hadsitsch (under the name of Milosch Swetitsch). The Servian prose has produced little besides theological and religious works. In fact, the literary dialect is not yet settled: the Servian scholars are not agreed whether the artificial book language, formed after the ecclesiastical Servian, and which has been in use for almost four centuries, or the common dialect of the country, shall become the language of literature. In the former Raitsch has written his History of various Sclavonic Tribes (Vienna, 1792, 4 vols.).—See Bowring's *Servian Popular Poetry* (London, 1827).

SERVICE TREE (*sorbus*); a pretty large European tree, closely allied to the apple and pear, but easily distinguishable by its pinnated leaves. The flowers are numerous, disposed in corymbs at the extremities of the branches, and are succeeded by very small, rounded or pear-shaped fruit. This fruit is excessively austere and astringent before perfect maturity, is little esteemed, and difficult of digestion, but, notwithstanding, is sometimes eaten when in a state of incipient decay. The tree attains the height of forty or fifty feet, but the growth is exceedingly slow, the trunk hardly acquiring the diameter of a foot in a century. The wood is very hard, compact, solid, fine-grained, and susceptible of a brilliant polish. It is in great request among turners and cabinet-makers, and is very dear, especially the larger pieces. The service tree grows wild in most parts of Europe, and is, besides, occasionally cultivated.—The mountain ash is a second species of *sorbus*, often cultivated as an ornamental plant. It does not exceed the height of twenty or twenty-five feet, and is found wild in many parts of Europe. In the northern parts of the United States, there is a species of *sorbus* (*S. Americana*) closely resembling the mountain ash, and also frequently cultivated in European gardens. It is found wild as far south as lat. 43°, and is frequent in Canada. Another species (*S. microcarpa*) inhabits the range of the Alleghany mountains.

SERVILE, a Spanish word of the same meaning with the English *servile*, was the name given to the opponents of the liberal changes, contemplated by the cortes, from their first session in 1808. In 1823, when the French put down the liberals, the apostolical party (so called) obtained the ascendency, which under the present queen they have lost.

SERVILE ARTS. See *Arts*.

SERVING is the winding any thing round a rope to prevent it from being rubbed; the materials used for this purpose, which are called *service*, are generally spun-yarn, small lines, sennit, or ropes, sometimes leather, old canvass, &c.

SERVITES, OR SERVANTS OF THE HOLY VIRGIN; a religious order, founded at Florence in 1233, which became numerous, particularly in Germany and Italy and received the privileges of the mendicant orders, but never had much influence in the church. (See *Orders, Religious.*) The monks were also called Brethren of the Ave Maria, because they always began their conversation with the words of the angelic greeting, and Brethren of the passion of Christ. They follow the rule of St Augustine, and wear a black dress. Their general has the fifth place among those of the mendicant orders at Rome. They have, in recent times, lost much of their consideration. Paul Sarpi and Ferrarius belonged to this order.

SERVITUDE (*servitus*), in the civil law, is the right to the use of a thing, without property in the same, for all or for some particular purposes. This right, by the Roman law, was not confined to any

particular kind of property, but could either be limited to a particular person (*servitus personalis*), or so connected with real property (*prædium dominans*), that the owner of the same, whoever he might be, could exercise his right upon the estate subjected to the servitude (*prædium serviens*). The servitude consisted either in a right to do some act, as to gather fruit from the estate, &c. (*servitus affirmativa*), or to prevent the owner of the property from doing certain acts, as building walls beyond a certain height, blocking up a window, &c. (*servitus negativa*). The owner of a property to which a servitude was attached, could not, by the Roman law, be obliged to perform any act himself (*servitus in faciendo consistere nequit*): but this rule is not adhered to, in modern times, in those countries where the civil law prevails. Personal servitudes consist either in the full use of the property, and its products (*usus fructus*), or in a limited use (*usus*) of the same (as, for instance, merely free occupancy—*habitatio*). The usufruct was originally allowed only in regard to those things which were not consumed in the use, but was afterwards extended to such things as were consumed by use, but could be replaced by articles similar in number and quality (*quasi usus fructus*). Servitudes connected with real estate (*servitutes prædiorum*), which were divided into servitudes on tenements (*prædiorum urbanorum*), and servitudes on land (*prædiorum rusticorum*), were, by the old Roman law, required to be attached to a permanent cause (*causam perpetuam*), and to be designed for the preservation of some actual advantage. They could not, therefore, by the Roman law, be limited by conditions, or for a term of time, but were inseparable from the property, and indivisible. Servitudes being burdens upon an estate, the usufructuary must respect the rights of the owner of the same, and use his own rights *civiliter*, that is, with as little injury to the former as possible.

SERVIUS TULLIUS, the sixth king of Rome, was the son of a slave, given by Tarquin to Tanaquil, his wife. Young Servius was educated in the palace of the monarch, and raised himself to so much consequence, that Tarquin gave him his daughter in marriage. Servius became the favourite of the people and the darling of the soldiers, and was raised to the throne, on the death of his father-in-law. He defeated the Veientes and the Tuscans, established the census, beautified the city, and enlarged its boundaries by taking within its walls the hills Quirinalis, Viminalis, and Esquilinus. He also divided the Roman people into tribes, and built several temples. Servius married his two daughters to the grandsons of his father-in-law; the elder to Tarquin, and the younger to Aruns. The wife of Aruns murdered her own husband, to unite herself to Tarquin, who had likewise assassinated his wife. Servius was murdered by his own son-in-law, and his daughter Tullia ordered her chariot to be driven over the mangled body of her father (533 B. C.). Such is the history of Servius, as commonly related. But see Niebuhr's *Roman History* (3d ed., 1828), in the chapters On the Legend of Tarquinius Priscus and Servius Tullius, and Critical Examination of the History of Tarquin and Servius.

SERVUS SERVORUM (*servant of servants*); the title which the popes give themselves.

SESAMUM ORIENTALE; a plant, known from a very ancient period, and very interesting on account of the economical purposes to which it is applied. It was originally brought from India, and is said to grow wild in Ceylon, and along the coast of Malabar. It is called *semsem* in Egypt and other parts of the East, where it is cultivated extensively on account of the seeds, and an oil which they yield, not unlike or inferior to the oil of almonds. This plant was introduced into Carolina, from Africa, by the negroes, and succeeds there perfectly. It is called *bene* or *bonny*. The oil will keep many years, does not acquire any rancid smell or taste, but, on the other hand, in two years becomes quite mild, and is a good substitute for olive oil. The negroes use the seeds as an aliment. The sesamum was introduced into Jamaica by the Jews, and is now cultivated in most parts of the island. It is called *vanglo* or *oil plant;* and the seeds are frequently used in broths by many of the Europeans, but the Jews make them chiefly into cakes. In Japan, China, and Cochin-China, where they have no butter, they use the oil for frying fish, and in dressing other dishes, as a varnish, and, medicinally, as a resolvent and emollient. Pliny speaks of this oil as equally good to eat and burn. Nine pounds of the seed yield upwards of two pounds of oil. The plant grows to the height of two feet or more; the stem is upright, herbaceous, hairy, and almost cylindrical; the leaves are oval oblong, the inferior ones opposite, with long leaf-stalks, entire, or with some very distant teeth; the superior, much narrower, entire, acuminate, almost alternate, and nearly sessile: the flowers are solitary, axillary, and the corolla is white, and resembles, in form, that of the foxglove.—*S. indicum* is another species, cultivated in Egypt, and used for the same purposes as the preceding.

SESOSTRIS; a king of Egypt, who by some has been deemed the Shishak of Scripture, but whom Champollion has shown to be a different person. He is called Sethos, and Sethosis, and his royal name is Ramses, or Rameses. He reigned in the fifteenth century B. C. Sesostris was a great conqueror, who overran Asia, and is said to have erected magnificent temples in all the cities of his empire, to have built a great wall on the eastern boundary of Egypt, and to have dug a number of canals from the Nile, for the purposes of commerce and irrigation.

SESSILE; a botanical term, signifying without footstalks

SESSION, Court of, in Scotland, the highest civil judicatory in the kingdom. See *Scotland*, division *Jurisprudence*.

SESSIONS. For the *quarter sessions*, see *Courts*.

SESTERTIUM. See *Sestertius*.

SESTERTIUS; an ancient Roman silver coin, worth two and a half *asses* (hence the name *sesquitertius*, the third half). (See *As*.) In sterling money, the sestertius was about one penny and a quarter; but it was not at all periods precisely the same. The neuter form, *sestertium*, denotes a much larger amount. It generally appears in the plural, and signifies not a real coin, but a sum of 1000 *sestertii*. If the sum amounts to 1,000,000 or more, a numeral in *ies* is connected with *sestertium* (e. g. *quadragies sestertium* is four millions of *sestertii*, i. e. *quadragies centena millia sestertiorum nummorum*). Sometimes the numeral adverb is used alone, and *decies ei dedit* signifies *decies sestertium*, i. e. *decies centena millia sestertiorum*, or a million. The *sestertius* was generally expressed by the letters L. L. S. (i. e. *libra libra semis*); and these letters were contracted into H. S. In common life, it was generally called *nummus* only. (For the

manner in which the Romans expressed numerical values, (see *Notation.*) As a weight, a sestertius amounted to about fifteen and three fourths French grains (about 12·91 grains Troy).

SESTETTO; a musical piece for six independent voices, whether instrumental or vocal. The former is particularly used for wind instruments, and often employed for serenades or *notturni*. Moscheles, Beethoven and others have composed *sestettos* for wind and stringed instruments. Vocal *sestettos* are used in operas; and that of Mozart, in the second act of Don Juan, is celebrated.

SESTINA; a lyric form of versification, which comprises six strophes of six lines, and one of three lines. The verse is generally the iambic of five feet. The characteristic of the *sestina* is, that in each of the six strophes the six final words of the first are repeated in such an order that the final word of the sixth verse of the first strophe, becomes the final word of the first verse of the second strophe; the other five verses of the second strophe end with the final words of the five first verses of the first strophe in an arbitrary succession. The third strophe is formed in the same way from the second as this was from the first, and so on; so that each of the six final words is once the first and once the last word in each strophe, and the last verse of the sixth strophe ends with the final word of the first verse of the first strophe. The strophe of three lines, with which the *sestina* ends, repeats the six final words again in the same order as they stand in the first strophe: each verse contains two of them, one in the middle and one at the end. There is no other rhyme in the *sestina*. Petrarca has made successful essays in this form. In general, the Italians, and next to them the Spaniards, have most cultivated it. It has been attempted, also, in German. It can be readily imagined how easily this form leads to an idle play upon words; yet it is astonishing with what skill some poets have contrived to attach different ideas and feelings to the same words.

SESTINI, Domenico, the most learned numismatist of Europe, in regard to ancient coins, as far as the knowledge of them can be acquired by inspection, was born at Florence, in 1750. After having completed his studies at the school of St Marco, he entered the clerical order; but, in 1774, he left his native city, and visited Rome, Naples, and the Sicilies. In order to prosecute his studies with more effect, he went from Sicily, through Malta and Smyrna to Constantinople, where he prepared his observations on the plague, which then prevailed. He made short journeys from Constantinople into Asia and Europe, and lived awhile in the house of prince Ypsilanti, hospodar of Walachia. At length, he went to Vienna, and returned along the Danube and over the Black sea to Constantinople. The British ambassador at the Porte, Sir Robert Ainslie, was then forming a collection of ancient coins. For sixteen years Sestini was his agent, and in the course of his travels collected the celebrated cabinet which he has described in his *Lett. e Dissertazioni numismatiche sopra alcune Medaglie rare della Callezione Ainsliena* (4 vols., 1789—90, 4to.); *Descr. Numor. vett. ex Museis Ainslie, Bellini*, etc., *necnon Animadverss. in Opus Eckhel. Doctrina Numorum vett.* (Leghorn, 1796, 4to.). To gain a thorough knowledge of ancient coins, he travelled through Germany, visited Gotha, Dresden, and Berlin, where he settled, and was appointed, by the king, superintendent of the collection there. In 1810, he went to Paris, where he was elected a corresponding member of the *Académie des Inscriptions et Belles Lettres*, and, two years later, he received the appointment of antiquary and librarian of the princess Eliza, then grand-duchess of Tuscany. When Ferdinand III. ascended the throne, he confirmed him in this office, and added the title of honorary professor of the university of Pisa. In November, 1825, he was living with count Viczay at Hedervan. His principal writings are *Diss. intorno al Virgilio di Aproniano* (Flor., 1774, 4to.); *Della Peste di Constantinopoli del* 1778 (Yverdun [Flor.], 1779, 12mo.); *Lettere Odeporiche, ossia Viaggio per la Penisola di Cizico* (2 vols., Leghorn, 1785); *Viaggio di Constantinopoli a Bassora* (Yverd. [Leghorn], 1786); *Viaggio di Ritorno da Bassora a Constantinopoli* (Leghorn, 1788); *Lettere e Dissertazioni numismatiche*, which appeared at Leghorn, Rome, Berlin, Milan, Pisa, and Florence, from 1789 to 1820, in 18 vols., 4to., with many engravings; the *Descriptio Nummorum veterum ex variis Museis* (Leipsic, 1796, 4to.); the *Catalogus Nummorum veterum Musei Aragoniani* (Berl., 1805, fol.); the *Descr. selectiorum Numismatum in Ære maximi Moduli Museo olim Ab. de Camps, posteaque Mareschalli d'Etrées*, etc. (Berl., 1808, 4to.); *Descr. delle Medaglie Greche e Romane del fu Benkowitz* (Berl., 1800, 4to.); *Descr. degli Stateri antichi illustr. con le Medaglie* (Flor., 1817); *Diss. sopra le Medaglie antiche relative alla Confederaz. degli Achei* (Milan, 1817, 4to.); and the *Descr. delle Medaglie Ispane appartenenti alla Lusitania Betica e alla Tarragonese del Museo Hedervariano* (Flor., 1818, 4to.). His *Classes generales seu Moneta vetus Urbium, Populorum et Regum Ordine Geographico et Chronologico descr.* (Flor., 1821, 4to., 2d ed.), may serve, in many respects, as a general index to all these works. There is but little prospect that his *Systema geographicum Numismaticum* (written by his own hand, in 16 vols., folio), the fruit of fifty years of study and investigation, will be given to the world.

SESTOS; a fortress of European Turkey, opposite to Abydos, from which it is 2700 yards distant. The castles of the Dardanelles, sometimes called the *Sestos* and *Abydos*, are built near the sites of the ancient towns so called, famous for the loves of Leander and Hero.

SET-OFF, in law, is when the defendant acknowledges the justice of the plaintiff's demand on the one hand, but on the other sets up a demand of his own, to counterbalance that of the plaintiff, either in the whole or in part; as if the plaintiff sue for 100 dollars due on a note of hand, the defendant may set off 90 dollars to himself for merchandise sold to the plaintiff, or for any other demand, the amount of which is ascertained in damages.

SETTLE, Elkanah, an English poet, was born in 1648. At the age of eighteen, he entered at Oxford, but quitted the university without taking a degree, and, going to London, commenced author by profession. He wrote numerous political pamphlets, and, in reply to Dryden's poem entitled the Medal, occasioned by the whig party striking a medal to commemorate the throwing out of the bill against the earl of Shaftesbury, a piece called the Medal Reversed; and, soon after, a poem entitled Azaria and Hushai, designed as an answer to the Absalom and Achitophel. In 1685, he published a poem on the coronation of James II., and,

about the same time, obtained a pension from the city, for writing an annual inauguration panegyric, on lord mayor's day. Settle was, besides, an indefatigable writer for the stage, and produced fifteen dramatic pieces, none of which are now known on the boards. In the decline of life, he received a salary from the proprietor of a booth at Bartholomew fair, as a writer of "Drolls," which were generally very successful, and is said to have been, at that time, the best contriver of theatrical machinery in the kingdom. He died at the Charterhouse, in 1724.

SETTLEMENT, ACT OF; a name given to a statute 12 and 13 William III., cap. 2, by which the crown was limited to the present reigning house in Britain, and by which some new provisions were added in favour of the subject, securing his liberty and the rights of conscience.

SETUVAL, OR STUBES; a town of Portugal, in Estremadura; fifteen miles south-east of Lisbon; lon. 8° 54′ W.; lat. 38° 29′ N.; population 14,876. It is situated in a bay of the Atlantic, at the mouth of the river Sandao, with a good harbour, capable of receiving ships of any burden, and exports lemons, olives, oil, wine, and, above all, bay salt, of which no less than 200,000 tons are annually made here. The streets are paved, and the town is fortified with a mound, a citadel, and several small forts. Setuval contains five churches, one hospital, eleven convents, and an *academia problematica*.

SEUME, JOHN GOTTLIEB, known for his writings and his adventures, a man of a vigorous mind, but eccentric disposition, was born at Poserne, in 1763. He was left an orphan, but was placed, by a charitable person, at the Nicolai school in Leipsic. Here he began the study of theology; but, becoming discontented, he set off secretly for Paris. On his way, he was forced to join the Hessian troops then raising to serve in America (1781). After his return, he was obliged to enter the Prussian service, but at length studied at the university of Leipsic, and, in 1793, became secretary of the Russian general at Warsaw. He soon after returned to Leipsic, where he published several works, and was employed as a corrector of the press. In 1801, he set out on a pedestrian excursion through Austria, Italy and France, and, on his return, published an account of his tour, under the title of Walk to Syracuse (in German). In 1805, he undertook a similar expedition into Russia, Sweden, &c., which is described in My Summer of 1805 (2d ed., 1815). He died at Teplitz, in 1810. His autobiography, which he left unfinished, was completed by Clodius, and is contained in the edition of his works in twelve volumes (Leipsic, 1826, seq.).

SEVEN ISLANDS. See *Ionian Islands*.

SEVEN LIBERAL ARTS. See *Arts*.

SEVENNES. See *Cevennes*.

SEVEN SLEEPERS. There is an old story that Epimenides of Crete reappeared in the world, after sleeping forty years in a cave (see *Epimenides*); and all our readers are acquainted with the veracious legend of Rip Van Winkle, as related in the Sketch-Book of Geoffrey Crayon; but the slumber of the seven sleepers was of longer duration. In the time of the emperor Decius, when the Christians were persecuted, seven noble youths of Ephesus concealed themselves in a neighbouring cavern, the entrance of which was closed by order of the emperor. The persecuted youths immediately fell into a deep slumber, from which they were accidentally awakened in the reign of Theodosius II., after a period of 187 years. Pressed with hunger, after their long fast, they sent one of their number to the city to purchase bread. He was astonished to see crosses erected all over the city; and his own antiquated dress and obsolete language confounded the baker, to whom he offered an old medal in payment for bread. Suspected of having found a secret treasure, he was carried before the judge, to whom he related his miraculous story. The bishop of Ephesus, the magistrates, and the emperor himself, hastened to the cave, and found the sleepers still bearing the bloom of youth. They related their story to the multitude, gave them their benediction, and expired. The church has consecrated the 27th of June to their memory. (See the *Acta Sanctorum* of the Bollandists, tom. vi, 375—397.) This legend has not been confined to the Christian world. The Koran relates the tale of the seven sleepers, to whom it assigns a dog (Al Rakim), and out of respect for whom it declares that the sun altered his course twice a day, that he might shine into the cavern. The Mohammedan and Christian story are probably both derived from the same source.

SEVEN STARS. See *Pleiades*.

SEVENTH DAY BAPTISTS. See *Baptists*.

SEVEN WISE MEN, OR SEVEN SAGES OF GREECE. This name is commonly applied to seven philosophers, several of whom were legislators, of an early period of Grecian history. They were Periander of Corinth (in place of whom some give Epimenides of Crete), Pittacus of Mitylene, Thales, Solon, Bias, Chilo, and Cleobulus. See *Greece*, division *Greek Literature*.

SEVEN WONDERS OF THE WORLD; seven monuments, remarkable for their splendour or magnitude. They are the pyramids of Egypt (instead of which some name the Pharos of Alexandria), the walls and hanging gardens of Babylon, the temple of Diana at Ephesus, the statue of the Olympian Jupiter (see *Phidias*), the Mausoleum (see *Artemisia*, and *Mausoleum*), and the colossus of Rhodes (see *Colossus*). These are not, however, to be considered the greatest works of ancient art and taste. This group of the seven wonders originated among the Greeks in the time of Alexander. Philo the Byzantine has described them in his work *De septem Orbis Spectaculis* (late edition, Leipsic, 1816).

SEVEN YEARS' WAR. By the treaties of peace concluded at Breslau, July 28, 1742, and at Dresden, December, 25, 1745, Maria Theresa of Austria ceded to king Frederic II., six principalities of Silesia and the county of Glatz. The loss of these fine territories was too painful for her not to think of recovering them. For this purpose, she concluded an alliance with Elizabeth, the empress of Russia, and personal enemy of Frederic, brought over to her cause the king of Poland and the elector of Saxony, Augustus III., and attempted to form a closer union with France, notwithstanding the enmity that had existed between that kingdom and her own for centuries. While Maria Theresa was occupied in these projects, a dispute had arisen between Britain and France, relating to the boundary between their possessions in America, which broke out, in 1755, into open hostilities. To protect his German states against an attack from France, the king of England concluded an alliance with Prussia; and, some months after, France made a league with the court of Vienna, promising to furnish 24,000 auxiliary troops against Prussia. But these auxiliaries

were afterwards increased to 180,000; for it was rather the design of France to injure the king of England by conquering Hanover, than to aid in accomplishing the ambitious designs of the empress on Silesia. By means of Menzel, a clerk in the Saxon cabinet, all the proceedings of the Russian, Austrian and Saxon courts were discovered to Malzahn, the Prussian ambassador in Dresden, and Frederic II., accordingly prepared himself for war. He demanded an explanation from the court of Vienna, received an equivocal answer, and resolved to anticipate his enemies. In August, 1756, therefore, he invaded Saxony with 60,000 men, in three divisions, invested Dresden, took possession of the documents necessary to justify his conduct, which he found in the archives of the cabinet there, and invested the Saxon army of 15,000 men in their fortified camp at Pirna. Meanwhile, field-marshal Brown advanced from Bohemia with an army to liberate Saxony. Frederic, leaving troops sufficient to maintain the siege of the Saxon camp, marched to Bohemia to meet the Austrians, and engaged them, October 1, at Lowositz. The battle, though not decisive, prevented the field-marshal from aiding the Saxons. They were forced to surrender as prisoners of war, and the inferior officers and common soldiers were compelled to enter the Prussian service; but they soon deserted, both singly and in whole regiments, because they would not fight against their own sovereign. Such was the end of the first campaign; and the Prussians remained through the winter in Saxony and Silesia. Frederic's invasion of Saxony excited a general commotion in the courts of Europe. It was pronounced to be a violation of the treaty of Westphalia, and France, as one of the guarantees of that treaty, now took part in the struggle. Sweden, too, for the same reason, and Russia, on account of her alliance with the empress, adopted a similar course. In the diet at Ratisbon, war was declared on the part of the empire against Prussia. Thus in 1757, Austria, Russia, France, Sweden, and the German empire, were in arms against Frederic, while he had no ally but England; and, in a war by land but little aid was to be expected from her. In order to anticipate his enemies, Frederic marched into Bohemia with four armies in April, 1757, and May 6, a bloody battle was fought at Prague, in which the Prussians conquered, but lost their distinguished general Schwerin. The greatest part of the vanquished Austrian army threw itself into the city of Prague, to which the king immediately laid siege. Field-marshal Daun, who was stationed on the heights of Colin with 60,000 Austrians, received orders to hazard a decisive action for the relief of Prague. To prevent this, Frederic advanced to Colin (q. v.), attacked the enemy with 24,000 men, lost the battle, and 8—14,000 brave soldiers, and was forced to raise the siege of Prague, and to retreat to Saxony and Lusatia. He effected his retreat from Bohemia without further loss. Meanwhile, the French had taken possession of Wesel, the principalities of Cleve and East Friesland, the territories of Hesse-Cassel and Hanover, and laid them under contribution. The duke of Cumberland, who commanded the forces of the German states, allied with Prussia, namely, Hanover, Hesse, Brunswick, Gotha and Bückeburg, 40,000 men, to whom were opposed 100,000 French, was defeated at Hastenbeck, July 26, and driven back to Stade, and concluded a capitulation, September 8, at Kloster-Seven (which, however, was never carried into execution), by the terms of which all the above-mentioned troops, except those of Hanover, were to be disbanded. A French army under the prince de Soubise, with the imperial forces, 15,000 men strong, under the prince of Hildburghausen, now menaced Saxony, and the hereditary states of Frederic, who, therefore, left the duke of Bevern in Silesia, marched to Thuringia, and drove the French from Erfurt. On receiving information that an Austrian army, under Haddick, had invaded the Mark, Frederic hastened back to Torgau. But, as the Austrians soon retreated, and the French advanced anew, he marched against the latter, and fought at Rossbach (q. v.), November 5, that memorable battle, in which both the French and the imperial armies were defeated, and found safety only in a hasty flight. They went into winter-quarters at a distance, and the possession of Saxony was secured to the king. Upon this, Frederic hurried back to Silesia, where Schweidnitz and Breslau had fallen into the hands of the Austrians. With a small army, fatigued with a long march, he defeated, December 5, at Leuthen (q. v.), a force twice as great, under Daun. Breslau surrendered fourteen days after, with a numerous garrison, and a large quantity of stores, and, soon after, Leignitz also. In these actions the Austrians lost upwards of 40,000 men. Silesia was again torn from them, and Frederic was now more formidable to his foes than ever. The Russians marched into Prussia, in June, 100,000 men strong, laid waste the country in a barbarous manner, maltreated the inhabitants, defeated field-marshal Lehwald, August 30, at Grossjägerndorf, with his army of 24,000 men, and then returned, destroying all before them. The Swedes in September, occupied Anklam, Demmin and Pasewalk; but, in a few weeks, they were defeated by Lehwald, and driven to Rügen. The third campaign was opened in February, 1758, by Ferdinand, duke of Brunswick, who was now at the head of the allied armies, in the room of the duke of Cumberland, and opposed the French in Lower Saxony and Westphalia. His nephew, the hereditary prince, afterwards duke of Brunswick, Charles William Ferdinand, commanded under him. Duke Ferdinand made himself master of the Weser, expelled the French, under Clermont, from Lower Saxony and Westphalia, and defeated them, June 23, at Crefeld. He then returned over the Rhine to Hesse, where Soubise was stationed with a French army, and whither Clermont followed him. Ferdinand, in the meanwhile strengthened by 12,000 British troops, forced the two hostile bodies to retire over the Maine and the Rhine, where they went into winter-quarters. In the winter of 1758, after the Austrians had been driven from Silesia, and Schweidnitz recovered, Frederic marched into Moravia, and in May commenced the siege of Olmutz; but, when Daun arrived, in July, he was forced to raise the siege, with the loss of a large stock of provisions and ammunition. The Russians, after having driven back the few Prussian troops, marched into Neumark, and Frederic hastened with a body of soldiers to protect his hereditary states. He came up with the Russian army, 50,000 men strong, who were besieging Custrin, attacked them at Zorndorf, August 26, with 30,000 men, defeated them after a bloody engagement, and forced the Russians to retreat to Poland. After this, he again turned his attention to Saxony, where his brother prince Henry was no longer able to resist the Austrians. He encamped at Hochkirch, where he was

attacked in the night of October 14, and suffered a total defeat. Soon after, in Silesia, Frederic compelled the Austrians to raise the siege of Neisse; he then hastened to Saxony, and drove field-marshal Daun, who was besieging Dresden, back to Bohemia. At the close of the campaign, the king saw all his estates, except the kingdom of Prussia, free from the enemy. In France, there was a general wish for peace; but Louis XV., and his mistress, the marchioness de Pompadour, were bent on continuing the war. A new alliance was, therefore, concluded with Austria, December 30, 1758, and the same month a treaty was also entered into between Britain and Prussia, in which Frederic was promised a yearly subsidy. Prince Henry marched into Bohemia, notwithstanding the severity of the winter; the hostile troops were dispersed, a corps of 2500 men was taken by general Hülsen, and an immense booty. The inactive imperial forces, in Franconia, prince Henry put to flight. Contributions were levied by the Prussians on Bamberg, Erfurt and Würtzburg. Another body of Prussians invaded the duchy of Mecklenburg-Schwerin, which was compelled to furnish large quantities of military stores, besides 16,000 recruits, in the course of the war, and to pay several million dollars, in consequence of the policy of their sovereign, who first gave his vote to have Frederic II. treated as an enemy of the empire. The allies under Ferdinand of Brunswick, could effect but little at the beginning of the campaign of 1759. The French had taken Frankfort on the Maine by surprise, during the winter, and the plan for recovering the city was frustrated by the failure of the attack on Bergen, April 13. But, Aug. 1, Ferdinand gained a splendid victory at Minden over the French troops under Contades and Broglio. On the same day, the hereditary prince of Brunswick likewise defeated the French at Gohfeld, and they were driven over the Lahn on one side, and over the Rhine on the other. But general Wedel, who undertook to resist the progress of the Russians, was defeated at Kay, near Züllichau, in the Neumark, by general Soltikoff, and Frederic hastened from Silesia to defend his electoral territories from the danger which hung over them. Aug. 12, he attacked the Russians at Kunersdorf (q. v.), not far from Frankfort, and had already defeated them, and even despatched messengers from the field with the news of his victory, when Laudon, who had previously joined the Russians with 18,000 Austrians, deprived him of his expected success. The Russians purchased their victory dearly, but they made no use of it. Frederic's position was extremely dangerous; indeed, he began to apprehend an unfortunate issue of the war. The Russians were victorious in his hereditary states; Daun was in Lusatia with a large army, and Saxony was overrun by the imperial troops. The Austrians and Russians wished to unite; but prince Henry deprived the former of their magazines, and thus obliged them to retreat; and Frederic anticipated the Russians in their march to Silesia, and compelled them to retire to Poland. In Saxony, the king experienced a new misfortune. General Fink, a brave commander, was forced to surrender, at Maxen, Nov. 21, with 11,000 men and a large number of cannon, to the Austrians. But, notwithstanding all these mishaps, at the close of the campaign, the enemy were nearly every where driven back; only Daun remained in Saxony, where he had occupied Dresden. The Swedes, also, who, after the battle of Kunersdorf, when Prussian Pomerania was destitute of troops, invaded that country, were driven by Manteufel and Platen under the cannon of Stralsund. The campaign of 1760 seemed, at first, to forebode ill success to Frederic. The brave general Fouquet was taken at Landshut, with 8000 Prussians; the king was forced to raise, July 30, the seige of Dresden, which he had commenced on the 14th; Glatz had gone over to the Austrians, and Frederic was obliged to March into Silesia for its protection. With 30,000 Prussians he entrenched himself at Liegnitz; the hostile troops, under Daun and Laudon, were more than 100,000 strong, and threatened an attack. But Laudon was defeated, Aug. 15, at Liegnitz, and Daun was unable to afford him any assistance. The Austrians lost 10,000 men in killed, wounded and prisoners, 23 standards and 82 pieces of cannon. Frederic's loss was 1800 killed and wounded. Meanwhile, a corps of Russians and Austrians had advanced to Berlin, and levied contributions on the people. Frederic hastened thither to cut off the enemy; but, not finding them there, he returned to Saxony, where the imperial forces were stationed, and Daun and Lascy had united. At Torgau he attacked the enemy, Nov. 3, defeated them in a bloody engagement, which was gained chiefly by the sagacity and courage of Ziethen and Möllendorf, and then went into winter-quarters in Saxony. Laudon, also, was driven back in Silesia to the county of Glatz, and the Russians were forced to raise the seige of Colberg and to retire to Poland. The allied forces, under Ferdinand of Brunswick, defeated the French, July 31, at Marburg; but the latter remained in Hesse, where they had extensive magazines. February 11, 1761, Ferdinand attacked the French in their quarters; they fled, and many of their fortifications and magazines fell into the hands of the conquerors. A corps of French and Saxon troops was defeated, February 14, at Langensalza; but the allies were obliged to raise the siege of Ziegenhain, Marburg and Cassel, with loss, and the French once more became masters of all Hesse, and had an unobstructed passage to Hanover. The people all wished for peace; but not so their rulers, except the king of Prussia. Maria Theresa would not now be satisfied merely with the restoration of Silesia. The empress Elizabeth was desirous of retaining Prussia, and the French minister Choiseul sought to revenge himself for a poetical epistle, in which Frederic had satirised him, by protracting the war. The proposals of peace made by Britain and Prussia, were not accepted, and Frederic endeavoured to protect Silesia against the Austrians and Russians, who had united, in August, at Striegau. The king maintained his camp at Schweidnitz against a much superior force, and the greatest part of the Russians were obliged to retire to Poland, for want of provisions. Laudon surprised Schweidnitz October 1. A garrison of 3700 men, several magazines, and a large quantity of military stores, fell into the hands of the Austrians. Prince Henry, in Saxony, was also reduced to great straits by Daun. In Pomerania, detached bodies of the Prussians were defeated by the Russians, and after a brave resistance, December 16, they lost the fortress of Colberg. The Swedes, on the contrary, were driven back to Stralsund; and, July 15, Ferdinand, duke of Brunswick, gained a brilliant victory at Billingshausen over the French; but the triumph was of little importance. Frederic felt himself in a desperate condition, and, in con-

quence of all these misfortunes and the superior strength of his enemies, seemed to be verging to his ruin. But, January 5, 1762, Elizabeth, the empress of Russia, died; and her successor, Peter III., the personal friend and admirer of Frederic, concluded an armistice with him, March 16, 1762; which was followed, May 5, by the peace of Petersburg. Sweden, likewise, made peace with Prussia; and, as Peter's intercession with Austria was ineffectual, the Russian emperor sent a body of troops to aid the Prussians. But the emperor's early death soon broke the alliance with Frederic, and his successor, Catharine II., recalled the Russian troops, amounting to 20,000 men, from the Prussian service. Frederic, however, was delivered from one dangerous enemy, and had gained an important preponderance of strength over the rest. He now drove an Austrian corps from their entrenchments at Burkersdorf, recovered Schweidnitz in October, left the duke of Bevern with an army for the defence of Silesia, and marched to Saxony. After several successful engagements, prince Henry gained, October 29, an important victory over the Austrian and the imperial troops at Freiberg, and the king now concluded an armistice with the Austrians; but it related only to Saxony and Silesia. Under duke Ferdinand and the hereditary prince of Brunswick, the allies commenced, unsuccessfully, the campaign of 1762 against the French; but the latter were defeated, June 24, at Wilhelmsthal, driven from their fortified camp at Cassel and extremely weakened. Cassel itself was besieged, and, Nov. 1, surrendered to the allies. Two days after this, the preliminaries of peace between Britain and France were signed, and the peace itself was confirmed at Paris, February 10, 1763. (See *Paris, Treaties concluded at.*) Frederic was thus exposed alone to his enemies; but he had already acquired a decided superiority. A Prussian force, under Kleist, also obliged several of the most important states of the empire to declare themselves neutral. After a short negotiation, and without the aid of foreign mediation, Frederic concluded a peace with Austria and Saxony at Hubertsburg, February 15, by which each power received again all the territories which it had possessed before the war, though in a miserable condition. The unity of purpose, which marked all the measures of Frederic, and the great supplies both of men and money, which he obtained from the conquest of Saxony, his comprehensive genius, his numerous and excellent generals, and the bravery of his troops, gave the Prussian monarch a superiority over his enemies, and brought to a happy conclusion a war which had made the Prussian kingdom more than once tremble on the brink of destruction. This war cost Europe a million lives, and exhausted all the states which took part in it, without having procured to any but Britain the smallest advantage. See *Hist. de la Guerre de sept Ans*, in the posthumous works of Frederic II.; *History of the Seven Years' War*, by Lloyd and Tempelhof; Ratzow's *Charakteristick der merkwürd, &c.*; the *Geständnisse eines Oestreich. Veteranen* [Confessions of an Austrian Veteran], by Kuniaczo; and lord Dover's *Life of Frederic II.* (London, 1832).

SEVENTY, THE. See *Septuagint.*

SEVERIANS, SEVERITES. See *Gnostics*, and *Monophysites.*

SEVERN (anciently Sabrina); a river which rises near Plinlimmon hill, North Wales, passes by Shrewsbury, Worcester, Upton, Tewksbury, and Gloucester, and, entering the sea, its mouth is called *Bristol Channel.* A communication between this river and the Thames, the Trent, the Dee, and the Mersey and other rivers, has been opened by different canals; length of its course to the sea, about 200 miles.

SEVERUS, Alexander. See *Alexander Severus.*

SEVERUS, Lucius Septimius; a Roman emperor, born at Leptis, in Africa, of a noble family. He successively exercised all the offices of the state, and recommended himself to notice by an ambitious mind and a restless activity, that, for the gratification of avarice, could endure the greatest hardships. After the murder of Pertinax, Severus resolved to remove Didius Julianus, who had bought the imperial purple when exposed to sale by the pretorians (q. v.), and proclaimed himself emperor on the borders of Illyricum, where he was stationed against the barbarians. To support himself, he took, as his partner in the empire, Albinus, who was at the head of the Roman forces in Britain, and immediately marched towards Rome to crush Didius and his partisans. He was received with acclamation; and Julian was deserted by his favourites, and assassinated by his own soldiers. In professing that he had assumed the purple only to revenge the death of the virtuous Pertinax, Severus gained many adherents, and was enabled to banish the pretorians, whose insolence and avarice had become alarming, not only to the citizens, but to the emperor. But while he was victorious at Rome, Pescennius Niger was in the East, at the head of a powerful army, and with the name and ensigns of Augustus. Many obstinate battles were fought between the imperial rivals, till, on the plains of Issus, Niger was totally ruined by the loss of 20,000 men. The head of Niger was cut off and sent to the conqueror, who punished, in a most cruel manner, the partisans of his unfortunate rival. Severus afterwards pillaged Byzantium, which had shut her gates against him; and after he had conquered several nations in the East, he returned to Rome, resolved to destroy Albinus, with whom he had hitherto reluctantly shared the imperial power. He attempted to assassinate him by his emissaries; but when this had failed of success, Severus had recourse to arms, and the fate of the empire was again decided on the plains of Gaul. Albinus was defeated, and the conqueror insulted the dead body of his rival, and ordered it to be thrown into the Rhone, after he had suffered it to putrefy before the door of his tent, and to be torn by his dogs. The adherents of Albinus shared his fate; and the return of Severus to the capital exhibited the bloody triumphs of Marius and Sylla. The richest of the citizens were sacrificed, and their money became the property of the emperor. Commodus received divine honours, and his murderers were punished in the most wanton manner. Tired of the inactive life he led in Rome, Severus marched into the East with his two sons Caracalla and Geta; made himself master of Seleucia, Babylon, and Ctesiphon; and advanced far into the Parthian territories. From Parthia, he marched towards the more southern provinces of Asia, and, after he had visited the tomb of Pompey the Great, entered Alexandria. The revolt of Britain recalled him from the East. After he had reduced it under his power, he built a wall across the northern parts of the island to defend it against the frequent invasions of the Caledonians. Hitherto successful

against his enemies, Severus now found the peace of his family disturbed. Caracalla attempted to murder his father, as he was concluding a treaty of peace with the Britons; and Severus, worn out with infirmities, which the gout and the uneasiness of his mind increased, soon after died at York, A. D. 211, in the sixty-sixth year of his age. Severus has been so much admired for his military talents, that some have called him the most warlike of the Roman emperors. As a monarch, he was cruel; and it has been observed that he never did an act of humanity or forgave a fault. In his diet, he was temperate, and he always showed himself an enemy to pomp and splendour. He loved the appellation of a man of letters, and he even composed a history of his own reign.

SEVIGNE, Marie de Rabutin, Marquise de, a French woman of quality, greatly distinguished for her epistolary talents, was born in 1627. Her father, the baron of Chantal, who was the head of the house of Bussy Rabutin, left her, during infancy, his sole heiress. The graces of her person and conversation procured her many admirers; and in 1644, she married the marquis de Sévigné, who was killed in a duel in 1651, leaving her the mother of a son and daughter. She formed no second union, but devoted herself to the education of her children, and to the cultivation of her mind, by reading and literary society. She was extremely attached to her daughter, who, in 1669, married the count de Grignan, and accompanied him to his government of Provence. The absence of her daughter from the metropolis gave rise to the greater part of the Letters which have gained madame de Sévigné so much reputation. The subjects of many of these epistles are so entirely domestic as to produce little interest; but others abound with court anecdotes, remarks on men and books, and the topics of the day, which are conveyed with great ease and felicity. They are models of the epistolary style, perfectly natural from their expression, lively sentiment and description, and a playfulness which gives grace and interest to trifles. In her letters to her daughter, the reader is sometimes wearied with an excess of flattery of her beauty and talents, the preservation of the former of which seems to have formed the principal object of her maternal anxiety. In fact, although endowed with abilities and penetration, she did not rise much above the level of her age in taste and principles. She was highly attached to rank and splendour, loved admiration, and felt the usual predilection of high life for manners and accomplishments in preference to solid worth. She had a strong feeling of religion, but was often inconsistent in her sense of it, and in reference to the proceedings against the French Protestants, expresses herself with bigotry and want of feeling. The most complete edition of her Letters is that which appeared at Paris in 1818 (11 vols., 8vo.) An English translation was published in London about 1758. She died in 1696, at the age of seventy.

SEVILLE, SEVILLA (anciently Hispalis); a city of Spain, in Andalusia, on the Guadalquivir, capital of a province of the same name, forty-five miles north of Cadiz, 250 south-west of Madrid; lon. 5° 39′ W.; lat. 37° 24′ N.; population, 94,000. It is an archiepiscopal see, and stands in a fine plain, surrounded by an old wall, built of cement, with twelve gates, and 166 turrets. The interior of the city is built in the Moorish style, the streets being often so narrow that a person can touch the houses on both sides at once; and it is badly paved. The squares are neither numerous nor spacious. There are several beautiful public walks, one, in particular, on the banks of the Guadalquivir. The city contains a cathedral, twenty-nine churches, eighty-four convents, and twenty-four hospitals. The cathedral is the largest Gothic edifice in Spain, and one of the largest churches in Europe. It was built in the fifteenth century, contains eighty-two altars, and has a tower 250 feet high, considered the finest in Spain. Other conspicuous edifices are the alcazar, or palace, a Moorish building, containing a library of 20,000 volumes, a garden, &c.; the longa or exchange, the artillery school, and the mint. The houses generally cover a large space, but towards the street they have often a mean appearance, the Moors being accustomed to confine their embellishments to the interior. Seville contains an academy for the physical sciences, one for the fine arts, a medical society, and a university, founded in 1502, almost as backward as at the time of its foundation. The silk manufactures of Seville were formerly extensive. In the time of Ferdinand and Isabella, it is said there were 6000 looms. These manufactures declined in the middle and end of the seventeenth century, but revived again in the eighteenth, and between 2000 and 3000 looms are now employed. Other manufactures are coarse woollens, leather, tobacco, and snuff. Vessels drawing more than ten feet of water must unload eight miles below the city, and the largest vessels stop at St Lucar, at the mouth of the river. Seville is one of the most ancient cities of Spain; by the Romans called *Hispalis*; by the Goths *Hispalia*; by the Arabians *Ixbilla*; hence, by the Castilians *Sevilla*. It was the residence of the Gothic kings before they moved to Toledo. Ferdinand III., king of Castile, after a year's siege, forced Seville to open its gates to him. At this time it is said to have contained 600,000 inhabitants; and upon the capitulation 300,000 Moors abandoned the city. After the discovery of America, it became the centre of the commerce of the new world, and was very flourishing; but the difficulty in navigating the river, and the superior advantages of the port of Cadiz, induced the government to order the galleons to be stationed at the latter place.

SEVRES; a village, with 2700 inhabitants, about half way between Paris and Versailles (two leagues from each), lying near St Cloud, on the Seine. It is celebrated for its glass and porcelain manufactories. The porcelain of Sevres is unrivalled for brilliancy of colour and delicacy of execution. The finest specimens are made for the court, and are annually exhibited at Christmas in the halls of the Louvre, with the products of the Gobelin looms. See *Porcelain*, and *Pottery*.

SEWARD, Anna, daughter of Thomas Seward, rector of Eyam, Derbyshire, and canon residentiary of Lichfield, was born at Eyam, in 1747, and in childhood exhibited a taste for poetical composition, which was rather checked than encouraged by her father. Miss Seward's first separate publication was an Elegy on the Death of Captain Cook, with an Ode to the Sun (1780, 4to.); and this was followed by a Monody on Major André, with Letters to her from Major André, written in 1769 (1781, 4to.), and Louisa, a Poetical Novel, in four Epistles (1784, 4to.) In 1799, she published a collec-

tion of sonnets; and in 1804, appeared her Life of Doctor Darwin. She died at the Episcopal palace at Lichfield, in 1809. Her correspondence was published, with a biographical memoir, in 6 vols., 8vo.

SEX is the term used to designate the two divisions of all organic bodies into male and female. It is a law of nature, that all organic bodies shall be produced by their like, and each class is endowed with particular organs appropriated to this service, which constitute the distinction of sexes. In the vegetable world, the sexes are, for the most part, united in one bud; although, in many classes, they are distributed in different flowers upon the same plant, or upon different plants. Among animals, especially the more perfectly formed, the division of the sexes is complete. In general, the male sex, in comparison with the female, is stronger; the female more delicate and tender. The fundamental characters of the two sexes appear more or less distinctly in most kinds of living beings, till in man they are found in a degree of development corresponding to his rank in creation. The muscular system of man is firmer and more powerful; his chest wider, his lungs more capacious and stronger; the outlines of his form are more distinct, and his whole frame larger and stronger. The female form is more slender; the bones are smaller and softer; the flesh less solid; the chest narrower; the lungs smaller; the heart and arterial system weaker: on the other hand, the venous and lymphatic systems predominate (thus inclining the person to delicacy and inactivity); the space between the skin and the interior parts is more loaded with fat; and thus the contour is more rounded, forming the waving line; the whole proportion, in fine, of the body smaller, and more delicate. Hence the form of man conveys the idea of strength; the form of woman, that of beauty. Man is more active, grasping distant objects; more inclined to effort, to occupy his faculties upon abstract subjects, and extensive plans. The quick and violent passions belong to the man; the quiet, the domestic, and the retiring, to woman. The woman is confined to a smaller circle, with which, however, she is more thoroughly acquainted; and is more patient and enduring in the performance of the ordinary duties of life. Man must acquire; woman strives to keep: man strives to effect his object by force; woman by kindness or by cunning. The one is busied with the bustle of out-door life, the other is devoted to domestic quiet. Man labours in the sweat of his brow, and, exhausted by his efforts, requires deep repose; woman is always busy in a quiet activity.

SEXAGESIMALS, OR SEXAGESIMAL FRACTIONS; fractions whose denominators proceed in a sexagecuple ratio, that is, a prime, or the first minute, $= \frac{1}{60}$; a second $= \frac{1}{3600}$; a third $= \frac{1}{216000}$. Anciently there were no other than sexagesimals used in astronomy; and they are still retained in many cases, though decimal arithmetic has now grown into use in astronomical calculations. In these fractions, which some call *astronomical fractions*, the denominator, being always sixty, or a multiple thereof, is usually omitted, and the numerator only written down, thus, $4^{o}\ 59'\ 32''\ 50'''\ 16''''$ is to be read, four degrees, fifty-nine minutes, thirty-two seconds, fifty thirds, sixteen fourths, &c. It is readily seen how great the advantage of the decimal division (according to which the circle has 400 degrees, each degree 100 minutes, each minute 100 seconds, &c.) is over the sexagesimal division; but as this change was one of the effects which the revolution produced in France, the sexagesimal division gained ground again under the elder line of the Bourbons. Biot often expresses the results of his calculations according to both divisions; and to show how different the expressions are, we will only state that the sun's parallax is, according to the sexagesimal division, $= 8''$, 8....., and according to the centesimal (less properly called *decimal*), $27''$, 1.....

SEXTANT; an instrument for taking altitudes and other angular distances. It is constructed on a principle similar to the quadrant; but the arc, containing a sixth part of a circle, may be taken to 120° Sextants are generally fitted with apparatuses for ascertaining the angular distances, &c., in lunar observations.

SEXTUS (surnamed *Empiricus*, from his belonging to the empiric school of medicine) was a celebrated sceptic, who flourished towards the close of the second century. He was probably a Greek by birth, studied at Alexandria and Athens, became a pupil of the sceptic philosopher Herodotus of Tarsus, and combined extensive learning with great acuteness. Scepticism appears in his writings in the most perfect state which it had reached in ancient times; and its object and method are more clearly developed than they had been by his predecessors. (See *Scepticism.*) He is often sophistical in the application of his sceptical principles. We have two works by him, written in the Greek language, and which are the source of our knowledge of the Greek sceptical philosophy. One of them, entitled Institutes of Pyrrhonism (in three books), explains the method of Pyrrho (q. v.); the other, entitled Against the Mathematicians, is an attempt to apply that method to all the prevailing philosophical systems, and other branches of knowledge. Fabricius edited both works (*Sexti Empirici Opera, Gr. et Lat.*, Leipsic, 1718).

SEXUAL SYSTEM. See *Botany.*

SEYD, OR ZEID; the name of a slave of Mohammed, who was one of the first to acknowledge the divine mission of his master, was adopted by him, and received Zeinab, a cousin of Mohammed, as his wife; the prophet, however, having fallen in love with her himself, Seyd was ready to resign her. Voltaire, in his *Mahomet*, makes Seyd an innocent but blindly submissive youth, who, at the prophet's order, kills a person, who turns out to be his own father. *Seyd* is therefore sometimes used to denote a man blindly devoted to the will of another. Thus St Just is called by Mr Nodier the Seyd of Robespierre; and the duke of Rovigo says in his Memoirs, that he has often been taken for the Seyd of Napoleon.

SEYMOUR, EDWARD; duke of Somerset in the reign of Edward VI., to whom he was maternal uncle, being the son of sir John Seymour, of Wolfhall, in Wiltshire, and brother of lady Jane Seymour, the third wife of Henry VIII. He was educated at Oxford, and early devoted himself to the military profession. On the marriage of his sister with the king, in 1536, he was raised to the peerage, by the title of viscount Beauchamp, and the following year created earl of Hertford. He commanded in a maritime expedition against the Scots, in 1544, when he landed a body of troops at Leith, and set fire to the city of Edinburgh. On the death of Henry VIII., he rose to unbounded power, both in the church and state. By the will of Henry he

had been nominated one of the council of regency, during the minority of Edward VI. (q. v.); but, not content with his share of power, he procured himself to be appointed governor of the king and protector of the kingdom. In 1548, he obtained the post of lord treasurer, was created duke of Somerset, and made earl marshal. The same year he headed an army, with which he invaded Scotland, and, after having gained the victory of Musselburgh, returned in triumph to England. His success excited the jealousy of the earl of Warwick and others, who procured his confinement in the Tower, in October, 1549, on the charge of arbitrary conduct and injustice; and he was deprived of his offices, and heavily fined. But he soon after obtained a full pardon from the king, was admitted at court, and ostensibly reconciled to his adversary, lord Warwick (see *Dudley, John*), whose son espoused one of his daughters. The reconciliation was probably insincere, as Warwick, who had succeeded to his influence over the young king, caused Somerset to be again arrested, in October, 1551, on the charge of treasonable designs against the lives of some of the privy counsellors. He was tried, found guilty, and beheaded on Tower-hill, in 1552.

SEYMOUR, JANE. See *Henry VIII.*

SFORZA; a celebrated Italian house, which played an important part in the fifteenth and sixteenth centuries, gave six sovereigns to Milan, and formed alliances with most of the princely houses of Europe. The founder of the house was a peasant of Cotignola, in Romagna, Giacomo Attendolo, whose skill and courage as a statesman and a warrior made him one of the most powerful *condottieri* of Italy. As he was one day labouring in the field, he was attracted by the sight of some mercenaries, and, throwing his axe against a tree, determined to become a soldier if it stuck in the tree, and to remain a peasant if it fell. Fate doomed him to become a soldier, and he served Joanna II., queen of Naples, who regarded him as the stay of her throne. The name of Sforza he assumed from the vigour with which he had hurled his axe. To his equally valiant son Francesco, he left, with a body of devoted followers, a power which made him formidable to any of the Italian states. Francesco became the son-in-law of Philip Maria Visconti, duke of Milan, and received the command of the Milanese forces in the war against Venice. But, after the death of his father-in-law (1447), symptoms of distrust appeared between him and the leaders of the Milanese state. He seemed to possess the power and the will to seize upon the throne, to which his wife Bianca had a hereditary claim. He accordingly concluded a treaty with Venice, advanced against Milan, and compelled the citizens by famine to surrender the city. They chose him duke in 1448, and Francesco, a fortunate and celebrated prince, became the founder of a dynasty, that did not inherit his fame nor his fortune. He died in 1466.

His son, *Galeazzo Maria*, a barbarian and a voluptuary, was murdered by some conspirators in 1476.—The son of Galeazzo, *Giovanni Galeazzo*, was deposed by his uncle Ludovico, surnamed the Moor (*il Moro*). The latter formed a connexion with Charles VIII. of France, to whom he opened the passage through Italy to Naples (1494), and thus prevented Giovanni's father-in-law, Alphonso, king of Naples, from rendering assistance to his son. At a subsequent period, he joined the league against France, and was on that account deposed by Louis XII. (1499). By the help of the Swiss, he expelled the French in the same year; but Louis again took the field against him, and prevailed upon the Swiss in his service to refuse to fight against their countrymen in the French ranks. Ludovico was afterwards betrayed by one of his Swiss mercenaries to the king, who (1500) carried him to France, where he died at Loches, in 1510.

His son, *Maximilian*, once more drove the French from his territories by the aid of the Swiss, but, in consequence of the battle of Marignano, was obliged to cede his dominions to Francis I. (1515), in consideration of a pension. Francis was afterwards driven from Italy by the emperor Charles V., who invested Francesco, brother of Maximilian, with the duchy of Milan, in 1529. On the death of Francesco, in 1535, Charles V. conferred the duchy on his son Philip II., king of Spain. See *Milan*.

S'GRAVESANDE. See *Gravesande*.

SHAD; a large species of herring (*clupea*), which inhabits the sea near the mouths of large rivers, and in the spring ascends them for the purpose of depositing its spawn in the shallow water about their sources. The young fry remain for a season in the waters which gave them birth, but on the approach of cold weather descend the rivers, and take refuge in the ocean. The old ones likewise return, and at this time are emaciated and unfit for food. The form of the shad is the same as that of the other herrings, very much compressed, with the abdomen gradually becoming thinner, and forming a serrated edge; and, like them, the bones are much more numerous and more slender than in other fish. The shad which frequents American waters has not been accurately compared with the European, but is probably a different species. It usually weighs four or five pounds, but sometimes twelve; the scales are easily detached, when a row of dark spots is exposed on each side. It is highly esteemed for food, and is consumed in great quantities, in the fresh state. During the season they are an important source of wealth to the inhabitants of the borders of the Hudson, Delaware and Chesapeake. Great quantities are salted, but are less esteemed than when eaten fresh.

SHADDOCK; a large species of orange, attaining the diameter of seven or eight inches, with a white, thick, spongy and bitter rind, and a red or white pulp, of a sweet taste, mingled with acidity. It is a native of China and Japan, and was brought to the West Indies by a captain Shaddock, from whom it has derived its name. It is often called *pampelmoes*. See *Orange*.

SHADWELL, THOMAS, an English dramatic poet, was born at Stanton-hall, Norfolk, a seat of his father's, about 1640, educated at Cambridge, and afterwards placed at the Middle Temple, where he studied the law for some time, and then visited the continent. On his return from his travels, he applied himself to the drama, and wrote seventeen plays. His model was Ben Jonson, whom he imitated in drawing numerous characters, chiefly in caricature, of eccentricities in the manners of the day. Although coarse, and of temporary reputation, the comedies of Shadwell are not destitute of genuine humour. At the revolution he was created poet laureate, on the recommendation of the earl of Dorset; and as he obtained it by the dispossession of Dryden, the latter exhibited the bitterest enmity towards his successor, against whom he composed his severe satire of Mac Flecknoe. He died Dec. 6, 1692, in consequence, it is supposed, of taking too large a dose of opium, to which he was attached.

Besides his dramatic writings, he was author of several pieces of poetry of no great merit. The best edition of his works was printed in 1720 (4 vols. 12mo.)

SHAFTESBURY, LORD. See *Cooper*.

SHAGREEN, or CHAGREEN (in the Levant, *Saghir*); a kind of grained leather, of a close and solid substance, used for forming covers for cases, &c., which easily receives different colours. It is prepared by the Tartars, Russians and Tripolitans, from the skin of the Bucharian wild ass, and is also made, in some parts of Russia, and in Persia, of horse-skin. The hinder back piece of the hides of these animals is cut off just above the tail and around the loins, in the form of a crescent. The piece thus separated is soaked several days in water, till the hair drops off. It is then stretched, and the hair and epidermis are removed with a scraper. After a second soaking, the flesh side is scraped in a similar manner; the skins are then stretched on wooden frames, and the hair side is covered with the seeds of the *chenopodium album*, or goose-foot. The seeds are then trodden into the leather, which, being dried, and freed from the seeds, is left full of indentations, which produce the grain of the shagreen. The dried skins are then scraped with a piece of sharp iron, till the inequalities are removed, and soaked again for twenty-four hours; the parts where the impressions of the seed were produced, are thus swollen and raised above the scraped surface. The skins are next immersed in ley, and are ready to receive their colour. The most common colour is sea-green (given by means of copper filings and a solution of sal ammoniac); but blue, red, black, and other colours, are also given it. Shagreen is also made of the skins of the sea-otter, seal, &c.

SHAH, or SCHAH, in Persian, signifies *king;* whence *Shahnameh* (book of kings). See *Ferdusi*, and *Persian Literature*.

SHAH, NADIR. See *Nadir Shah*.

SHAKE, in music. See *Trill*.

SHAKERS, or SHAKING QUAKERS; a sect which arose at Manchester, in England, about 1747, and has since been transferred to America, where it now consists of a number of thriving *families*. The founders were a number of obscure Quakers; and the Shakers still agree with the Friends in their rejection of the civil and ecclesiastical authority, and military service, in their objections to taking oaths, their neglect of the common courtesies of society, their rejection of the sacraments, and their belief in the immediate revelations of the Holy Ghost (gifts). At first, the motions from which they derive their name were of the most violent, wild, and irregular nature—leaping, shouting, clapping their hands, &c.; but at present, they move in a regular, uniform dance, to the singing of a hymn, and march round the hall of worship, clapping their hands in regular time. There are at present fifteen families, as their communities are called, in the United States, comprising 6000 individuals. In these communities, the property is held in common, and the members are distinguished for their industry, frugality, honesty, and good morals. Celibacy is enjoined, and their numbers are recruited by converts. The office of leader is bestowed by impulse or revelation on him who has the gift to assume it. The sect of Shakers was first introduced into America by Anne Lee, who, in 1770, became their leader. She was born at Manchester, in 1736, and was the daughter of a blacksmith of Manchester, where she also, at an early age, became the wife of a blacksmith. Her first "testimony of salvation and eternal life," borne in 1770, was the injunction of celibacy as the perfection of human nature, and the holding forth herself as a divine person. She was from this time honoured with the title of "mother-Anne," and she styled herself "Anne the word." Having been persecuted in England, she went out to America in 1774, with several members of the society, and formed the first community at Watervliet, near Albany, where she died in 1784. Societies were soon organized at New Lebanon, in New York, and at Enfield, in Connecticut, and have gradually increased to their present number. See the official work, *The Testimony of Christ's Second Appearance*, or the article *The Shakers*, in the 16th volume of the North American Review.

SHAKSPEARE, William, the greatest dramatic poet which the world has yet produced, was born in 1564, at Stratford on the Avon, a market-town in Warwickshire. The day of his birth is generally said to have been April 23, 1564. His father, according to Rowe, and most of the subsequent biographers of the poet, was a considerable dealer in wool; but according to John Aubrey (who entered himself as a student at Oxford in 1642, only twenty-six years after Shakspeare's death, and who derived his information from some of the neighbours of the family), he was a butcher; according to Malone, a glover. Malone says that William was the second son of eight children. In regard to his early education, there is much uncertainty. It is probable, however, that he learned Latin in the school of his native town: the French and Italian, which he often introduces in his plays, he may have acquired afterwards by himself. Before he was sixteen years old, his father required his aid in his trade; and, in his eighteenth year, he married Anne Hathaway of Shottery, who was twenty-five years of age, and who became the mother, in 1583, of his favourite daughter Susanna, and, in 1584, of his twin children, Hamnet and Judith. It must have been soon after this event that he visited London. The time usually assigned is 1586, when he was in his twenty-second year; but the cause of his leaving his native place, as well as his connexions and prospects in London, are unknown. Rowe relates, and others have adopted the opinion, that, having fallen into bad company, he was induced more than once to assist his associates in stealing deer from the park of Sir Thomas Lucy, of Charlcote, near Stratford. For this he was prosecuted by that gentleman so severely, that he at first wrote a satirical ballad on him, and afterwards fled from his home to avoid arrest. This story, however, does not rest on sufficient evidence to entitle it to credence. Without dwelling on this circumstance, or crediting another improbable story of his holding horses at the door of a theatre for his livelihood, we shall find a rational motive for his visiting London, and resorting to the theatre, by knowing that he had a relative and townsman already established there, and in some estimation. This was Thomas Green, a comedian. He became an actor, but, according to Rowe, he never rose higher than the performance of the ghost in his own Hamlet. Others, however, have endeavoured to prove that he was an excellent actor. His greatest patron was a friend of Essex, the earl of Southampton, who is said to have presented him, on one occasion, with a thousand

pounds. Queen Elizabeth, who was much delighted with his Falstaff in Henry IV., is said to have ordered him to write another play, in which the facetious knight might appear in love, which gave rise to the Merry Wives of Windsor. He was also favoured with a letter from James I., in return, as doctor Farmer supposes, for the compliment in Macbeth. How long he acted has not been discovered; but he finally became a proprietor and manager, by license, of the Globe theatre in Southwark; and it was in this situation that he afforded Ben Johnson the opportunity of appearing as a dramatic writer. Having a sobriety and moderation in his views of life, not very common in the profession which he adopted, our great dramatist retired early, with a respectable fortune of from £200 to £300 per annum, equivalent, perhaps, to £1000 in our own day, and spent the remainder of his life in ease, retirement, and the conversation of his friends. For some years before his death, he resided at Stratford, in a house which continued in the possession of his descendants until the restoration. Garrick, Macklin, and others, were entertained, in 1742, under the mulberry-tree planted by Shakspeare. The house was afterwards sold to a clergyman of the name of Gastrel, who, being rated for the poor higher than it pleased him to pay, peevishly declared that the house should never pay again; and, from ill-will to the inhabitants of Stratford, who were benefited by the company it brought to the town, he pulled it down, and sold the materials. He had previously cut down the mulberry-tree for fuel; but a silversmith purchased the whole of it, which he manufactured into memorials of the poet. Shakspeare died on the anniversary of his birth-day, April 23, 1616, having completed his fifty-second year. He was interred in the church of Stratford. Aubrey says that Shakspeare was "a handsome, well-shaped man, verie good company, and of a very pleasant, reddie, and smooth witt." His son died at the age of twelve years. His widow survived him seven years. Susanna, who married a physician named John Hall, died aged sixty-six; and Judith, who married a Mr Guiney, died aged seventy-seven. The children of these ladies were all without offspring; but, in 1819, mention was made of a female relation of the family of Shakspeare. In 1741, a monument was erected to him in Westminster abbey, and paid for by the proceeds of benefits at the two great theatres. In 1769, by the efforts of Garrick, a festival was celebrated in honour of the poet in his native town of Stratford. There was a splendid procession of triumphal cars, in which King Lear, Richard III., Macbeth, Romeo and Juliet, accompanied with music and the shouts of the populace, moved to a splendid temple, where speeches, oratorios, and odes were combined to do honour to Shakspeare. The next year, the spectacle was exhibited at Drury lane in London, and was repeated for one hundred nights.

A. W. Schlegel has devoted to the character of Shakspeare one of the most valuable of his Lectures on the Drama, which are now translated into English. It may not be uninteresting to our readers to know the opinions of such a man on the great English poet, whose works he has himself translated and naturalized in Germany, where they have been as much admired as in England, and perhaps more profoundly criticised by men of distinguished talent. "The ignorance or learning of the poet," says Schlegel, "has been the subject of endless controversy; and yet it is a matter very easily settled. Shakspeare was poor in dead learning, but he possessed a fullness of living and applicable knowledge. He knew Latin, and even something of Greek, though not probably enough to read Greek writers with ease in the original. With the French and Italian he had also but a superficial acquaintance. He had a very extensive knowledge of English books, original and translated. He was sufficiently intimate with mythology to employ it in the only manner he wished—as a symbolical ornament. He had formed the most correct notions of the spirit of ancient history, and more particularly of that of the Romans; and the history of his own country was familiar to him, even in detail. He was an attentive observer of nature. He knew the technical language of mechanics and artisans. He seems to have travelled much in the interior of England, and to have been a diligent inquirer of navigators respecting other countries; and he was most accurately acquainted with all the popular usages, opinions, and traditions which could be of use in poetry. The proofs of his ignorance on which the greatest stress is laid, are a few geographical blunders and anachronisms. Because, in a comedy founded on a tale, he makes ships arrive in Bohemia, he has been laughed at. But, in such matters, Shakspeare is only faithful when he treats historical subjects relating to his own country. When he worked on novels, he avoided disturbing his audience, to whom they were known, by the correction of errors in secondary things. Shakspeare's anachronisms are for the most part, committed purposely. It was frequently of importance to him to bring the subject exhibited from the back-ground of time quite near to us: hence, in Hamlet, though avowedly an old northern story, there prevails the tone of fashionable society, and, in every respect, the costume of the most recent period. Without these circumstances, it would not have been allowable to make a philosophical inquirer of Hamlet, on which, however, the character of the whole piece depends. To me, Shakspeare appears a profound artist, and not a blind and wildly luxuriant genius. In such poets as are usually considered careless pupils of nature, I have always found, on a closer examination, when they have produced works of real excellence, a distinguished cultivation of the mental powers, practice in art, and views worthy in themselves, and maturely considered. That idea of poetic inspiration which many lyric poets have brought into vogue, as if they were not in their senses, and, like the Pythia, when possessed by the divinity, delivered oracles unintelligible to themselves, is least of all applicable to dramatic composition—one of the productions of the human mind which requires the greatest exercise of thought. It is admitted that Shakspeare reflected, and deeply reflected, on character and passion, on the progress of events and human destinies, on the human constitution, on all the things and relations of this world; so that it was only respecting the structure of his own pieces that he had no thought to spare. Shakspeare's knowledge of mankind has become proverbial: in this his superiority is so great, that he has justly been called the master of the human heart. His characters appear neither to do nor say any thing on account of the spectator; and yet the poet, by means of the exhibition itself, without any subsidiary explanation, enables us to look into the inmost recesses of their minds. How

each man is constituted, Shakspeare reveals to us in the most immediate manner. He demands and obtains our belief, even for what is singular, and deviates from the ordinary course of nature. Never, perhaps, was so comprehensive a talent for characterization possessed by any other man. It not only grasps the diversities of rank, sex, and age, down to the dawnings of infancy; not only do his kings and beggars, heroes and pick-pockets, sages and fools, speak and act with equal truth; not only have his human characters such depth and comprehension, that they cannot be ranged under classes, and are inexhaustible, even in conception; but he opens the gates of the magic world of spirits, calls up the midnight ghost, exhibits witches amidst their unhallowed mysteries, peoples the air with sportive fairies and sylphs; and these beings, existing only in imagination, possess such truth and consistency, that, even in the case of deformed monsters, like Caliban, he extorts the conviction that if there should be such beings, they would so conduct themselves. If the delineation of all his characters, separately taken, is inimitably correct, he surpasses even himself in so combining and contrasting them, that they serve to bring out each other. No one ever painted as he has done the facility of self-deception, the half self-conscious hypocrisy towards ourselves, with which even noble minds attempt to disguise the almost inevitable influence of selfish motives on human nature. Shakspeare's comic talent is equally wonderful with his pathetic and tragic. He is highly inventive in comic situations and motives: it will be hardly possible to show whence he has taken any of them. His comic characterization is equally true, various, and profound with his serious." In regard to his diction and versification, Schlegel observes, "The language is here and there somewhat obsolete, but much less so than that of most of the writers of his day—a sufficient proof of the goodness of his choice. He drew his language immediately from life, and possessed a masterly skill in blending the element of dialogue with the highest poetical elevation. Certain critics say that Shakspeare is frequently ungrammatical. To prove this assertion, they must show that similar constructions do not occur in his contemporaries; but the direct contrary can be established. In no language is every thing determined on principle: much is always left to the caprice of custom, and, because this has since changed, is the poet answerable for it? In general, Shakspeare's style yet remains the very best model, both in the vigorous and the sublime, the pleasing and the tender. The verse of all his plays is generally the rhymeless iambic of ten or eleven syllables, occasionally intermixed with rhymes, but more frequently alternating with prose. No one piece is wholly written in prose; for, even in those which approach the most to the pure comedy, there is always something added which elevates them to a higher rank than belongs to this class. In the use of verse and prose, Shakspeare observes very nice distinctions, according to the rank of the speakers, but still more according to their characters and dispositions. His iambics are sometimes highly harmonious and full sounding, always varied, and suitable to the subject; they are at one time distinguished for ease and rapidity; at another they move along with mighty energy. All Shakspeare's productions bear the stamp of his original genius; but no writer was ever farther removed from a manner acquired from habit and personal peculiarities."

Forty-three dramatic pieces are ascribed to Shakspeare; eight of them, however, are considered by English commentators to be spurious, but German critics regard them as genuine. The thirty-five uncontested pieces, which were written in twenty-three years, from 1591 to 1614, Malone has attempted to reduce to the following chronological order: Love's Labour lost, King Henry VI. (3 parts), the Two Gentlemen of Verona, the Winter's Tale, Midsummer Night's Dream, Romeo and Juliet, the Comedy of Errors, Hamlet, King John, King Richard II., Richard III., Henry IV. (1st part), Merchant of Venice, All's well that ends well, Henry IV. (2d part), Henry V., Much Ado about Nothing, As you like it, the Merry Wives of Windsor, Henry VIII., Troilus and Cressida, Measure for Measure, Cymbeline, King Lear, Macbeth, the Taming of the Shrew, Julius Cæsar, Antony and Cleopatra, Coriolanus, Timon of Athens, Othello, the Tempest, the Twelfth Night. There are many objections, however, both internal and external, to this arrangement.

"The subjects of the comedies," to return to Schlegel, "are generally taken from novels; they are romantic love stories: none of them are confined exclusively to common or domestic relations: all possess poetical ornament, and some pass into the wonderful or the pathetic." The Two Gentlemen of Verona (compare Montemayor's *Diana*, book 2) paints the fickleness of love, and its infidelity towards friendship.—The Comedy of Errors (compare the *Menæchmi* of Plautus, and *A Comedy of Plautus called Monechme*, German, by Hans Sachs), the only play of Shakspeare of which the idea is borrowed from the ancients, is a piece which ought not to be played without masks. The Taming of the Shrew (compare Goulart, *Thrésor d'Histoire admirable de nostre Temps*, translated into English by Edward Grimestone, 1607; Percy's *Reliques of ancient Poetry*, vol. i.; George Gascoigne's *Supposes, a translation from Ariosto's Suppositi;* also, *The Art of Arts, or how to make a bad Woman a good one, formerly practised by an Italian Cavalier*, &c., German, Rappersdorf, 12mo.) is derived, mediately or immediately, from a piece of Ariosto. The prelude of the drunken tinker is probably from a popular tale, and the same subject has been dramatized by Holberg. These pieces are considered as productions of his youth. Love's Labour lost is referred to the same period.—All's well that ends well—the Griselda of Shakspeare (compare Boccaccio's *Decamerone, giorn.* iii., *novell.* 9; Painter's *Palace of Pleasure; Giletta of Narbon;* also the old book, *Schertz mit der Wahrheyt*) presents in Parolles a character of rich comic humour, which would be more celebrated if it had not been thrown into the shade by Falstaff.—Much Ado about Nothing (compare Belleforest's *Timbrée de Cardonne*, &c.; Bandello's *Novelle*, Venice, 1566, vol. i.; *Phœnicia, an interesting and memorable History*, &c. Magdeburg, John Franken, 1601; Ariosto, translated into English by Harrington, 1591; and particularly George Tuberville's account of this story) is the same, in its main plot, with the *Ariodante* and *Ginevra* of Ariosto.—Measure for Measure (compare G. Whetstone's *Promus and Cassandra*, 1578; Giraldo Cinthio's *Hecatomithi overo cento Novelle*, Venice, 1593, *decade* viii., *novello* 5, translated in Painter's Palace of Pleasure) is the triumph of mercy over strict justice. It contains the splendid character of Isabella.—The Merchant of Venice (compare Percy's *Reliques*, i.; Giovanni Fiorentino's

Il Pecorone, nel quale si contengono 48 *Novelle antiche belle d'Invenzione e di Stilo*, written in 1378, printed at Milan in 1554, and at Treviso in 1601; *Gesta Romanorum cum Applicationibus moralisatis ac mysticis*, Augsburg, 1489, and Strasburg, 1538; *Decamerone, giorn.* x., *nov.* 1; *The Jew*, an old English play; also *The Carnival in Venice*, an old German play) is a wonderful picture of character. It is one of Shakspeare's most perfect works. The fifth act of this play may be regarded as an afterpiece, serving to excite pleasant feelings, after the harrowing scenes exhibited in the preceding portions of the drama.—As you like it (compare Chaucer's *Coke's Tale of Gamelyn;* Thomas Lodge's *Rosalynd, or Euphues' golden Legacy*, 1590, 4to., an old pastoral romance) is a charming play, which, with its gayety, liveliness and freedom, seems to have been intended to show that nothing is wanted to call forth the poetry which has its dwelling in nature and the human mind, but to throw off all artificial constraint.—The Twelfth Night, or What you will (Bandello, t. ii., *nov.* 20), unites the entertainment of an intrigue contrived with great ingenuity, to the richest fund of comic characters and situations, and the beauty of an ethereal poetry. If this was in fact Shakspeare's last work, he enjoyed to the end of his days the same youthfulness of mind, and carried all the luxuriance of his talents with him to the grave.—The Merry Wives of Windsor (compare *The Lovers of Pisa*, in Tarleton's *Newes out of Purgatorie; Il Pecorone, giorn.* i., *nov.* 2; *The Fortunate, the Deceived, and the Unfortunate Lovers; Piacevoli Notti di Straparola*, Venice, 1567, *l.* i., *notte* 4, *favola* 4) is said to have been written at the request of queen Elizabeth, because she wanted to see Falstaff in love. It is certain that it was acted in her presence (probably at Windsor, at a festival of the order of the garter). Molière's School for Women resembles it in the particular that a jealous man is made the constant confidant of the progress of his rival. Of all the pieces of Shakspeare, this approaches the nearest to pure comedy. The conclusion is made romantic by a fanciful delusion, founded on a popular superstition. —A Midsummer Night's Dream (compare Bettie's *Titania and Theseus;* Plutarch's *Theseus;* Michael Drayton's *Nymphidia, the Court of Fayrie:* Chaucer's *Knight's Tale;* Boccaccio's *Teseide; Legend of Thisbe of Babylon*); the Tempest, source unknown (compare *Twenty of the Plays of Shakspeare, being the whole Number printed in Quarto, by George Steevens, Esq.*, London, 1666, 4 vols.) These plays resemble each other in this particular, that, in both, the influence of a world of spiritual beings is interwoven with the turmoil of human passions, and the farcical adventures of folly. The former piece was written certainly earlier, and is, perhaps, the most luxuriant and fanciful of Shakspeare's productions. It unites, in Titania's amour, the extremes of the fanciful and the vulgar. The second, apparently the fruit of Shakspeare's latter years, is superior in its delineation of character. In the wise, all-directing Prospero, in the tender flame of Ferdinand and Miranda, in the masterly picture of the terrestrial monster Caliban, and the heavenly Ariel, there is a most harmonious connexion of opposite conceptions.—The Winter's Tale (compare *A Pleasant History of Dorastus and Fawnia*, by Robert Greene; Spencer's *Fairy Queen*, book v., canto 9, 15) is one of those tales which are peculiarly fitted to beguile the dreary leisure of a long winter evening, which are attractive and intelligible even to childhood, and transport even manhood back to the golden age, when it yielded to the sway of the imagination.—Cymbeline (compare Boccaccio, *giorn.* ii., *nov.* 9; Hans Sachs, *The Innocent Lady Genura; Schertz mit der Wahrheyt;* Holinshed's *Chronicles;* Dion. Cass. *Hist. Rom., l.* lx., *c.* 20; Suetonius's *Caligula, c.* 44; Henry's *History of Great Britain*, London, 1771, quarto, vol. i., page 17) is a remarkable composition, connecting a novel of Boccaccio with ancient British traditions, from the times of the first Roman emperors. By easy transitions, the poet blends into a harmonious whole the social manners of the latest times, with the deeds of heroes, and even with appearances of the gods.—Romeo and Juliet, (compare Girolamo dalla Corte's *Istoria di Verona*, 1594, vol. i.; *Istoria novellamente ritrovata di due nobili Amanti, con la pietosa Morte intervenuta gia nella Citta di Verona, nel Tempo del Signor Bartolomeo della Scala;* Bandello, *l.* ii., *nov.* 1; Boisteau's *Dixhuit Hiſtoires tragiques, mises en Langue Francoise*, 1560, 12mo.; *The Tragical Historie of Romeus and Juliet*, London, 1562; Painter's *Palace of Pleasure, t.* ii., *nov.* 25; see also Lope de Vega Carpio's *Castelvines y Monteses, Comedia famosa*). —Othello (compare *Giraldi Cinthio, decade* iii, *nov.* 7—translated into French by Gabriel Chapuys, 1584 —Englished by Painter) is a picture of love, and its pitiable fate, in a world whose atmosphere is too rough for this tenderest blossom of human life. The sweetest and the bitterest, love and hatred, gayety and dark forebodings, tender embraces and sepulchres, the fulness of life, and self-destruction, are blended into a unity of impression in this harmonious and wonderful work. In Othello, we recognize the wild nature of the African, tamed only in appearance by the desire of fame, by foreign laws of honour, and by nobler and milder manners. His jealousy is of that sensual kind which, in burning climes, has given birth to the disgraceful confinement of women, and to a thousand unnatural usages. The Moor is frank, confiding, grateful; but the force of passion puts to flight all his acquired and accustomed virtues. A more artful villain than Iago was never pourtrayed; cool, discontented, and morose, arrogant where he dares to be so, but humble and insinuating when it suits his purposes, he is a complete master in the art of dissimulation; accessible only to selfish emotions, he is thoroughly skilled in rousing the passions of others, and in availing himself of every opening which they give him; he is as excellent an observer of men as any one can be who is unacquainted with higher motives of action than his own experience. Desdemona is a high ideal representation of enthusiastic passion. No eloquence is capable of painting the overwhelming force of the catastrophe in Othello.—Hamlet (compare *Saxonis Grammatici Historiæ Danicæ Libri xvi*, ed. Stephanii, Soræ, 1644, *lib.* 3; Belleforest, *Avec quelle Ruse Amleth qui depuis fut Roi de Danemarc, vengea la Mort de son Père Horwendille, occis par Fengon, son Frère, et autre Occurrence de son Histoire;* English, *The Historie of Hamblet*, quarto, 1608) is unique in its kind; a tragedy of thought, inspired by continual and never satisfied meditation on human destiny, and the dark perplexity of events in this world. Hamlet is a mind of high cultivation, a prince of royal manners, endowed with the finest sense of propriety, susceptible of noble ambition, and open, in the highest degree, to enthusiasm for the excellence in which he is deficient. He acts the part of madness with ini-

mitable superiority; but in the resolutions which he so often embraces, and always leaves unexecuted, the weakness of his volition is evident; he is a hypocrite towards himself; his far-fetched scruples are often mere pretexts to cover his want of determination—thoughts, as he says on a different occasion, which have

——but one part wisdom,
And ever three parts coward.

Hamlet has no firm belief either in himself or in any thing else; from expressions of religious confidence, he passes over to sceptical doubts. He even goes so far as to say that "there is nothing either good or bad, but thinking makes it so." The poet loses himself with him in the labyrinths of thought, in which we neither find end nor beginning.—Macbeth (compare Holinshed's and Harrison's *Chronicles of Great Britain, Scotland, and Ireland*, London, 1577, continued by Hooker and others, 1587, 3 vols., fol.—the chief source of Shakspeare's pieces relating to English history; George Buchanan's *Opera Omn.*, Edinburgh, 1715, vol. i.) This is the greatest and most terrific tragedy that has appeared since the Eumenides of Æschylus. Shakspeare exhibits an ambitious, but noble hero, who yields to a deep-laid, hellish temptation. The weird sisters surprise Macbeth in the moment of intoxication after victory, when his love of glory has been gratified; they cheat his eyes by exhibiting to him as the work of fate, what can in fact be accomplished only by his own act, and gain credence for their words by the immediate fulfilment of the first prediction. The opportunity for murdering the king immediately offers itself; the wife of Macbeth conjures him not to let it slip; she urges him on with a fiery eloquence, which has all those sophisms at command that serve to throw a false lustre over the crime. Little more than the mere execution falls to the lot of Macbeth; he is driven to it, as it were, in a state of commotion in which his mind is bewildered. Repentance immediately follows, nay, even precedes the deed, and the stings of his conscience leave him no rest either night or day. Nothing can equal the power of this picture in the excitation of horror. We need only allude to the circumstances attending the murder of Duncan, the dagger that hovers before the eyes of Macbeth at the feast, and the madness of lady Macbeth.—In King Lear (compare *Shakspeare Illustrated, or the Novels and Histories on which the Plays of Shakspeare are founded*, by Miss Lenox, London, 1754, 3 vols.; Holinshed; Tyrrel's *General History of England*, London, 1700, vol. i; Percy's *Reliques*, i.; the Latin Chronicle of Geoffrey of Monmouth; Sidney's *Arcadia*, Edinburgh, 1590, quarto; Spenser's *Fairy Queen*, b. ii, canto x, stanzas 27—33; and the old play *The True Chronicle History of King Leir*, London, 1605, quarto) compassion is exhausted. The principal characters in this piece are not those who act, but those who suffer. We have not in this, as in most tragedies, the picture of a calamity, in which the sudden blows of fate still seem to honour the head which they strike, in which the loss is always accompanied by some flattering consolation in the memory of the former possession; but a fall from the highest elevation into the deepest abyss of misery, where humanity is stripped of all external and internal advantages, and given up a prey to naked helplessness.—In the three Roman pieces, Coriolanus, Julius Cæsar, and Antony and Cleopatra, the moderation with which Shakspeare excludes foreign appendages and arbitrary suppositions, and yet fully satisfies the wants of the stage, is particularly deserving of admiration. Under the apparent artlessness of adhering closely to history as he found it, an uncommon degree of art is concealed.—Timon of Athens (compare Plutarch; Lucian; *Palace of Pleasure*), and Troilus and Cressida (compare *Dictys Cretensis*, and *Dares Phrygius*; Guido dalle Colonne of Messina, *Historia de Bello Trojano*, translated into Italian by Ceffi, Venice, 1481, and into German in 1489, in the parts *de sexto et septimo bello*; Lydgate, *De Boke of Troye*, London, 1515, a prolix poem, modernized in 1614; Raoul de Fevre, *Recueil de Troyennes Histoires*, Englished by Caxton, 1471 and 1503; Chaucer, *The Boke of Troiles and Cresside*; Boccaccio's *Filostrate*, 1498, 8vo.; Alexander Barclay's *Ship of Fooles*, from the German of Seb. Brandt, 1570; Chapman's translation of Homer, 1581 and 1596). These pieces are not historical plays, properly speaking; and we cannot call them either tragedy or comedy. Timon, of all the works of Shakspeare, has most the character of satire, laughing satire, in the picture of flatterers and parasites, and Juvenalian satire, in the bitterness and imprecations of Timon against the ingratitude of a false world. Troilus and Cressida is the only play which Shakspeare allowed to be printed without having been previously acted. It is, throughout, a parody on the Trojan war, not as described in Homer, but in the romances of chivalry derived from Dares Phrygius.

The dramas taken from the English history are ten. The poet evidently intended them as parts of a great whole. The principal features of the events are exhibited with such fidelity, their causes, and even their secret springs, are placed in so clear a light, that we may obtain from them a knowledge of history in all its truth, while the living picture makes an impression on the imagination which can never be effaced. Eight of these plays, from Richard II. to Richard III., are linked together in uninterrupted succession. According to all appearance, the four last were first written. The two other historical plays taken from the English history, are chronologically separated from this series. In King John, all the political and national motives, which play so great a part in the following pieces, are already indicated—wars and treaties with France, a usurpation, and the tyrannical actions which it draws after it, the influence of the clergy, and the factions of the nobles. Henry VIII. again shows us the transition to another age;—the policy of modern Europe, a refined court life under a voluptuous monarch, the dangerous situation of favourites, who are themselves precipitated, after having effected the fall of others; in a word, despotism under milder forms, but not less unjust and cruel. In Richard II., Shakspeare exhibits to us a noble, kingly nature, at first obscured by levity, and the errors of an unbridled youth, and afterwards purified by misfortune, and rendered more highly and splendidly illustrious. The first part of Henry IV. is particularly brilliant in the serious scenes, from the contrast between two young heroes, prince Henry and Percy with the characteristic name of Hotspur. Falstaff (q. v.) is the summit of Shakspeare's comic invention. King Henry V. is visibly the favourite of Shakspeare in the English history. The three parts of Henry VI. were much earlier composed than the preceding pieces. We do not find in this piece the whole maturity of the poet's genius, but we certainly find

its whole strength. Richard III. embraces the latter half of the reign of Edward IV., in the whole a period of eight years. Shakspeare intended that terror, rather than compassion, should prevail in this tragedy. Richard is the soul, or rather the demon of the whole. He fulfils the promise which he had before made of leading the murderous Machiavel to school. Besides the uniform aversion which he inspires, he occupies us in the greatest variety of ways—by his profound skill in dissimulation, his wit, his prudence, his presence of mind, his quick activity, and his valour.

In regard to the pieces generally rejected by the English editors, Schlegel contends that Titus Andronicus is genuine, but supposes it to have been a production of Shakspeare's youth. Pericles, Prince of Tyre, he also considers as undoubtedly genuine. Of Thomas Lord Cromwell, Sir John Oldcastle, and A Yorkshire Tragedy, he says, "These three pieces are not only unquestionably Shakspeare's, but, in my opinion, they deserve to be classed among his best and maturest works." Respecting Locrine he does not express a decided opinion.

Besides his dramatic works, Shakspeare wrote one hundred and fifty-four sonnets, and two narrative poems—Venus and Adonis (printed in 1593), and the Rape of Lucretia. The former is called, by Shakspeare, in the dedication to the earl of Southampton, "the first heir of his invention." In these productions, the fire and power of Shakspeare are not to be mistaken. Their luxuriant imagery, play of wit, prolixity, and inequality, are to be attributed to his youth. Shakspeare has not strictly confined himself to the ancient mythology; for instance, he makes Venus to be rejected by Adonis. The one hundred and fifty-four sonnets do not resemble, in matter or form, the productions of Petrarch. They are condensed, intellectual, and often witty. Schlegel touches upon the important aid which they may afford to some future biographer of Shakspeare, in regard to the circumstances of his private life.

For further information, we would refer the reader to the various editions of Shakspeare, by Rowe, Pope, Warburton, Johnson, Steevens, Malone, &c.; to Douce's *Illustrations of Shakspeare* (London, 1807, 2 vols., 8vo.); Drake's *Shakspeare and his Times* (London, 1817, 2 vols., 8vo.); Seymour's *Remarks on the Plays of Shakspeare* (London, 1805, 2 vols., 8vo.); Hazlitt's *Characters of Shakspeare's Plays* (London, 1817, &c., &c.); Mrs Jamieson's *Characteristics of Women* (the female characters in Shakspeare's Plays) 2 vols. Lives of Shakspeare have been written by Rowe, Malone, and Skottowe: the last appeared in London, 1824, 2 vols., accompanied by illustrations of the poet. Numerous alterations and *rifacimentos* of the plays have been made, for the purpose of representation, by Sir William D'Avenant, Dryden, Shadwell, Dennis, Colley Cibber, Garrick, Kemble, &c. In Germany, commentaries have been written on the great dramatist by such men as A. W. Schlegel, who has translated the greater part of the plays; by Tieck, who has undertaken to complete the translation; by the poet Göthe, &c. In France, many of the plays have been adapted for the French stage by Ducis. Retzsch, a distinguished German artist, has lately published designs illustrative of scenes from the plays of Shakspeare, which are highly commended. The first number relates to Hamlet, and was published at Leipsic in 1828.

SHAMANS; in Great Tartary and Mongolia, a part of China, Siberia, and Kamtschatka, priests, who are at the same time physicians, sorcerers, and conjurers. Shamanism, which contains the lowest representations of the Deity and of divine things, was probably supplanted in the southern parts of Asia by the more elevated doctrines of Confucius and Zoroaster. In its present state, in Tangut, a part of China, and in Mongolia, it is a mixture of the old heathen Shamanism with Nestorianism (see *Nestorius*), and is called *Lamaism*, or *Shigemoonism*. (See *Lama*.) It has been diffused in China, where it is the religion of the court, by the Mantchoos, and prevails in Thibet, a part of India, in Tartary, Mongolia, and among the Calmucks. The doctrine of the metempsychosis, and the worship of the god Fo, form a part of modern Shamanism. (See *Fo*.) The principal doctrine of the primitive Shamanism was the existence of many gods, some created, some increate, existing in the form of heavenly bodies, or of animals, or of inanimate things, or arbitrarily formed by human hands. It also taught the existence of good and bad spirits. After death, men continue to exist, in a melancholy condition, influenced neither by good nor bad works. The religious service of the Shamanites consists of sacrifices, prayers, &c., by which the worshippers hope to gain the favour of the good gods, and avert the wrath of the bad.

SHAMO, DESERT OF. See *Cobi*.

SHAMPOOING. The process, as practised in the East Indies, is described under *Bath*.

SHAMROCK (in the Gaelic, *seamrag*); probably, in the Irish and Gaelic languages, a generic term for trefoils.* The name is commonly given to the heraldic emblem of Ireland. It is sometimes applied to the *medicago lupulina*, or hop-trefoil, a plant very much resembling, and often confounded with, the yellow clover, from which, however, it is readily distinguished by the spiral form of the pods.

SHANNON; the largest river, not only in Ireland, but in the British islands, originates in a little plain at the base of Quilka mountain, in the county of Cavan; and taking a westerly course, receives the waters of lough Allen, whence it flows through a length of 200 miles, into the Atlantic ocean, below the city of Limerick. It may be said to divide Ireland into two great divisions. In its course it expands into several great lakes or inland seas, the most important of which are lough Ree and lough Derg. Two lines of inland navigation, called the grand and royal canals, open a communication between the ports on the Shannon and the city of Dublin. Besides these great accessions to the completion of a useful and extensive line of water-carriage, the occasional difficulty of navigating the lakes has been obviated by the introduction of steam tugs, &c., for towing the barges through, so that the intercourse is now perfect from lough Allen to the Shannon's mouth, a distance of 254 miles, and from the same lough to the city of Dublin, by both the great canals. In its passage it reaches the shores of Leitrim, Longford, Westmeath, King's County, Tipperary, Limerick, and Kerry, on the east; whilst Roscommon, Galway, and Clare, front it on the west. For a further account of this noble river, see the article *Ireland*.

SHARK (*squalus* of Linnæus); a family of cartilaginous fishes, allied to the Rays, and celebrated for the size and voracity of many of the species.

* See I. E. Bicheno's paper On the Plant intended by the Shamrock, read to the Lond. Lin. Soc.

The form of the body is elongated, and the tail thick and fleshy. The mouth is large, generally situated beneath the snout, and is armed with several rows of compressed, sharp-edged, and sometimes serrated, teeth. The water penetrates to the gills by means of several transverse openings situated on each side of the neck. The skeleton is cartilaginous. The skin is usually very rough, covered with a multitude of little osseous tubercles; and that of some species forms the substance called *shagreen*. The eggs of the sharks are few and large, in comparison with those of bony fishes; they are enveloped in a hard, horny, semi-transparent shell, terminated at the four angles with long filaments; in short, they resemble those of the rays, and are likewise frequently cast up by the waves upon the shores of the sea. The flesh of sharks is, in general, hard, coriaceous, and ill-tasted, but some are good for food. They are the most formidable and voracious of all fishes, pursue all other marine animals, and seem to care little whether their prey be living or dead. They often follow vessels for the sake of picking up any offal which may be thrown overboard; and man himself often becomes a victim to their rapacity. The sharks form several natural genera, distinguished by the presence or absence of bow-holes, or of the anal fin, by the form of the head, nose and teeth, &c. &c. The teeth of sharks are moveable at the will of the animal, and are usually laid down and directed backwards, but become erect at the moment the animal is seizing its prey. Shagreen, which is extensively used in the arts, is furnished by several species, and, together with their oil, forms the most important of their products. The basking shark (*selache maxima*) is by far the largest of the genus, sometimes attaining the length of forty feet; but it has none of the ferocity of the others, and the teeth are excessively small. It inhabits the northern seas. It is sometimes called *whalebone shark*, from having in the mouth a substance resembling whalebone. The hammer-headed sharks (*zygæna*) are remarkable among fishes for having the head flattened and projecting laterally, which gives to the animal something of the form of a hammer. The eyes are placed at the extremity of these prominences. They are very voracious, and frequently attack man. The species of *squalina* differ from the other sharks in having the mouth terminal, the body flattened horizontally, and the pectoral fins large, and the eyes on the upper part of the head. The long-tailed shark, or thresher, is distinguished by having the tail as long as the body.

SHARP (in Italian, *maggiore;* in German, *dur*, from the Latin *durus*, hard) is a musical term applied to those keys, the basis of which is the "perfect harmonic *triad*."—*Sharp* signifies also a character, the power of which is to raise a note, before which it is placed, half a tone higher than it would be without such a prefix. The character is formed thus: ♯ See *Flat*.

SHARP, JAMES, archbishop of St Andrews, in Scotland, was born in Banffshire in 1618, and was early destined, by his family, for the ministry. With this view, he was placed at the Marischal college in Aberdeen, but, objecting to take the "solemn league and covenant," quitted the university, and went to London. During the civil wars, he returned to his native country, and obtained a professorship in the university of St Andrews. His eloquence and reputation caused him to be selected, by the moderate Presbyterian party in Scotland, to advocate their cause with the protector, Cromwell, against the demands of the more rigid Calvinists; and he was subsequently sent to Breda, by Monk, for the purpose of procuring the sanction of Charles II. to the proposed settlement of the ecclesiastical affairs of Scotland. He returned to Scotland, and delivered to some of the ministers of Edinburgh a letter from the king, in which the latter promised to protect the government of the church of Scotland, "as it is settled by law." The clergy, understanding this declaration in its obvious sense, were satisfied; but it subsequently appeared, that Sharp had in view to subvert the church government, which he affected to maintain, pleading to the friends of episcopacy that this letter would pledge the king to nothing, as the parliament had only to establish episcopacy, to transfer the pledge of the monarch to its support. Presbytery being accordingly overturned by parliament, Sharp was rewarded with the primacy, and appointed archbishop of St Andrews. The wanton cruelties which followed, confirmed the horror entertained against him, and raised the fury of some of his more bigoted opponents to attempts against his life. In 1678, he narrowly escaped assassination from the hand of James Mitchell, an enthusiast, who was some time after taken and executed. A similar attempt, the following year, was more successful. His carriage, in which he was travelling in Magus Muir, about three miles from St Andrews, on the 3d May, 1679, was met by some fanatics, headed by John Balfour of Burley, who were waiting there to intercept a servant of the archbishop's, named Carmichael. To tempers thus heated by fanaticism, the appearance of the archbishop himself was deemed a sign of the intention of Providence to substitute a more important victim; and, regardless of the tears and entreaties of his daughter, they dragged him from his carriage, and despatched him with their swords, with which they inflicted no less than twenty-two wounds.

SHARP, GRANVILLE, an English gentleman, eminent for his philanthropy and learning, was born in 1734, and educated for the bar, but did not practise at it; he obtained a place in the ordnance office, which he resigned at the commencement of the American war, the principles of which he did not approve. He then took chambers in the Temple, and led a life of private study. He first became known by his defence of a poor negro named Somerset. This man, having been carried to England by his master, was turned out into the streets to die, during a fit of sickness, and when, by the charity of Mr Sharp and others, he had been restored to health, was claimed again as property. The result of the law proceedings, on this question, not only cleared Somerset, but determined that slavery could not exist in Great Britain. Such an incident could not fail to deeply impress a benevolent mind; and slavery, in every country, became the object of his unceasing hostility. Having succeeded in the case of an individual negro, he interested himself in the condition of others, whom he found wandering in the streets of London, and, at his own expense, sent a number of them to Sierra Leone: he also, soon after, became the institutor of the society for the abolition of the slave trade, and sought to modify the harsh practice of impressment. He was likewise led, by his political principles, to be the advocate of parliamentary reform, in support of which he published a Declaration of

the People's Natural Right to a Share in the Legislature, in which he contends for a revival of the political institutions of Alfred. He died July 6, 1813.

SHARP-SHOOTERS. Formerly, there were, in several armies, a few men attached to each company of troops of the line, who, unlike the rest of the infantry, took aim at particular individuals, had better guns or rifles, and did not shoot with the mass of the troops. These were called *sharp-shooters*. The better organization of armies in modern times, and particularly the introduction of *tirailleurs* (q. v.), has caused them to be abolished.

SHASTRA, or SHASTER. See *Indian Literature*, division *Sacred Literature*.

SHAWLS. For the Cashmere shawls, see *Cashmere*.

SHEATHING, in naval architecture; a sort of covering nailed all over the outside of a ship's bottom, to protect the planks from the pernicious effects of worms. This sheathing, in former years, consisted of thin boards; but sheets of copper having been found far preferable, these have of late been almost universally adopted, especially in long voyages.

SHECHINAH, in Jewish history; the name of that miraculous light, or visible glory, which was a symbol of the divine presence.

SHEEP (*ovis*); a genus of ruminant quadrupeds, differing so slightly in the anatomical structure from the goat, that both genera are by some naturalists united. The principal distinctive characters consist in the absence of a beard, and the form and spiral direction of the horns. The wild sheep, or argali (*ovis ammon*), is by no means the helpless animal we are accustomed to see in a domestic state. (See *Argali*.) The sheep seems to be the most stupid of all domestic quadrupeds, and is probably the only one incapable of returning to a state of nature, even if placed in the most favourable circumstances. It neither knows how to avoid danger, nor to seek shelter from the changes of the atmosphere, nor even to procure nourishment, except in abundant pasturage. Its habits are well known. Its products are the flesh, milk, skin, and especially the wool, which employs a vast capital in the manufacture of clothing. The time allowed for fattening them is about three months before they are sent to market, and when they have attained the age of two or three years; unless the fleece be the object, when it may be delayed to the sixth, seventh, or even the tenth year, in a district where they are long-lived. Their ordinary life does not exceed twelve or fifteen years. The fleece is shorn every year, towards the month of May. It is sometimes washed on the back of the animal; but the more usual practice is to shear it without washing, as it then contains an animal oil, which is a great preservative against insects. The sheep require particular attention afterwards, as they are more exposed to the changes of the weather. At all times they are exposed to numerous maladies. The varieties of the sheep are very numerous, differing in size, the length of their legs, the size and number of their horns; some are covered with hair instead of wool; others have enormous tails; and others, again, pendant ears. The variety most celebrated for the fineness of the wool is the Spanish Merino, as improved in Germany: all the other most approved European varieties are crosses from the Merino. The English sheep is most celebrated for the quantity of its wool. Besides the argali, there is another animal more nearly related to the goat, inhabiting the Rocky mountains, between lat. 45° and 68°. It is more numerous in the western than in the eastern parts of these mountains, and is found in large flocks, frequenting the summits in the summer, and the valleys in the winter season. It is little known, but in some parts forms the principal sustenance of the natives. It is easily obtained by the hunters, but its flesh is not esteemed, neither is a value set upon its fleece. In size it approaches the sheep, and has long hair extending beyond the wool: the horns are five inches in length and one in diameter, conical, and slightly curved backwards. An interest has lately been excited about this animal in England, and the fleece is said to be as fine as that of the shawl goat of Cashmere. It is often called the *Rocky mountain sheep*.

Sheep-Raising. Our limits will not allow us to give in detail the history of this valuable domestic animal, with the improvements which have been made in it at different periods; and we must refer the reader for more information to works which treat particularly of the subject, as Loudon's Encyclopædia of Agriculture. In Germany, both governments and individuals have paid great attention to the improvement of the wool, and in some parts of that country it has been brought to such perfection as to surpass that of any other part of the world. Several works in German, on this subject, though referring more particularly to the country in which they were written, would afford important assistance to sheep-breeders in any country. When we look for the origin of the improvements which have been made in the breeding of this animal, which has become so important an element of national wealth, and the source of so much manufacturing and commercial industry, we are obliged to go back to the Romans. They had made such progress, that the whole system of sheep-breeding, at present in use in Spain, is essentially the same which was introduced there by the Romans. Columella, who lived under the emperor Claudius, gives us interesting information on this point. Among other things, he says that his uncle, who lived in Bœtica (which comprehends the present province of Estremadura), procured some wild African rams at Cadiz, of a coarse fleece, but of an admirable colour. He put them to some fine-wooled ewes, and, the male progeny being again put to Tarentine ewes, the offspring, with their descendants, united the colour of the sire with the dam's softness of fleece. Other agriculturists undoubtedly imitated him, and thus the purest white was communicated to the black or parti-coloured native flocks, which, according to Pliny, were common in Spain. The Tarentine sheep were most celebrated in Italy, and the Milesian in Asia Minor. They were termed *pellitæ* and *tectæ oves*, from the coverings of skin with which they were clothed, to protect the fleece; they were also denominated *molles oves*, not only from the softness of the fleece, but also from the delicacy of their constitution. The attention paid by the ancients to the sheep was excessive, and the animal was extremely tender; so that we must account for the transition from the ancient sheep to the Merino, which is a hardy animal, thriving in almost any climate, by supposing that other agriculturists imitated Columella; and by crossing the breed imparted a stronger constitution to the fine-fleeced, but delicate sheep of ancient Italy. Strabo, indeed, describes the beginning of this im-

provement as having taken place in the reign of Tiberius. Fine rams were at that time sold at Truditania, part of Bœtica, for a talent, or about a thousand dollars—a price which, considering the value of money at that period, is immense. When the Roman empire was overrun, and almost all traces of civilization swept away, the Tarentine stock in Greece and Italy being very tender, and requiring the greatest care, became extinct; but the regenerated stock of Bœtica—the Merinos—being able to live in the mountains, survived the conquest of Spain by the Goths and Vandals; and from these Merinos are descended those animals which supply all the manufactories of fine cloth in Europe. Care was early taken in Spain that the improved sheep should not mix with the coarse native sheep. The government soon took this important branch of national industry under its protection, and established particular courts to have jurisdiction over all subjects connected with sheep, wool, shepherds, pastures, &c.

The way in which the improved sheep is generally bred in Spain is the following:—Whilst the common sheep remains always on the spot where it was born, and is housed in winter, the fine-woolled sheep is kept the whole time in the open air, in summer chiefly in the mountainous part of Old Castile, or the Montana, and in the lordship of Molina, in Arragon, which are the highest parts of Spain, containing the finest pasture. The former affords aromatic plants, which the latter does not; these mountains are covered with oaks, beeches, birches, hazel-bushes, &c., besides producing all the plants which grow in Switzerland. When a shepherd has driven his flock to the place where they are to remain for the summer, he first gives them as much salt as they are willing to lick. The estimated consumption during the five summer months is 20 cwts. of salt for 1000 sheep (perhaps, however, this estimate is too high). Towards the end of July, the rams are admitted to the ewes, from five to six rams to one hundred ewes; before and after, they remain separated. The rams yield more wool than the ewes, but not of so fine quality; three rams or five ewes afford twenty-five pounds. In the middle of September, the sheep are marked on the thigh. Towards the end of summer, the sheep are driven in flocks, comprising 10,000 individuals, divided into bodies of 1000—1200, from these mountainous districts into the southern plains of La Mancha, Andalusia, and especially Estremadura. The journey begins at the end of September, and, during its continuance, they enjoy great privileges. Sometimes they travel as much as twenty-five or thirty miles a day, in order to reach a convenient place for halting. The whole journey from the mountains to the interior of Estremadura is reckoned at about 690 miles, which occupies forty days. The shepherd conducts them to the pasture which they occupied the previous winter, and where most of the lambs were born. Here folds are constructed for the sheep, and huts made of branches for the shepherd. Shortly after their arrival in the winter pasture, the birth of the lambs takes place. The barren ewes receive the poorest pasture, the pregnant the next best, and the ewes which have lambed the best. The lambs born latest are put into the richest pastures to acquire strength for their journey. In March, the shepherds have much to do to the lambs—cut the tails, mark the nose with a hot iron, saw off the points of the horns, and emasculate those intended for wethers. In April, they return to the summer pastures. The flock at this time shows by its restlessness its wish to migrate; some sheep escape, &c.—an interesting fact, considering the restlessness of migrating animals at certain seasons. On the first of May the shearing begins, if the weather is not cold. It is performed under cover. Before shearing, the sheep are put into a building consisting of two apartments, from 400 to 800 paces long and 100 wide.

As many of the sheep as are to be sheared the next day, are taken on the evening into a narrow, long, low hut, called the *sweating house*, where the sheep being much crowded, perspire freely. The wool thus becomes softer, and is more easily cut. This practice was also pursued by the Romans. The wool is sorted and washed before being sent away. The sheep are carried to another place and marked, and those which have lost their teeth, are killed for mutton. There are now in Spain only about 4,000,000 of fine-woolled sheep. Sweden early imported Merinos, and greatly improved some of her sheep.

In Germany, the first improvement of native flocks by Merinos took place in Saxony. In the Erzgebirge, Hungarian rams had been previously introduced; but as early as 1765, above 200 Merino rams and ewes, accompanied by two Spanish shepherds, were imported into Saxony. In 1778, another importation of the finest Merinos, from the best flocks of Leon and Castile, took place, and important sheep farms were established. On that of Stolpen, the first established in Saxony, particular care has always been paid to the sheep, and it still affords extremely fine wool. It is said that Spain itself has at present no sheep equal to the stock imported in 1765: and the finest German wool brings a higher price in London than the best Spanish wool. The establishment at Stolpen has contributed greatly to the improvement of the Saxon sheep, and thereby to the promotion of industry in the country. From 1779 to 1811, more than 10,000 rams and ewes were sold there at moderate prices. The original German sheep is at present found hardly any where in Saxony, and a new, fine-woolled race has originated from the mixture with Merinos, which is called *electoral sheep*, and its wool *electoral wool*, as the present kingdom of Saxony was, before 1806, the electorate of Saxony.—See Von Ehrenfels, *On the Electoral Sheep and Electoral Wool* (Prague, 1822, in German). Beside the royal breeds, which always have been kept entirely pure, other farmers in Saxony have imported genuine Merinos. At Rochsburg, in the Erzgebirge, the sheep are fed the whole year round in stalls; and the lambs, at the age of one year, are almost full grown, and therefore yield a considerable amount of very long and strong wool. Prussia has lately made uncommon progress in the breeding of fine sheep, and some of the Prussian wool, particularly that of the Mark and Silesia, competes in the market with the electoral wool. Flocks of genuine Merinos have been imported into Prussia, and the government, some time since, undertook the establishment of a school for shepherds, where young men were to be instructed, at the public expense, in the care of sheep, in health and in sickness, made acquainted with the history of the improvements in the mode of raising them, &c. A similar school was formerly established in Sweden.

The Spanish breed of sheep was first introduced into Great Britain in 1787. Some individuals of the black and spotted kinds had indeed been pro-

cured and kept in the parks of noblemen previously, but without any regard to the wool; nor was much interest awakened by the flock imported in 1787. Subsequently great attention was paid to the improvement of English wool; but it was ascertained that though the fleece of the Merino did not much degenerate in England, it did not much improve, and the carcass, which naturally affords little weight of meat, did not improve; in consequence of which the farmers have found it for their interest, to return to the native breeds, and to give up the Spanish sheep. It appears to be sufficiently established, by evidence taken before the house of lords in 1828, and other authorities, that a considerable deterioration has taken place in the quality of British wool, particularly during the last thirty years. The great object of the agriculturists has been to increase the weight of the carcass and the quantity of the wool, and it seems very difficult, if not impossible, to accomplish this without injuring the fineness of the fleece. A very great change has taken place within the present century as respects the quantity of foreign wool imported into England, and the countries from which it is obtained. Previously to 1800, the average imports did not exceed 3,000,000 lbs., brought mostly from Spain. In 1800, they amounted to near 9,000,000 lbs. They now amount to between 25,000,000 and 32,000,000, the greater part furnished by Germany. The Spanish flocks suffered severely during the campaigns in Spain, and the best Spanish wool does not now bring more than half the price of the best German wool. The breed of sheep that was carried out to New Holland and Van Diemen's Land has succeeded remarkably well. The former promises, at no distant day, to be one of the principal wool-growing countries in the world. The imports into Great Britain in 1830, amounted to 1,967,309 lbs., while those from Spain amounted only to 1,643,515. According to Mr Luccock's estimate, which was made with great care, the total number of sheep and lambs in England and Wales, in the year 1800, was 26,148,463. The number has not probably varied much in the interim. In Scotland, it may be 3,500,000; in Ireland it is probably under 2,000,000; so that the total number in Great Britain and Ireland may be taken at about 32,000,000. In the United States, the first Merinos were imported (about 300 in number) in the year 1810, by general Humphreys, American minister in Portugal, and the consul, Mr Jarvis. General Derby of Salem, imported as many more; and, in 1825, a great number of Saxon sheep were brought into that country. These contributed to improve the American breed. But the American wool is far from competing with the Spanish or German, for which many reasons may be given, among others, that the high price of labour prevents the existence of a particular class of shepherds. The most improved flocks in the United States are to be found in Vermont and New York. According to calculations as accurate as they could well be made, there are 20,000,000 sheep, of all kinds, in the United States. The successful introduction of the Merino at the cape of Good Hope, New South Wales, &c., has proved that it will thrive wherever it receives proper care. In hot climates, however, particular attention is required to prevent the wool from degenerating. The sheep must not be exposed too much to the sun, nor to the dew. See *Wool*.

SHEER; the longitudinal curve of a ship's decks or sides.

SHEET; a rope fastened to one or both the lower corners of a sail, to extend and retain it in a particular situation.

SHEFFIELD; a large manufacturing town of England, in the West Riding of Yorkshire, is situated at the confluence of the rivers Sheaf and Don, 36 miles south of Leeds, and 162 north-west of London. The streets are regular, the houses well built, mostly of brick, but the smoke of the manufactories tends to give the town a sombre appearance. The public buildings are not remarkable for beauty. The principal are the four churches belonging to the establishment, the town-hall, cutlers'-hall, the general infirmary, the assembly-room, the music-hall, and the theatre. The town contains, besides, seven meeting houses for dissenters. Sheffield has been long noted for its manufactures of hardware, which comprise two great divisions, viz. those of cutlery and plated goods. The latter manufactures are wholly confined within the town; but those of cutlery goods are also carried on in all the villages and hamlets in the neighbourhood, to the distance of seven miles. Besides these manufactures, there are in the town and its vicinity several extensive founderies for iron. For several centuries, its trade was inconsiderable, consisting almost entirely of sheath-knives, scissors, sickles, and scythes: but since 1750, the town has advanced rapidly in population and wealth. The origin of Sheffield is unknown; it was formerly distinguished for its castle, supposed to have been built during the reign of Henry III. The population, in 1821, was 42,157. In 1831, it was, including the parish, 90,657.

SHEFFIELD, JOHN, duke of Buckingham, a nobleman of some note as a wit and a statesman, born in 1649, was the son of the earl of Mulgrave, to whose title he succeeded in 1658. At the age of seventeen, he engaged as a volunteer in the first Dutch war, on his return, by the union of wit and spirit so agreeable to Charles II. he became a great favourite at court. On the accession of James II. he was made lord chamberlain; and his attachment to that sovereign induced him to take a seat in the ecclesiastical commission, and practise other compliances, though he opposed many of the counsels which brought ruin on his master. At the revolution he took the part of an anti-courtier, but in 1694, became member of the cabinet. On the accession of Anne, to whom he is said once to have been a suitor, he was advanced to the dukedom of Buckingham; but jealousy of the duke of Marlborough drove him from office, until the change of 1710, when he was made first steward of the household, and then president of the council, under the administration of Harley. After the death of Anne, he employed his time chiefly in literary pursuits, until his death in 1720. His literary fame was mainly assisted by his rank and influence in his own day. In his Essay on Satire, he was supposed to have been assisted by Dryden; and few of his other pieces merit attention. His widow published a splendid edition of his works in 1723, in two vols. quarto; the first of which contained his poems upon various subjects, and the latter his historical memoirs, character, speeches, and essays.

SHEHERAZADE. See *Arabian Nights*.

SHEIK, or SCHEIKH (*Arabic*); that is to say, the *elder* or *eldest*. The chief of the Arabic tribes or hordes are called by this name. They are very proud of their long line of noble ancestors, especially the leaders of the Bedouins. Some of them also take the title of *emir*, without belonging to the

race of Mohammed. The prince of Mecca is styled "sheik of Mecca," and calls himself a legitimate descendant of Mohammed, and demands presents from the caravans. The Mohammedans also call the heads of their monasteries *sheiks*, and the Turkish mufti is sometimes called *sheik ulislam* (chief of the true believers).

SHELL. See *Conchology*.

SHELL, in artillery, includes bombs and granades. See those articles.

SHELLEY, PERCY BYSSHE, a modern English poet, was the eldest son of Sir Timothy Shelley, Sussex, and born at Field-place, in that county, August 4, 1792. He was sent to Eton, whence he was early removed to Oxford. This removal was owing to his eccentricity of character, which led him to neglect the studies, and violate the rules of the school, and finally resulted in his expulsion from Oxford. His family, naturally offended with his conduct, and not less with his free opinions in matters of religion, was still farther estranged by an ill assorted marriage. The result was very unfortunate, for after the birth of two children, a separation took place by mutual consent; and the death of the lady soon after, exposed him to much obloquy. On the decease of his first wife, he married Miss Godwin, daughter of the celebrated author of Political Justice, by Mary Wolstonecraft, and soon after retired to Marlow, in Buckinghamshire, where he wrote his Revolt of Islam. About this time, application was made by his family to deprive him of the guardianship of his two children, a boy and a girl, on the ground of his atheistical and sceptical notions, and certain dangerous opinions respecting the intercourse of the sexes. The application succeeded, principally owing to a juvenile production, called Queen Mab, written while at Oxford, and published without the consent of the author. This event caused him much uneasiness, and probably induced him to quit England, and repair with his second wife and their children to Italy, where he renewed an acquaintance with Lord Byron, to whom he had become known during a former visit to the continent. With him and Leigh Hunt, Shelley joined in a periodical miscellany, published in London, entitled The Liberal. This publication, which contained the Vision of Judgment, by Lord Byron, and other original productions, was interrupted by the untimely death of Mr Shelley, who was drowned on his return from Leghorn to his house, on the gulf of Lerici, in the bay of Spezia, by the wreck of his sailing boat, in a sudden storm, July, 1822. A few days afterwards the body was washed ashore near Via Reggio, and was subsequently reduced to ashes by his friends. Shelley's remains were deposited in the Protestant burial-ground at Rome. At the time of his decease, Mr Shelley had nearly completed his thirtieth year. His principal works are the Revolt of Islam; Alastor, or the Spirit of Solitude; The Cenci, a tragedy (see *Cenci*, *Beatrice*); Adonais; Hellas, Prometheus Unbound; and a posthumous volume of poems.

SHELL-LAC. See *Coccus*.

SHEM; one of the patriarchs, eldest son of Noah, is said in Scripture to have died at the age of 600 years, The Hebrews trace their origin to Shem, through Abraham, who was the eighth in descent from him.

SHEMITISH LANGUAGES. See *Semitic Languages*.

SHENANDOAH; a river of Virginia, which flows into the Potomac, after a separate course of about 200 miles, just before the Potomac bursts through the Blue Ridge. It waters a fertile country, and has good boat navigation for 100 miles.

SHENSTONE, WILLIAM, an English poet, was born at Hales Owen, in Shropshire, in 1714. His father was a gentleman farmer, who cultivated a moderate estate, called the *Leasowes*, which were rendered celebrated by the taste of his son. The latter was educated at Oxford, and entertained thoughts of taking his academical degrees, and proceeding to the study of some profession, but was seduced, by obtaining possession of his paternal property, to relinquish all his views of an active life, and occupied himself with rural embellishments, and the cultivation of poetry. In 1737, he printed a volume of juvenile poems, which obtained little notice; and, in 1740, the Judgment of Hercules. In the following year appeared his School-mistress, the best of his poems. His great object, to render the Leasowes famous for picturesque beauty and elegance, led to expenses which he could but ill support, and he was by no means a happy inhabitant of the Eden which he had created. He died in February, 1763, in his fiftieth year. His works were collected in three volumes, octavo. The first consists of elegies, odes, songs and ballads, levities, or pieces of humour, and moral pieces; the second contains his prose works; and the third, Letters to his Friends. As a poet, he is elegant, melodious, tender, and correct in sentiment, and often pleasing and natural in description, but rather feeble. The prose works display good sense and cultivated taste, and contain just and acute observations on mankind. See his *Life* by Johnson, and Graves's *Recollections of Shenstone*.

SHEPHERD KINGS. See *Hycsos*.

SHEPHERD'S DOG (*canis domesticus* of Linnæus, and *le chien de berger* of Buffon) is distinguished by its upright ears and the remarkable villosity of the tail beneath, and stands at the head of the class of farm dogs. This breed of dogs is said to be preserved in the greatest purity in the northern part of Scotland, where its aid is highly necessary in managing the numerous herds of sheep bred in those extensive wilds. The same variety is diffused over most parts of Europe. The dog prevents the sheep from straggling, and conducts them from one part of the pasture to another: it will not suffer any strange sheep to mix with them. In driving a number of sheep to a distance, a well-trained dog always confines them to the road, watching every avenue that leads from it, and pursuing every straggler. At the herdsman's signal, this faithful assistant will conduct the sheep to him from a considerable distance.

SHEPHERD'S PURSE (*thlaspi bursa pastoris*); a small, insignificant, cruciferous plant, bearing diminutive white flowers, and short, triangular, compressed pods, which is now naturalized, and common in cultivated grounds, in most parts of the world. The radical leaves are pinnatifid. It is of no known utility.

SHERBET, OR SORBETTO; a beverage of the Orientals, made of water, sugar, lemon-juice, rose-water, dried fruits and amber.

SHEREEN, OR SCHIRIN, OR SIRA; an Armenian princess, second wife of Chosrou or Chosroes II. who reigned over Persia in the beginning of the seventh century. Shereen is still in Western Asia the model of female perfection, celebrated for her wit, her accomplishments, and her incomparable beauty. Her story is to be found in the *Shahnameh*. (See *Ferdusi*.) The Persian and

Turkish romances represent her as the daughter of Maurice, a Byzantine emperor. They are filled with the account of her sudden passion for Chosroes, her gradual alienation from him, the love of the sculptor Ferhad, the most beautiful youth of the East, for the fascinating queen, and her melancholy fate. Her husband was murdered by his own son, and Shereen put herself to death on his tomb, to escape the importunities of the parricide. Von Hammer has drawn the materials of his *Schirin*, a Persian romantic poem (14 cantos, in German, Leipsic, 1809), from Persian and Turkish sources.

SHERIDAN, THOMAS, son of an Irish divine, was born near Dublin, in 1721, and was sent to Westminster, where he was admitted on the foundation. He afterwards entered as a student of Trinity college, Dublin, but quitted the university for the stage, and made his first appearance in the character of Richard III. (1743), in Dublin. After a visit to London, in 1744, he returned to the Irish metropolis, and became a theatrical manager. In this situation he experienced various misfortunes, and the establishment of a rival theatre completed the ruin of his affairs. He then commenced lectures on elocution, to which subject he endeavoured to draw the attention of the public by means of the press. He subsequently repaired to France to avoid his creditors; and, while there, he had the misfortune to lose his wife (1767). Returning to England, after the retirement of Garrick from the stage, he became manager of Drury lane theatre, of which his son was one of the proprietors; but some disputes taking place, he retired from the office, and resumed his attention to oratory. The latest of his literary labours was an Orthoepical Dictionary of the English Language, in 1788, in which year he died.—His wife *Frances* was the author of Sidney Biddulph (3 vols.)—a very interesting but sombre tale; Nourjahad, an Eastern romance, since dramatized; and two comedies, the Discovery, and the Dupe. See the account of her life by her granddaughter, Alicia Lefanu.

SHERIDAN, RICHARD BRINSLEY, the third son of the preceding, distinguished as a statesman, wit and dramatist, was born in Dublin, October 30, 1751. For the early development of his talents, he was indebted to the instructions of his accomplished mother; and he was afterwards placed at a grammar-school at Dublin. In 1762, he was sent to Harrow school, which he left at the age of eighteen, owing to his father's embarrassments. With a view to the legal profession, he entered as a student of the Middle Temple; but the close application and industry requisite for success as a lawyer, were uncongenial with his disposition, and he relinquished the bar for politics and the drama. His early marriage, also, made some more immediate means of support than the practice of a junior barrister necessary, and he turned his attention to dramatic composition. His first production, the Rivals, was acted at Covent Garden in 1775, with moderate success; but the Duenna, a musical entertainment, which followed, was received with general admiration; and his School for Scandal gained him the highest reputation as a comic writer. On the retirement of Garrick from the management of Drury lane theatre, Sheridan, in conjunction with Doctor Forde and Mr Linley, purchased Garrick's share of the patent. This property qualified him for a seat in parliament; and, in 1780, he was chosen member for the borough of Stafford. Lord North was then minister, and Sheridan, joining the opposition, displayed so much ability, that, on the retreat of the premier, and the conclusion of the American war, he was made under secretary of state for the war department. He resigned, with his principal, in consequence of a dispute with lord Shelburne, afterwards marquis of Lansdowne, who was at the head of the ministry. His intimate connexion with Fox brought him again into office on the coalition of that statesman with lord North, when Sheridan held the post of joint secretary of the treasury under the duke of Portland. The dissolution of that ministry threw him again into the ranks of opposition, where he remained during the whole period of the political ascendency of Mr Pitt. He now attained distinguished celebrity as a parliamentary orator, and his talents were particularly exhibited in his opposition to the extension of the revenue laws, and on the subject of the Westminster election; but the grandest display of his eloquence occurred during the progress of the impeachment of Warren Hastings. In 1792, Mr Sheridan lost his wife, who left one son; and, three years afterwards, he married Miss Ogle, daughter of the dean of Winchester. With this lady he had a considerable fortune, which enabled him to purchase the estate of Polesdon, in Surrey; and, as he held the office of receiver general of the duchy of Cornwall, worth £1200 a year, and retained his interest in Drury lane theatre, he seemed to be placed beyond the reach of pecuniary distress. The political changes consequent on the death of Mr Pitt, in 1806, occasioned the exaltation of the party with which Sheridan was connected, and he obtained the lucrative post of treasurer of the navy, and the rank of a privy counsellor. This administration being weakened by the loss of Mr Fox, who survived his celebrated rival only a few months, new alterations took place, and Sheridan was deprived of office, to which he never returned. At the general election in 1806, he obtained a seat for Westminster, the great object of his ambition; but he was afterwards nominated for the borough of Ilchester, which he continued to represent during the remainder of his parliamentary career. The latter part of the life of this highly-talented individual was imbittered by misfortunes, principally arising from his own indolence and mismanagement, though the destruction of Drury lane theatre by fire contributed to increase his difficulties. When the affairs of that establishment were arranged, in 1811, Mr Sheridan and his son were to have £40,000 for their share of the property; but the portion of the former was not sufficient to liquidate the debts and reserved claims to which it was liable. The dissolution of parliament, and his failure in an attempt to obtain a seat for Stafford, the borough he had formerly represented, completed his ruin. In the latter part of 1812, he had relinquished all thoughts of returning to the house of commons; and the remainder of his existence was spent in attempts to ward off the dangers to which his improvidence had exposed him. At length every resource failed, and the disappearance of his property was followed by the arrest of his person. After a few days detention, he was released, but only to experience fresh apprehension and alarm, from which he sought a temporary relief in that unrestrained indulgence and dissipation which had occasioned his misfortunes. Intemperance had undermined his constitution, and mental anxiety completed the destruction of his health. Even on the bed of sickness he was not exempted from the terrors of being

arrested for debt. His death took place July 7, 1816. Besides the plays already mentioned, Mr Sheridan was the author of St Patrick's Day, or the Scheming Lieutenant, a farce; a Trip to Scarborough, a comedy, altered from Vanbrugh; the Camp, a farce; the Critic, or the Tragedy rehearsed; Robinson Crusoe, or Harlequin Friday, a pantomime; and Pizarro, a play, from the German of Kotzebue. He also wrote verses to the Memory of David Garrick (1779, 4to.); and a Comparative Statement of the two Bills for the better Government of the British Possessions in India (1788, 4to.). As a speaker, he ranks among the most finished and varied of the rhetorical school; and his speech already alluded to against Warren Hastings, has been deemed one of the most striking specimens of English eloquence upon record. As a dramatist, he may be considered the head of the department of that line of comedy which exhibits the polite malice, the civil detraction, the *equivoque*, intrigue, persiflage, and lurking irony, which characterize social intercourse in the more cultivated ranks of life. Wit usually takes the lead of humour in this species of composition, with a correspondent destruction of nature and verisimilitude. The School for Scandal is a felicitous exemplification of character, and of some of the most conspicuous of the well-bred vices and follies of fashionable life. A collection of his speeches, in five volumes, was published in 1816. His dramatic Works appeared in 1821 (2 vols., 8vo.), edited by Thomas Moore, who has since published a Life of Sheridan.

SHERIFF. The sheriff is an officer of great antiquity, and known by a corresponding name in most countries in Europe. He was called in the Danish *gravue*, Swedish, *grefwe;* Anglo-Saxon *gerefa;* German, *graf;* and, in the Latin of the middle ages, *graphio*, or *grafio*. Adelung observes that the twelve judges appointed by Odin were called *greve*. Both the officer and the name have, with some variations, been retained in Germany. The *graf* of the Germans is, for the most part, a title of dignity, answering to the *count* of the French, and the *earl* of the English; and, in some cases, it is also the title of a prince, as the *landgraf*, or *markgraf*. Among the Anglo-Saxons, the *gerefa*, or, as he is called in English, the *reeve*, was an officer of justice inferior in rank to the alderman. He was a ministerial officer, appointed to execute processes, keep the peace, and put the laws in execution. He witnessed contracts, brought offenders to justice, and delivered them to punishment, took bail of such as were to appear before the *shiregemote*, or county court, and presided at the hundred court, or *folcmote*. There was a distinction both in the rank and jurisdiction of the *gerefa*. The *shire-gerefa*, *shire-reeve*, or *sheriff*, was probably distinguished by the name of the *king's gerefa*, because he more immediately executed the king's precepts, and sometimes sat in the place of the alderman in the county court. He appears, also, to have been distinguished by the title of the *heh-gerefa* or *high-sheriff*. The *gerefa* who acted in the tithing was called the *tithing-reeve*, he who acted in the *byrig*, or burgh, a *borough-reeve*, and he who acted in the town the *tun-gerefa*. The leading duties of this officer, in Britain and the United States, are the same as those performed by the Anglo-Saxon *gerefa*, namely, of an executive as distinguished from those of a judicial kind.

SHERIFFMUIR, or SHERIFF MOOR; a plain of Scotland, near the Grampian mountains, in Perthshire. Here a bloody battle was fought between the army of George I. and the rebels, under the earl of Mar, in 1715. See *Stuart, James Edward Francis.*

SHERIFF'S TOURN. See *Courts.*

SHERLOCK, WILLIAM, an Episcopal clergyman, born in Southwark, about 1641, studied at Eton, and afterwards at Peter-house, Cambridge, where he proceeded doctor of divinity in 1680. After the revolution, having refused to take the oath of allegiance to William III., he was suspended from the pastoral office; but, on his subsequent compliance, he was restored, and, in 1691, promoted to the deanery of St Paul's. His death took place in 1707. Doctor Sherlock distinguished himself as a polemical divine against the Dissenters, and carried on a controversy with doctor South relative to the doctrine of the Trinity. His works on practical theology, especially his Discourses on Death and on Judgment, are much esteemed, and have passed through numerous editions.

SHERLOCK, THOMAS, son of the preceding, was born in London, in 1678, and received his education at Catharine-hall, Cambridge, where he obtained a fellowship. In 1714, he was chosen master of Catherine-hall, and was promoted to the deanery of Chichester in 1716, after which he entered into a controversy with bishop Hoadly, in defence of the corporation and test acts. In 1725, he published Discourses on Prophecy, intended to obviate the infidel objections of Anthony Collins. Doctor Sherlock, in 1728, succeeded Hoadly in the bishopric of Bangor, and, in 1734, in that of Salisbury. He was offered the primacy on the decease of archbishop Potter, in 1747; but he refused it; and, the following year, he was translated to the see of London, where he remained till his death, 1761. Bishop Sherlock was the author of the Trial of the Witnesses of the Resurrection of Jesus; and his Sermons are among the best specimens of English pulpit eloquence extant.

SHERRY; a Spanish wine, growing in the neighbourhood of Xeres de la Frontera, in the province of Andalusia, near Cadiz. Many of the principal vineyards are in the hands of British and foreign settlers, to which probably is to be ascribed the improvement which of late has taken place in Sherry wines. The best soil (*albariza*) consists chiefly of carbonate of lime, with a small admixture of silex and clay, and occasionally magnesia. Red and white grapes are used indiscriminately. When ripe and gathered, they are spread on mats, and left to dry for two or three days; they are then freed from the stalks, and the rotten or unripe berries rejected. Being now introduced into vats, with a layer of burnt gypsum on the surface, they are trodden by peasants with wooden shoes. The juice is collected in casks, in which the fermentation is allowed to take place, continuing generally from October till the beginning or middle of December. The wines are then racked from the lees, and those intended for exportation receive additions of brandy, seldom more than three or four gallons to the butt. The new wine is harsh and fiery, but mellows by being allowed to remain in the wood four or five years, though fifteen or twenty years are required to perfect its flavour. Sometimes bitter almonds are infused to give the wine a nutty flavour. The dry sherry is the most esteemed. Its flavour partakes of the taste of leather (called in Spanish *olor de bota*). This is owing to the custom of bringing the wines down the country in

large leather vessels, or, as the Spaniards call them, *botas*, whence we derive the term *butts*. This flavour goes off with keeping. The sherry wines are shipped, for the most part, at Cadiz, and are principally exported to England.—See Henderson's *History of Ancient and Modern Wines* (London, 1826, 1 vol., 4to.).

SHETLAND OR ZETLAND ISLES; the north-east division of the Scottish Northern Isles, about fifteen leagues north-east of the Orkneys. The southern promontory of the Mainland (the largest of the Shetland islands) lies in 59° 48′ 30″ of north latitude, and the northern extremity of Unst, in latitude 60° 52′ north. The meridian of London passes through this last island. The islands are about eighty-six in number, of which forty are inhabited: the others are small holms or rocky islets, used only for pasturage. The principal inhabited islands are the Mainland (with the capital, Lerwick), Yell, Unst, Whalsay, Bressay. The climate is not agreeable. The winds are tempestuous, and the rains heavy. The sea swells and rages in such a manner, that for five or six months the ports are almost inaccessible. There is great diversity of soil. The general appearance is a scene of ruggedness and sterility. Some patches of miserably cultivated soil relieve the eye of a traveller; but no tree nor shrub is to be seen. The western parts are peculiarly wild, dreary, and desolate, consisting of gray rocks, stagnant marshes and pools, broken and precipitous coasts, excavated into vast natural arches and deep caverns. There is plenty of peat and turf for fuel. Great numbers of horses are bred in Shetland, though they are of very small size. These little animals, however, are full of spirit, and bear fatigue much better, in proportion to their size, than larger horses, and evidently proceed from the Norway horse, though reduced in size, perhaps, in some degree, by scanty fare. The cattle of Shetland are also of a small size. The inhabitants are a hardy, robust, and laborious race, and hospitable. They have few manufactures. They make a coarse cloth for their own use, and a little linen. They likewise export great quantities of stockings, knit from their own wool; some of which are so fine that they equal silk in price, and can be drawn through a finger ring. Their chief trade is to Leith, London, Dublin, and Barcelona; but they also deal with the Dutch fishermen, who visit their islands. They export annually about 1000 tons of cod, tusk, and ling, and about £5000 worth of stockings and mittens. The whole exports may be estimated at £35,000. In 1755, the population of Shetland was estimated at 15,210; in 1793, at 20,196; in 1821, at 26,145; and in 1831, at 29,392. See Hibbert's *Description* (Edinburgh, 1821).

SHIBBOLETH. When Jephthah, at the head of the Gileadites, had defeated the Ephraimites, and his troops intercepted their flight across the Jordan, they required the former to pronounce the word *Shibboleth*. The peculiar pronunciation of the Ephraimites, who, unable to give the aspirate, called it *Sibboleth*, betrayed them to their enemies. The word has thence acquired the signification of the watch-word of a party.

SHIELD; a piece of defensive armour, borne on the left arm, to screen the body from the blows of the enemy; afterwards superseded, in a great degree, by the use of more convenient armour. (See *Breast-plate*.) Shields were composed of different materials, and were of various figures. The ancient *clypeus* was round, and of brass.

The *scutum*, or ἀσπὶς, was of an oblong shape, rectangular, generally made of wood, covered with skins; the *parma* was made of skin; the *pelta* was crescent-shaped. In the centre was the *umbo*, an iron boss projecting forward, to glance off missiles, or to press the enemy. They were often highly ornamented, and the ancients esteemed it a great disgrace to leave them on the field of battle. "With it, or on it," was the exhortation of a Spartan mother to her son, giving him the buckler of his father, as he went to war. In time of peace, they were hung up in consecrated places, and those taken in war were often suspended in the temples as trophies. (Potter's *Antiquities*; Vegetius, ii., 17.) The Tartar shield is made of leather. Both in France and in England and Scotland, round leather shields were used. Many of these shields had wood wicker work or metal plates below the leather. There was a particular kind of shield used several centuries ago, called *pavois* or *tallevas*, of extraordinary dimensions, and borne by an attendant. This in sieges was interposed between the archers and the besieged. The most ancient and universal form of shields, in the earlier ages, seems to have been the triangular, vulgarly called the *heater shield*. Numerous instances of this are seen in the monuments and gems of antiquity. This was the shape of the Norman shields. The shield, though not entirely relinquished while the use of the long-bow and cross-bow continued, underwent some alteration in its form, the triangular shape gradually giving place to the circular or rectangular. They seem to have been used in affrays as late as the reigns of Elizabeth and James I. The target and broad-sword were the favourite arms of the Scotch Highlanders as late as 1746, and even later.

SHIELDS, NORTH; a sea-port town in the county of Northumberland, situated on the north side of the Tyne, at its junction with the German Ocean, 279 miles N. by W. from London. It has risen in modern times from a small village contain-

ing a few fishermen's huts, to a populous, well-built, and thriving town. The inhabitants are chiefly employed in the exportation of coals, and in the various trades connected with shipping, in respect to which it may vie even with Newcastle, upwards of four hundred vessels being annually laden at this port. The harbour is capable of containing 2000 sail of vessels, and at spring-tide ships of 500 tons burden cross its mouth in safety; ships of 300 tons burden can also load or unload at the quay. Population in 1831, 6744.

SHIELDS, SOUTH; a sea-port town in the county palatine of Durham, situated on the south side of the Tyne, at its confluence with the German ocean, 278 miles N. by W. from London. This place, like its opposite neighbour, enjoys all the advantages of trade and commerce, in common with Newcastle, particularly in the coal trade, for most of the larger colliers take in their lading at this haven, where 500 vessels are usually lying at one time. The inhabitants are chiefly employed in shipbuilding, in manufactories for all kinds of glass, soap-works, roperies, and various other trades. Population in 1831, 9074.

SHIGEMOONI. See *Lama*.

SHIITES (*heretics*); a name given by the Sunnites to all Mohammedans, who do not acknowledge the Sunna as a law. The Shiites believe that Ali, the fourth caliph after Mohammed, was his first lawful successor. The Persians are shiites. From them the sect of Ismaelites separated. See the article *Islam*.

SHILLING (Anglo-Saxon, *skylling*; Swedish, *skilling*; German, *schilling*); the name of a coin of very different value in different places (see *Coin*), the etymology of which is very uncertain. It appears to have been originally only a money of account in England, or the twentieth part of a pound; and, according to some antiquarians, the first English shillings were coined in the beginning of the sixteenth century.

SHILLOOKS. See *Sennaar*.

SHINGLES. See *Erysipelas*.

SHIP; a locomotive machine, adapted to transportation over rivers, seas, and oceans. As no human device is more worthy of admiration than the ship, so no investigation can be more curious than to trace, step by step, the slow progress of improvement, from the first rude attempt of incipient navigation, down to the perfection of modern times. And here, at the very threshold of the inquiry, our attention is arrested by a singular fact—the uniformity with which the human mind, prompted by the same desires, and aided by the same faculties, arrives at the same results. How small, indeed, is the difference between the canoe of the Esquimaux, framed of the bones of beasts and fishes, and covered with the skins of seals, and those in which the poets show us Dardanus fleeing before the deluge, or Charon conducting his trembling charge to the shades below; between those said to have been used in primitive times by the Egyptian, the Ethiopian, and the Arab, and the light barks of the early Britons, made of osiers and hides, which Cæsar imitated in Spain to extricate himself from the perilous situation in which he was held by the lieutenants of Pompey! In what does the canoe of the American Indian, of the islander of the south seas, and of the native African, differ from those which the savage Germans hollowed from a single tree, in the days of Pliny?

It is an old tradition, that the first idea of the canoe was suggested by a split reed, seen by some ingenious savage floating safely upon the billow. Be this as it may, there can be little doubt that the raft, as it is the most easy and obvious means of crossing the water, was likewise of most early invention. The savage who first ventured forth upon a solitary tree, that the river had brought within his reach, must have found his situation unsteady and precarious: his ingenuity suggested the idea of fastening several together, and the conveyance became at once a safe one. The earliest records which history affords on this subject, show the Egyptians traversing the Nile upon rafts. The Phœnicians also availed themselves of the invention; and we are told that many islands, even the remote ones of Sicily and Corsica, were colonized with no better assistance. This will seem less improbable, if we remember that the Peruvians still make sea voyages on their raft, called *balza*, from the spongy tree of which it is made. It consists of a number of logs tightly bound together, and strengthened transversely by beams. They are tapered at the prow, to facilitate the division of the water, whilst vertical planks, descending below the surface, prevent drift, and enable it to sail towards the wind. These *balzas* we have met in the open ocean, loaded with from ten to twenty tons of merchandise, and contending effectually with the trade wind, which prevails along the coast of Peru. This form of ship is not, however, always safe: lifted as the logs are unequally upon the waves, the thongs which bind them together, if old or neglected, sometimes break or disengage; the bark of the mariner disappears treacherously beneath him, or the logs, crashing rudely together, serve for his destruction. Yet the attempts of the uncivilized navigator do not always shun comparison with those of a maturer age. We find the native of North-western America, in his little skin-covered bark of admirable symmetry, venturing forth amid the most boisterous waves, which pass harmless over him, and outstripping the fleetest barge in his rapid course. The flying *proa* of the Ladrone islands sails towards the wind with unequalled nearness, and with a velocity far greater than civilized man has ever attained, with all the aids of philosophy.

It were a vain task to record the various fables connected with the origin and improvement of ships, though the inventors were esteemed worthy to take rank among the gods, and even the ships to be translated to the heavens, where they still shine among the constellations; how Dædalus invented the art of flying, to escape from the labyrinth of Crete—an allusion to the sails with which he eluded the pursuit of Minos; how Hercules sailed with the hide of a lion, which was only his well known garment hung up for the purpose; or how the first idea of the sail was taken from the poetic voyages of the nautilus; how Atlas contends for the invention of the oar, and how many heroes claim the honour of the rudder. These inventions all, doubtless, originated in the earliest dawnings of civilization, before there were any means of recording them; and the ascription of them to individuals may have formed the pastime of succeeding poets. It may not, however, be equally vain to inquire what was the nature of ships among those nations which made the first advances towards civilization. We find that the Egyptians, in improving upon the rafts and canoes which they first used, built vessels of stout joists of acanthus wood, which were made to lap over like tiles, and were fastened with wooden

pins. The stoutness of the joist precluded the necessity of a frame except what was formed by the benches of the rowers. The seams were tightened by introducing the leaves of the papyrus. It could not have been long before ingenuity suggested the application of a natural agent for the relief of human toil; a mast of acanthus was raised, a papyrus sail suspended from it, and the rower rested on his oar, or only used it for the direction of his bark. In ascending the Nile, when the wind was either unfavourable or too light, the vessel was drawn against the current by men on shore, as Ali Bey describes to be still the practice. In descending, a hurdle or tamarisk was often let down from the prow, which, taking a deep hold of the stream, neutralized the efforts of the strong north-east wind, which a beneficent Providence sends to check the course of the stream and increase its height, at the season of the inundation. The early Egyptians did not, however, greatly improve upon this noble invention. Their peculiar prejudices, by confining them for many centuries to the navigation of the Nile, checked the progress of improvement. They had a horror of Typhon, as they termed the sea, because it swallowed that sacred river, which, being the great source of their happiness, they worshipped as a divinity. This horror extended to those who led a sea-faring life; hence the Phœnicians were not allowed even to enter the Nile. Driven to extend their voyages seaward, these mariners adapted their ships to the necessities of a more precarious navigation. Coeval with the Phœnicians, in the use of ships, were the inhabitants of China. But, situated as they are, in the neighbourhood of a circumscribed sea, surrounded by islands, and moreover, possessing, in their own resources, a supply for every want, discovery and improvement have long lain dormant there. It is believed,—and the fact is wonderful,—that the Chinese have floated down through thirty centuries in the same shapeless junk which now excites the ridicule of our seamen, and which they are yet unwilling to exchange for the improved models which daily pass them in their own seas, and continually force upon them the most humiliating comparisons. In the Chinese junk of our day we may, perhaps, see the counterpart of what the ship was in the days of the Phœnicians and of incipient navigation. Among the Phœnicians, Carthaginians, and Greeks, the earlier ships used in commerce were flat-floored, broad, and of small draught of water; the floor timbers were continuous at first, and they were without a keel, having instead a streak of wood on either side, to take the ground when stranding. Next, the keel was introduced, in order to diminish the drift with a side wind; and, to increase the strength, a keelson was soon added, overlaying the floor timbers and confining them to the keel; beams were also placed aloft, to hold the sides together and sustain the deck. The planking, which took its name, among the Greeks, from the garment which covers the human body, was firmly attached to the frame by means of iron nails, some of which passed through and were clenched within. When, however, the ancients discovered the tendency of iron to rot the wood, they substituted copper. To obviate the danger of starting the plank ends,—a danger still sometimes fatal to the mariner,—a piece of wood was let into both in the form of a dove-tail. Oak and pine, then, as now, were the woods most in favour; chestnut and cedar were also used, and to the last the Greeks gave the name of *everlasting wood*, though it was found not to hold well when nailed in the ordinary way, and to grow iron-sick; cypress, not being subject to shrink and cause leakage, was also esteemed, and elm wood was placed in such parts as were constantly under water. The Romans were very particular as to the season of felling ship timber; aware that there was much to be gained by attention to this subject, though mistaken as to the means. They would only fell between the fifteenth and twenty-third days of the moon's age, believing that when it was on the wane, the sap, which is the chief cause of early decay, descended: they were also attentive to the quarter from which the wind blew; in autumn it should be westerly, in winter north. To stop the leaking at the joints, lime and pounded shells were first applied: these being found soon to fall off, wax, rosin and pitch were advantageously substituted; flax was also driven into the seams, and leather occasionally used as a sheathing. A vessel of the time of Trajan, raised, after thirteen centuries, from the bottom of a lake, was found to have a bottom of pine and cypress, still in a sound state; her seams were calked with linen smeared with pitch, then sheathed with sheet lead and copper nails. Nor were the ancient vessels without ornament: the prow was especially decorated with paint and gilding, representing the forms of the gods; taking its name from the human face, its sides were called the *cheeks*. Its foremost extremity was usually carved into the representation of men and animals, or else formed a graceful curve; where it divided the water it was called the *goose*, from the image of that animal, placed there as an omen that the vessel should never sink. The distinguishing banner stood at the bow, representing a mountain, tree, flower, or other emblem: from this the name was usually taken, and conspicuously painted on a round piece of wood called the *eye*. The stern was sometimes carved in the figure of a shield, and elaborately decorated; upon a staff there erected, ribbons were hung, distinctive of the ship, and serving, at the same time, to show the direction of the wind: there, too, stood the *tutela*, or chosen patron of the ship; prayers and sacrifices were daily offered to it, and it was held so sacred as to offer a sanctuary to those who fled to it. Family considerations, patriotic partiality, or simple expediency, determined the selection of the deity; thus merchants committed themselves to the protection of Mercury, warriors to Mars, and lovers to Cupid and Venus.

The general form and size of the ancient ships varied with the progress of improvement, and with the warlike or commercial purposes for which they were constructed. The war ships of the Greeks were at first but row boats, with which they rushed upon the enemy and decided the battle by superior force and valour; in the course of time, this grew into the galley, which, being moved chiefly by oars, was of an entirely different form from the merchant ship.* Extreme narrowness, in connexion with great length, for the accommodation of many rowers, determined the form of the first, while the latter was constructed mainly with a view to capacity; hence the length of the galley was often six or eight times its breadth, whilst that of the merchantman was but four times; and hence, too, their distinctive names of *long ships* and *round ships*. The size of the earlier ships was necessarily inconsider-

* For a more minute description of the galley, see articles *Galley* and *Navy*.

able, as they were drawn on shore at the termination of every voyage, and had but a single mast and sail of cloth, or at first of leather, managed with ropes of the same, or of bark, broom, or hemp. When, however, the keel was added, and the size increased, stranding became no longer practicable, and the anchor and cable were invented to confine the ship at a due distance from the land. At first, this useful machine was but a large stone; it was afterwards of wood and stone combined, and lastly of iron, having teeth; the largest anchor, called the *sacred*, was only cast in extremity. In the progress of enlarging their ships, there is no doubt that the ancients attained, at length, a size quite equal to the most monstrous of modern times. Even deducting much from the recorded size of the cedar ship of Sesostris, and the Isis of Ptolemy Philopator; or from the more wonderful ship which Archimedes constructed at the order of Hiero, with its wood for fifty galleys; its banqueting rooms, galleries, stables, baths, fish-ponds; its floors inlaid with scenes from Homer's Iliad; its temple of Venus, and many other wonders, the subject of a whole book;—deducting much from this as fabulous, or even rejecting the whole, there remains a testimony to the occasionally enormous size of the ancient ships, which it is impossible to evade. This is the account of the ship in which the largest of the obelisks of Heliopolis was removed to Rome. We are told that Augustus, having removed two, dared not venture upon a third, of still vaster proportions, which stood before the temple of the sun. The enterprise, which was too great for Augustus, did not deter Constantine, who ordered the enormous block to be removed to Byzantium. He died before this was done, and his son Constantius enlarged upon the idea, and undertook to convey it to Rome. In this he succeeded; for the obelisk, though weighing fifteen hundred tons, was safely erected in the circus of the Vatican, where it still stands. We read that, besides the obelisk, the vessel carried eleven hundred and thirty-eight tons of pulse; this undoubtedly was all placed towards one end of the ship, to aid the decreasing size and weight of the upper part in balancing the base. Thus we have a Roman ship laden with twenty-six hundred tons; the Santissima Trinidad could have carried no more. These enormous productions, like the obelisks themselves, owed their existence not less to the hardy genius than the despotic institutions of the times; that they were unmanageable masses, and were regarded in those times as monsters, may be gathered, not merely from their names of Cyclades or Ætna, but from the single fact that a ship of only fifty-six tons is instanced, by Cicero, for her magnitude.

Such was naval architecture in the ages prior to the Gothic invasion, which drove this art, with every other, back into barbarity. We are told that the ships in which the Saxon pirates cruised in the German ocean, and invaded Britain, were made with a wooden keel, sides and upper works of wicker, and an exterior of hides. Though they may have improved somewhat on this primitive construction, yet it is certain that much of the previous advances in ship-building, the accumulations of many centuries, was forgotten, and to be rediscovered and tested anew. The brisk trade carried on in the Mediterranean, and the naval enterprises connected with the crusades, occasioned some improvements; yet the art advanced little, if at all, beyond the condition in which the Carthaginians left it. It was not until the middle of the fourteenth century that the inconsiderable war galleys of former times began to be superseded by larger vessels, in which oars were not entirely exploded, but which were chiefly moved by sails. These were crude enough; of crooked, half-moon shape, very high at the stem and stern; the planks nailed with iron, not set edge to edge and calked, but overlapping. They had usually but one mast, never more than two, with square sails attached to yards, and were only capable of advancing with a favourable wind. What a contrast between these rude machines and the noble production now called a ship, in which art and science are exhausted, the result of the gradually accumulating improvements of many generations! Sir Walter Raleigh well says, "Whoever was the first inventor of ships, every age has added somewhat to them; and in my time they have been greatly bettered. It is not long since striking the top-masts has been devised, together with the chain pump, which taketh up twice as much water as the old one: we have now studding sails, and the weighing of anchors with the capstan; moreover, we have fallen into consideration of the length of cables, and by it we resist the malice of the greatest winds; for true it is that the length of cable is the life of the ship."

Ship-building made, indeed, but a snail-paced progress until the introduction of the compass; and the application of astronomy to nautical pursuits at once set the mariner free from dependence on the land. The discovery of America resulted from these improvements and the inspiration of a single man. Thenceforward the mariner, thrown upon the wide ocean, was brought into contact with unknown perils, and to obviate them was led to untried expedients. The art has since strode forward with giant steps. To the Italians, Catalans, and Portuguese, belong most of the advances in the earlier days of its revival; the Spaniards followed up the discovery of the new world with a rapid improvement in the form and size of their ships, some of which, taken by the cruisers of Elizabeth, carried twenty hundred tons. In modern times, to the Spaniards and French belongs the entire credit of the progress which has been made in the theory of the art. Strange as it may seem, few improvements have originated with the greatest naval power of this or any other time. We have the authority of our own authors for the singular fact, that Britain has added little to the beauty, speed, and excellence of ships, the wooden walls to which she is indebted for her security. In America, ship-building has made unprecedented progress; with, however, little aid from theoretical principles and abstract science. And hence it may well be questioned, whether a blind attachment to arithmetical results—modified, as they must be in practice, by many causes escaping calculation—does not often serve to sanction error. The example of builders sufficiently proves that the artist, guided by experience and a practised eye, may dispense with elaborate theories; which, after all, are but the demonstration and systematic utterance of ideas which already exist in the untutored mind, and are daily acted upon. Experiment, though it may gain something from theory, is the only infallible guide.

In order to appreciate the extent and value of modern improvements, we have only to refer to the figure of the old ships, preserved in pictures of the most famous, and which may be found engraved in Charnock's valuable work on naval architecture

There we see the Great Harry, the wonder of the sixteenth century, a most terrific looking monster. Her bow and poop are of prodigious height, the signal lantern on the latter being nearly level with the round tops. She has an immense beak, with bow and stern balconies; six round towers at the angles of the poop, gangway, and forecastle, like the turrets of a chateau; four masts, with tops literally round, like inverted cones, and abundance of streamers from every spar. Even at the beginning of the seventeenth century, a vessel constructed by the duke of Northumberland, a schemer of that day, and then esteemed a miracle of perfection, measured fifty-four feet more on deck than at the keel, and was thirty-three feet high at the bow, fifty-one at the stern, and only twenty-eight in the middle. It is true that, very shortly after, a ship, launched in England, and called the Royal Prince, was very little different from those of our day, except that she was every where encrusted with carved work and gilding. Yet this is a solitary and uncopied example, for builders still clung pertinaciously to their inequalities, excrescences, and inflections, down to a late period of the last century. Indeed, in most nations of Europe, a high poop and inflected topside are still partially continued, though no longer to the extravagant degree which characterized the fashion at its height, when it was not unusual to see a ship taper upwards to half her extreme breadth. In the United States of America alone is this custom entirely abolished, experience having shown, what theory may also demonstrate, that it is vicious in every respect; that, while nothing can be urged in favour of *tumbling in*,—as it is well called,—but that it brings the guns nearer the centre, and hinders the smoke of the lower from incommoding the upper decks, it adds greatly to the difficulty of draughting, and the expense of timber and construction, at the same time taking from the spaciousness of the upper deck, increasing the crankness of the hull and the insecurity of the masts, by allowing no spread to the shrouds which support them. The long-established custom, too, of making the deck rise into a little mountain abaft, with the sole view of accommodating the commander and other great men with better quarters, has been as little respected in that republican country. They have reduced the whole topside to one uniform, unbroken level. Hence there are no obstructions to catch the wind; and, moreover, the vessels, being lighter at the extremities, pitch and perform their vertical motions with more ease. Hence, too, they are less exposed to camber, or become broken-backed,—a bending downwards of the extremities, which takes place in all vessels, more or less, at the moment of launching, and which is promoted when at anchor by the downward pressure of the cables, and at all times by the unsustained gravitation of the extremities, from their extreme sharpness, counteracted at the centre by the accumulating pressure of the resisting fluid in an upward direction. The American schooner—a model peculiar to that country, is of the simplest form, carrying the greatest breadth before the centre; the bow is very sharp, and the draught forward inconsiderable, but increasing towards the stern, where it becomes double. With great length and breadth, furnishing stability to bear a large surface of sail, and great depth to take hold of the water and prevent drifting, the burthen and consequent displacement of the schooner are inconsiderable, a large part of the bottom consisting of mere dead wood. Above water, her form is straight, low, and unbroken, offering no obstacle to the wind; the masts are long and tapered, and the sails, like the body, adapted to approach the wind, which the schooner does within forty or forty-five degrees, just twenty degrees nearer than the best equipped frigate; and she will sail in moderate weather as fleetly by the wind as from it. Unless, indeed, in gales, when her excessive speed, in conjunction with her wedge-like form, tends constantly, as she runs over the water, to raise the bow, and, by counterpoise, to depress the stern, to the danger of being overtaken by a pooping sea, the schooner going large is also victorious. It may be possible, in smooth water, with a vessel like the flying proa, or with a double boat of capacity to bear a single man, to surpass the speed of the schooner; but not with any vessel capable of traversing the sea, whether moved by natural or artificial agents. If it be considered that, in doubling the velocity of a body moving through a fluid, that body not only impinges on twice as many particles of the fluid, but on each of them with twice its former force, so that the resistance increases as the squares of the velocity, it may well be wondered how a speed of twelve, thirteen, and even fourteen sea miles the hour, has at length been attained.

Let us now proceed to the leading object of this article—to give an idea how, in our day, a ship is built, masted, rigged, and, finally, manœuvred; premising, simply, that it is not so much our desire to suggest new notions to those who are familiar with the subject, as, in accordance with the plan of this work, to convey a plain yet palpable idea to those to whom it is yet a mystery. The nicest and most difficult operation in ship-building consists in forming the draught. This is done, in Europe, by representing the form of the proposed ship in three distinct points of view. The first is called the *sheer plan*, and gives a complete view of the side: here are represented the length, depth, rake of the stem and stern; the wales, waterlines, decks, ports, masts, and channels. The *body plan* shows the breadth, having described upon it every timber composing the frame of the ship; those running from the place of greatest breadth forward being described on the right hand; those running aft, on the left. Lastly, there is the *half breadth*, or *horizontal plan*, showing the whole as if seen from above. To construct these draughts is exceedingly intricate and laborious; and, when finished, they convey no very clear idea of the intended ship. The American builders have a very different mode, very easy and satisfactory. They begin by making a wooden model of the proposed construction, the thing itself in miniature. Here the length, breadth, bulk, all the dimensions, and most minute inflexions of the whole, are seen at a single glance; the eye of the architect considers and reconsiders the adaptation of his model to the proposed object, dwells minutely on every part, and is thus able to correct the faults of his future ship, at the mere expense of a few chips, and while yet in embryo. We shall now state what are the essential qualities of a good ship, and how they are attained. In a ship of war, the great object is speed, connected, as far as may be, with ease of movements, and capacity to accommodate her crew and carry a large supply of water and provisions. One point, moreover, is especially to be looked to; this is, that the

ship float sufficiently high above water to run no risk of receiving seas in her lower ports in time of action. In order to be secure of this, the constructer must make an estimate of the whole weight of the ship, including body, spars, armament, men, and munitions, and must so model the bottom that it will have displaced an equal weight of water when arrived at the desired depth. But in the merchantman, of which we now particularly speak, the primary consideration is, to attain the greatest capacity to carry cargo, combined, as far as possible, with safe and easy movements and rapid sailing. Now, the only way to combine these qualities with any success, is to imitate a form which has stood successfully the test of experience. This the builder does when he forms his model, guided by a tasteful and accurate eye, accustomed to notice the forms of vessels, and to mark particularly those which have been distinguished for their good qualities.

Among the admitted and well established principles of construction, is the leading one, that the greatest breadth must always be before the centre, and consequently the bow be more blunt than the stern. Some of our best builders place this point only one third of the length from the stem. Abstractly, it would seem most important that the bow should be adapted to divide the water with the least possible resistance; but experience has proved that it is far more essential to facilitate the escape of the displaced water along the side of the vessel; for when once a passage is opened for the ship, the fluid tends to re-unite abaft the point of greatest breadth, where, instead of offering resistance, it presses the ship forward, in its endeavour to recover its level and fill the vacuum constantly opening behind her. Without recurring to Sir Isaac Newton for the demonstration by which he has shown the mathematical truth of this principle, it may be sufficient to instance the fact, familiar to every seaman, that a log tows infinitely easier by its bigger end; nor do we find a trifling concurrent testimony in the forms of the finny tribe, which an unerring nature has adapted to divide the element they move in, by a shape gradually diminishing from head to tail. As it is, then, less essential that a ship should be sharp forward than aft, there is a further advantage in having the bow full towards the edge, that it may check her in descending into the waves, not abruptly, but gently; pitching being the most dangerous to hull and spars of all a vessel's movements. Though sharpness towards the sternpost is vitally essential to fast sailing, yet care must be taken to leave the buttock full towards the surface, in order to check the stern gently in descending, and, when scudding before a gale, to lift it in timely season, on the arrival of a sea. To hit the exact mean in this respect, so as not to retard the sailing, on the one hand, nor, on the other, to endanger the safety of the ship, requires all the skill of the architect. The midship floor should be nearly flat, in order to render the ship buoyant and stable, or capable of bearing sail. It has been suggested that, since stability is in proportion to the length, an elongation of ships might be productive of increased speed; but, though they would thus be enabled to carry more sail without an essential increase of resistance, yet it may well be questioned whether this advantage would not be more than compensated by the corresponding increase of difficulty in turning, manœuvring, and rising to escape the breakings of the sea. There must also be a loss of compactness and strength proportionate to the increase of length, so that such vessels may be only adapted to the smoothness of a lake, or to the purposes of privateers and smugglers, who are desirous to procure rapid movements at whatever sacrifice. An increase of breadth may produce equal advantage without any sacrifice; for, inasmuch as stability increases as the cubes of the breadth, by adding one quarter to the breadth you gain a double stability, and, by consequence, a capacity to bear twice as much sail, with but one fourth of increase in the resistance. If it be remembered that the pressure of the water increases in descending from the surface, and that from this cause and the augmented difficulty of displacing it, the resistance offered to a ship in advancing, is three times as great at the lower as at the upper half of the immersed section, there can be no doubt that, if the law for measuring tonnage left his dimensions optional to the builder, the excess of depth now used would be transferred to the breadth. This being the case, it is deplorable that our government should so long have retained the old rule for the measurement of tonnage. This takes only into consideration the length and breadth at a single point, and, consequently, furnishes no standard whatever to judge of the capacity: hence, the merchant may have his ship made as deep as he pleases, and carry her breadth down to the floor itself, without any increase of tonnage: and one of three hundred tons may be thus made to carry three times as much as another of equal measurement, formed for speed and beauty. Now, as a ship's port charges are determined by her registered tonnage, this is a direct bounty for building ugly and disproportioned ships, and an equally direct tax upon every digression from the model of a bread-tray. Great detriment to the appearance, speed, and safety of our freighting ships results from this absurdity. But to return to our subject; an extreme in breadth, as in length or depth, is also dangerous. All extremes are here to be equally avoided. In civil architecture, an extravagance may be an eye-sore to men of taste, and render the projector ridiculous; but in naval, it too often proves fatal to human life.

Keeping, then, all these principles in view, as far as the tonnage law and the interests of the merchant permit, the builder proceeds to form the half model of his proposed ship, making it of the usual relative dimensions (a quarter of an inch to the foot). When satisfied with his performance, he takes asunder the horizontal sections of plank of which the block was originally formed, and he has before him all the waterlines in miniature. Having marked these on the floor of the moulding loft, he has all the necessary data, and proceeds to draught the entire frame. This done, pine moulds are formed of all the different parts, and the preparatory labours are complete. The scene now changes from the moulding loft to the ship yard, and the builder turns his attention to the materials. The timber most in request is oak, pine, chestnut, locust, cedar, elm, beech, &c. The felling and choice of timber is in itself an art. The tree should be taken in the second era of its growth, when it has attained maturity, without approaching the period of decay. It should be killed, by removing a ring of bark, at the beginning of winter, when the sap is down, and left to dry and harden before it be cut down. When felled, the timber

should be carefully stored in some dry, airy place, not much exposed to wind and sun. Painting should not be used, as, by sealing up the moisture in the wood, it rather facilitates than prevents decay; smearing with oil or tar, when well dried, is not so open to objection. In collecting ship timber, the greatest difficulty is found in procuring the crooked sticks, of which so many are required. In countries where timber has become an object of careful cultivation, this difficulty is anticipated by bending and confining the young trees to the desired form, or by cutting their young shoots at different periods, it having been observed that pollard trees are thus naturally produced by the browsing of cattle. The timber being collected, the workmen, with each his mould, proceed to fashion the pieces of wood assigned them, a due regard being had to careful conversion, that no stick is hewn contrary to its grain, so as to impair its strength, nor a larger one ever used than is necessary for the particular purpose; and, especially, that no bad or even indifferent wood be put in an important place, whence it could be removed only with difficulty.

The frame being now ready, we proceed to put it together. And first, the blocks are placed in the slip, and the keel laid upon them, the pieces being snugly scarfed together, and bolted; the keel is also scarfed to the stem forward, and the sternpost aft, the apron being raised with the stem, and the transoms and fashion pieces with the stern, if the vessel be not large. In laying down the keel, great care must be taken to preserve its perpendicularity, for which purpose it is pinned with treenails on either side of the blocks; also in raising and propping the stem and stern, and every piece of the frame. It is only by extreme attention that the builder avoids producing a crooked ship—an artificial monster of by no means rare occurrence. The floor timbers are now let into the keel, and every other one is there firmly bolted and riveted; they are crotches of trees formed by the trunk and one of the branches. Hence, in order to have equal strength on both sides, the butts should be placed alternately to right and left. As the floor timbers are the great connecting principles of the ship, to which they bear the same relation as the ribs to the body, too much care cannot be taken in selecting and securing them. The dead wood which fills up the angles at the stem and stern being got in, the kelson is laid upon the floor timbers, which let into it, until it rests upon the keel; its pieces are scarfed together, and to the stemson and sternson, which forms its prolongation up the stem and stern. A bend usually consists, besides the floor timbers, of four futtocks, and one top timber, on each side; the first, or lower futtock, descends to the keel, beside the floor timbers, to which it is either bolted or pinned with treenails; the heel of the second rests upon the head of the floor, and bolts to the side of the first; and so on up to the top timber. Towards the stem and stern, the timbers do not meet the keel at right angles, but are inclined respectively forward and aft, as well to economize timber, by adapting the sticks to the inclination of the curves, as to augment the strength of parts much exposed to shocks from waves, rocks, and icebergs. The different portions of the frame are thus raised to their places by sheers and tackles, and then carefully shored and kept to the proper breadth by cross-pales; ribbands are also carried round the frame and bolted, and every precaution taken to confine each separate part to its particular position. The frame, being now complete, is dubbed smoothly off within and out, preparatory to planking. Sometimes the frame is made completely solid, and calked; in this case, the interior covering of plank is dispensed with, excepting a few strengthening streaks. This method has many advantages; a little additional width to the timbers brings them in contact, when, besides their being naked, and exposed to the air within, there is no space for the generation of those destructive gases which cause dry rot. In this case, salting, which makes a ship damp and unwholesome, is also avoided.

Having advanced thus far in the construction, the next care is to proceed with the planking, which does not merely serve to exclude the water, but to protect, connect, and bind harmoniously together, and is quite as essential as the skin to the body. Though apparently the most simple part of this wonderful machine, it is yet very difficult. Just as, in draughting the frame, it is necessary to have in view all the ports and scuppers to be carried clear of the timbers, it is essential, in planking, to have a preconcerted plan of the whole. The butts must not come near the scarfs of the keel, nor beside each other within or without, nor near the port-holes, nor opposite the pumps, lest the oakum be sucked out, but must be judiciously distributed, so as to impart equal strength to every portion. It is also one of the nicest arts of the builder, so to carry up his planking as with little waste to keep his seams always fair with the waterlines. When it is necessary to bend a plank at the bow or stern, it is heated by steam, and then forced into place with screws and levers. While this is going on, the beams are erected and pillared on the inside planking; the knees, which are crotches of timber or iron, confine them to the sides, also the transoms at the angles of the stern; in like manner the breasthooks hold the stem to the planking and cant timbers of the bow. All this being attended to—the decks, plank sheer and rails finished, pumps placed, the bits for securing the cable, the capstan for raising the anchor, or, instead of these, the windlass, which, in merchantmen, more commonly serves the double purpose, the catheads for suspending the anchors, hatchways, mast holes, and a variety of other objects, which, though too many to enumerate, must by no means be forgotten—all being complete, the carpenter makes room for the calker, who carefully stops all the seams with oakum, and smears them with pitch. The scraper follows the calker, and, water having been pumped into the hold, to ascertain whether there is any leak, the bottom is ready to be sheathed or coppered, to protect it from the worms. Sheathing with wood is practised with iron-fastened ships, because copper would cause the bolt heads to corrode, if placed against them. It consists simply in covering the bottom with pine boards, sheets of paper soaked in hot pitch being placed between. In sheathing with copper, paper is also interposed. The plates overlap each other from bow to stern, to prevent their being stripped off by the continual shock of the passing water.

Our ship is now ready to be launched. This is the triumph of the builder. It is a nice operation, and is thus performed: If there be no ways in the slip (which is always an inclined plane descending into the water), they are immediately prepared. Two parallel platforms of solid timber are laid, one on each side of the keel, at the distance of a few

feet from it, and extending from the stem as far below the stern as can be reached at low water. In this position they are carefully and firmly blocked and supported throughout their length. This double platform is called the *ways*. Upon it a second system of timber is loosely laid, and well greased between. The space from these last to the ship's bottom is every where filled with wedges of soft wood fashioned to its curves. The whole is called the *cradle*. The extremities of the cradle at the bow and stern are bound tightly across the keel with chains or ropes, and it is further kept from spreading by stout mouldings, which overlap the outer edges of the ways. When the rising tide has reached well up the ways, the wedges are simultaneously driven on every side, and the ship is raised from the blocks on which she has hitherto rested, and made to repose entirely on the cradle. The shores are all removed except the two spurs planted against the counters, and when the proper moment has arrived, these are also knocked away. The vessel, now abandoned to her weight, and encouraged by the yielding of the grease, begins slowly falling along the inclined plane; her motion becomes at each moment more and more rapid; the ways smoke and ignite with the pressure and velocity of the moving mass; and, in a twinkling, the noble fabric has abandoned for ever its union with the land, and entered, careering and joyous, upon its destined element. Among the ancients, a launch was ever an occasion of great festivity. The mariners were crowned with wreaths, and the ship bedecked with streamers and garlands. Safely afloat, she was purified with a lighted torch, an egg, and brimstone, and solemnly consecrated to the god whose image she bore. In our less poetic times, there is no lack of feasting and merriment, though, instead of the torch, the egg, and the brimstone, the oldest sailor breaks a bottle of rum (unless, indeed, he may have slily substituted water as more appropriate to a christening) over the head of the emblem—still, perchance, the image of father Neptune or Apollo.

The moment the ship leaves the land, the builders cease to be competent to her control, and she passes at once to the hands of the seamen. Before launching, the sailors stationed on deck hasten to attach a small cable to some object on shore, and have it clear on deck for veering out; a small anchor, with a second cable, is also prepared to drop on the bottom. By means of this apparatus, when the velocity gained in descending the ways has declined, the ship is gradually checked, and at length drawn alongside of the wharf, which is to be the scene of her equipment. And now, while she is yet light and high out of water, is the most favourable time for shipping the rudder. The rudder is a machine placed at the stern of the ship, by means of which she is steered and turned about at pleasure; for by inclining it to one side, the passage of the water is there strongly opposed, which, checking the advance of that side, gives the other a rotatory motion around it. It consists of two or more pieces of timber, of the thickness of the sternpost, of which, when not inclined, it seems a continuation. Narrow at the water's edge, where it might be endangered by the shock of a sea, and with it the very existence of the ship, it gradually increases in width towards the keel, where, from the nearly straight line in which the water reaches it, it exerts a more direct power to turn the ship. From forty to forty-five degrees is the most favourable angle for it to make with the keel, a greater serving rather to retard velocity than to cause rotation. To ship the rudder, it is only necessary to attach weights of iron to the heel, so that they may be loosed afterwards, and then sink it behind the sternpost, guiding it with ropes to the rudder port, through which it is hoisted by means of sheers and tackle placed above. The pintals having caught the hinges or gudgeons on the sternpost, it is abandoned to their support, while a chock, placed above the upper pintal, prevents it from being unhung. A tiller, with ropes and a wheel, to turn the rudder, completes the steering apparatus. Before raising the masts, it will now be well to take in ballast, especially if the ship be sharp. In every merchant vessel, it is a good rule never to be without a small quantity of copper dross or shingle. And next, the sheers are got ready. They are two stout spars, having the large ends at the sides of the ship, the small ones being lashed firmly together, and overhanging the middle of the deck. They are lashed and rigged with guys and gantlings before being raised; the ends rest on the tafferel, and the tackle to be used in hoisting in the mast, being taken forward to the windlass, serves to raise them. If it be necessary, a small pair of sheers are used to lift the ends until the angle be sufficiently open to give power to the purchase.* When erect, they are first placed over the hole for the mizzen-mast, and, if the ship be large, the deck should be shored up, to relieve it of the weight of the sheers and mast. Overhauling your tackle down to where the mast is on the wharf, or in the water, you lash the lower block securely to the front of the mast, just above the centre of gravity. With this, and a smaller tackle or gantling to the mast-head, the mast is taken up abaft the sheers, until high enough, then lowered to its place, the step being tarred, and a piece of money thrown in for luck. The sheers are easily moved forward by their guys and tackles, the shoes in which their heels rest being greased, to slip over the deck. In this way the main and fore-masts are likewise taken in, and, the sheers being drooped over the bows, lastly, the bow-sprit.

There are various rules for sparring ships, all founded upon their length and breadth, which are the main elements of stability. It may be sufficient to name one simple rule for the length of the main-mast, this being the prime mover: Add the length at the load water-line to the main breadth, and take the half sum as the length of the mast. The top-mast may be three fifths of the lower mast, the main yard seven eighths of the same, and so on upwards. The fore-mast may equal seven eighths of the main, with upper masts and yards in proportion. The mizzen-mast, if stepped on the kelson, is five sixths of the main-mast. The best rules on this subject are, perhaps, found in tables accurately prepared, in which the lengths of the masts are given in fractions of the ship's breadth, and those of the yards in fractions of the length. For the rest, it will be, in most cases, necessary to modify any given rule, in all instances, with immediate reference to the particular model of the ship, and to the uses for which she is destined. A vessel of war will have spars to spread sail to the full extent of her stability, while a merchantman will be sparred with reference to the limited force of

* There is a variety of forms of rigging—ships, brigs, brigantines, schooners, sloops,—but we shall only notice the most esteemed form, called the *ship par excellence*.

her crew. As for the disputed advantages of long or short lower-masts, we agree entirely with Sir Cloudesly Shovel, who says, with equal wit and wisdom, "I mightily esteem short lower-masts; for, the shorter they are, the longer they will stand." With long top-masts you may make up an equal or even greater surface of canvass, far more advantageously spread, and more manageable, while it is procured at less expense, and with less weight aloft. It would be, moreover, an advantageous improvement in merchant ships, not sparred to the extent of their capacity, to make the fore and main-masts, in all cases, of equal dimensions. With improved appearance, they would have all the respective spars and sails, except the courses, answering equally for both masts. This would enable them to go to sea with fewer spare ones, or to derive more advantage from the usual number. In small ships, all the spars are of single sticks of pine timber, which, for equal contents, are always stronger; but, for ships above six or seven hundred tons, it is impossible to procure single trees sufficiently large; and then it becomes necessary to resort to made masts (so called), which are of oak and pine, very artificially put together, and bound with stout hoops of iron.

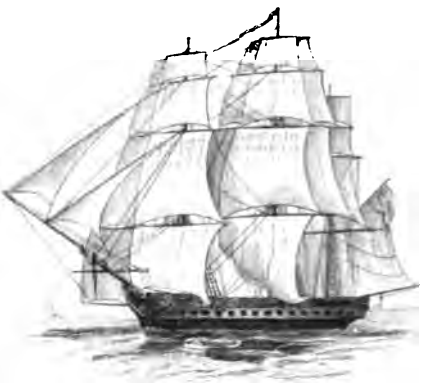
The spars of a ship are not abandoned to their own unsupported strength, but are sustained by what is called the *standing rigging*. This consists, for the bow-sprit, of gammoning and bob-stays, confining it down to the stem, and shrouds, which sustain the immense lateral pressure which it endures when on a wind. The jib-boom and flying-jib-boom are, in like manner, supported by means of martingales and guys. The fore-mast is supported by three or four pairs of shrouds on either side, which set up to the channels, and by two stays led forward to the bowsprit. The fore-top-mast is supported by shrouds setting up in the top, back-stays descending to the channels, and stays leading to the bowsprit end. The top-gallant and royal-masts have also their shrouds setting up through the cross-trees, their back-stays descending to the channels, and their stays leading to the jib and flying-jib-booms. In like manner are the main and mizzen-masts supported, except that the main-stays set up on deck beside the heel of the bowsprit, the main-top-mast-stays at the head of the fore-mast, the main-top-gallant-stay to the fore-top-mast-head, and main-royal-stay to the fore-top-gallant-mast-head. The mizzen-stay also sets up beside the main-mast, and the same in ascending. The running rigging consists of the tacks and sheets that serve to spread the sails, the halyards, traces, lifts, clewlines, and all other ropes used in making, taking in, or manœuvring the sails.

The sails of a ship are square sails bent to the yards, and fore and aft sails traversing on stays or bent to gaffs. Let us describe an entire suit, beginning forward: On the extremity of the bowsprit is the flying-jib, a three-cornered sail, which goes from the end of its boom upward along its stay, leading to the fore-top-gallant-mast-head, and confined to the stay by rings of wood or iron, called *hanks*. It is hoisted by means of halyards, hauled down by a downhaul; and, when up, is trimmed to hold the wind by a sheet leading to the forecastle. The jib, which leads from its boom to the fore-top-mast-head, is of similar form, and so is the fore-top-mast-stay-sail, running from the bowsprit end towards the mast head. On the fore-mast we have the fore sail, bent to the fore-yard, and spread at the foot by means of tacks and sheets; above it the fore-top-sail, bent to the top-sail-yard, by means of which it is hoisted aloft, while its lower corners are spread to the extremities of the fore-yard; next the top-gallant-sail, bent to its yard, and sheeting home to the top-sail-yard; and so with the royal and sky-sail. All these sails are turned at pleasure, to be presented to the wind, by means of braces attached to their yard-arm, and leading to the main-mast. The main-mast is furnished with a similar suit of sails, somewhat larger; the mizzen also, though smaller than either; instead of a square sail on the lower mast, it has a gaff-sail, hoisting up and down abaft the mast. Some ships have similar gaff-sails on the fore and main-masts, which are found of great use in gales of wind, as a substitute for storm stay-sails. Most carry, also, light stay-sails between the masts; but they are very troublesome, and worse than useless. Studding-sails, or *wings*, as they are better called by the Spaniards, spread without the square-sails when going large, and are very useful. The perfection of equipping a ship with spars, rigging and sails, consists in so disposing them, that, in a whole-sail breeze, the centre of effort of all the sails will be in the same line with the ship's centre of rotation; or that the efforts of the forward and after sails to turn the ship will be so exactly balanced as not to require any continued assistance from the rudder in either direction; for this, while it impedes her progress, does not leave the entire force of the rudder disposable, when necessary to turn. Of the two evils, however, seamen have more patience with a ship disposed to approach the wind, than with one needing the continued action of the helm to keep her from falling off. The French helmsmen well characterize these two qualities by calling a vessel which has the first *ardente*, the latter *cowardly*. Like, however, cool courage between impetuosity and cowardice, a midship helm is still the golden mean.

Our ship is now completely equipped, and ready to receive cargo. Those articles with which a ship may be filled full are stowed with a single view to economy of space. Some, as cotton, require ballast; others, as staves, or sugar and fluids, require none. When the articles are heavy and light, the heavier are placed nearest the bottom, to increase the ship's stability. When, however, all are heavy, there may be danger of making a ship too stiff; so that not being balanced, she will roll violently, and, perchance, risk the fracture of a mast, or even spring a leak. To obviate this danger, the cargo should be raised: if iron, some should be stowed between decks; if coal or salt, it may be heaped up in the centre, taking care to secure it against shifting should the ship be knocked down by a sea or squall. Heavy articles should never be placed towards the extremities, lest they promote pitching. In all cases, care must be taken to preserve the trim of the ship—that just proportion between her draught forward and aft, which the estimate of the builder, or, when a voyage has been made, experience itself has determined to be most favourable to rapid sailing.

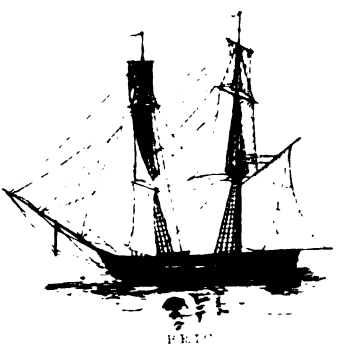
The ship, being ready for sea, is usually dropped into the stream or roadstead. There she is confined by an anchor and cable passing through the hawse-hole at the bow, and clinched round the bitts or windlass. As a vessel thus anchored is free to swing round at the will of wind and tide, she is liable to wind her cable round the anchor, and thereby entangle and change the position of its flukes so

MAN OF WAR



FRIGATE

MERCHANTMAN



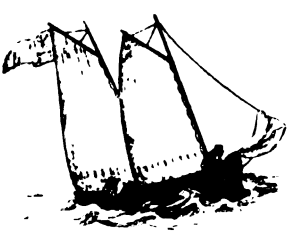
PETO

SCHOONER

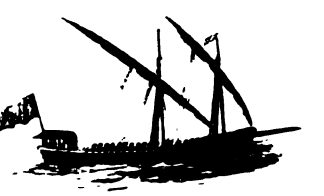
LUGGER

SLOOP

XEBEC



WHERRY



GALLEY

Engraved by R. Scott

to incapacitate it for holding her. To obviate this inconvenience, it is usual to moor with two anchors, one placed in the direction of the flood, the other of the ebb tide. If there be no tides, the anchors are opposed to the prevailing winds, the heaviest being towards the most windy quarter. Should a gale occur while thus moored, by veering out the cable which holds the ship, both may be brought ahead to act in concurrence. Care must ever be taken to keep the hawse clear for thus veering, that is, to prevent the ship from twisting her cables, by turning always the same way; or, when this unavoidably occurs, the hawse must be cleared by unbinding one of the cables, and carrying it round the other beneath the bow, until the turns be removed.

When about to sail, the hatches are carefully calked down and tarpaulined, except those necessary for the ascent and descent of the crew, and the boats are stowed. You may now unmoor, preparing the first anchor for letting go before taking up the second. If tending to the tide, with the wind fair to pursue your course, the last anchor may also be taken up and stowed before making sail. If, however, as is usual, your ship lie head to wind, stop heaving in when the cable is short, and proceed to make sail. The wind being moderate, the courses, top-sails, top-gallant-sails, jib and spanker may be loosed together; the top-sails and top-gallant-sails are sheeted home and hoisted up; and the other sails hang ready to be called into action whenever necessary. The yards are now braced ready to cant the ship. If you wish her to go to the right, the head yards are braced with their right sides forward, and the afteryards the contrary way. Hence the wind, striking the fore sails obliquely on the left, tends to force them to the right; and, on the contrary, the after sails, being acted upon in an opposite direction, are forced to the left; but the fore sails are forward of the centre of rotation, while the after sails are abaft it; consequently the efforts which they respectively exert will tend, the first to force the ship's head to the right hand, the others the stern to the left. The sails thus trimmed, now heave up the anchor, profiting of the trifling advance through the water to turn the ship's head still more, and make the angle of the wind with the keel more open, by the action of the rudder. As soon as the anchor trips, and the wind begins to force the ship sternward, shift the rudder to the opposite side, that, by offering an obstacle on the left of the ship, the right side may turn backward round it more rapidly. This action of the rudder, in conjunction with the sustained effort of the sails to turn the ship to the right, and, presently, the addition of the jib, will gradually make the wind more and more open on the left bow, until at length it becomes sufficiently so to fill the after-sails, which have hitherto lain aback. When this is the case, the fore yards are braced full, the spanker and courses set, and the ship immediately begins advancing. This mode of weighing is practised where there are other ships or a shore to leeward; otherwise it is more common not to hoist the jib, or fill the fore sails, until the anchor is raised to the cat-head. The ship being under weigh, the time occupied in clearing the harbour is employed in stowing the anchors, unbending the cables, if the nature of the coast render it safe to do so, applying mats to the rigging and yards, to prevent chafing, and in securing the boats, water-casks, and whatever other movable objects might be in danger of starting by the pitching and rolling of the ship.

Our ship is now at sea, and it only remains to us briefly to explain the manner in which she is propelled and governed, and made obedient to her crew. There is no difficulty in conceiving how a ship may be made to move before the wind through a quiescent fluid like the sea. Let us suppose one at rest in a perfect calm, and equally pressed on every side by the gravitating action of the same fluid: she is maintained in equilibrio. But, by and by, a wind rising behind her, strikes her sails perpendicularly, and exerts a pressure in a single direction. As, however, the sails are attached to spars, and these in turn to the ship, it is evident that they cannot obey the impulse independently of the ship, but that all must move in unison; and the ship, being before pressed by the water equally, and maintained in quiescence, requires but a slight additional pressure in any direction to destroy her equilibrium. This pressure is abundantly supplied by the air of our atmosphere; for, though little more than a thousandth part the density of the sea, it may receive a velocity enabling it to strike the sails with its particles in such quick succession as to force the ship forward with great rapidity, and, if the resistance of the water check her escape before it, may even act with sufficient power to blow away the strongest sails, or even tear the masts out. Thus a beneficent Nature, in providing an element essential to our existence, by subjecting it to laws requisite for its healthy preservation, and forming a necessary link in the universal economy, has at the same time supplied an ever-active agent, which the ingenuity of man—an emanation of the same great Intelligence—has rendered subservient to the noblest purposes.

Conceiving, now, how it is possible for a ship to move freely before the wind, with a velocity determined by the force of that wind, the quantity of sail exposed to it, and the adaptation of her form to divide the sustaining fluid with the least resistance, we will now show how it is also possible for her to move in directions other than directly before the wind, and even to approach it. Let us suppose that the wind, at first dead aft, gradually veers towards the side, until it blows at an angle of forty-five degrees with the keel. If, with the wind thus blowing, I still preserve my sails braced perpendicularly to the keel, it must necessarily strike their surfaces obliquely, dividing itself into two forces, one passing off to leeward, the other exerting itself in the direction of the keel, and therefore tending to propel her forward. If, however, in order to expose my sails more fairly to the wind, I brace them forward until it becomes again perpendicular to their surfaces, the action of the wind on the sails is simple, but that of the sails on the ship is in turn, compound, subdividing itself into two forces; one acting to drive her to leeward in a direction perpendicular to the keel; the other, forward in a line with it. If, now, the ship were of a figure to move with equal freedom in any direction—round, for instance—it is evident that she would assume a mean motion between these two forces; but, being so formed as to divide the water with infinitely greater difficulty sidewise than forwards, the force exerting itself perpendicularly to the keel is neutralized, whilst that in a line with it, encountering an inferior resistance, compels the vessel to advance. We will next suppose the wind to have drawn forward until perpendicular to the course. The sails,

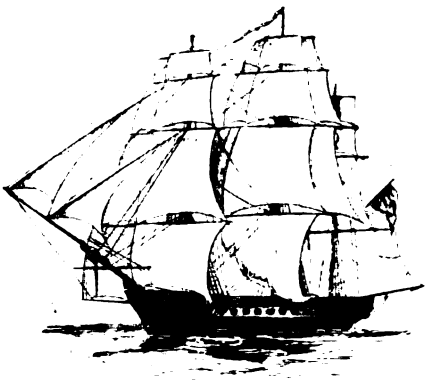
being trimmed forward, so as to keep full, are struck obliquely, and if the ship were again free to move in any direction, would impel her in a course perpendicular to its surface; but the portion of this force tending to drive the ship to leeward, being again encountered by the lateral pressure, is almost balanced; while, on the contrary, she freely obeys the force tending to propel her forward. Lastly, let us consider the situation of our ship when the wind gets before the beam, so as to make an angle of less than ninety degrees with the course. It is evident that, if she still continue to advance, it must be towards the wind: this seeming paradox of a vessel approaching the wind by the very effort of that wind to drive it away, will still appear clear by the application of the same principles. To meet the emergency, let us now suppose the yards braced forward, until they make an angle of only thirty degrees with the keel; the wind, being thirty farther aft, will make an angle of sixty with the keel. In this position, the wind will strike obliquely on the after side of the sails; and though the greater part of the force passes off to leeward, there is still a partial effort to drive the sails in a direction perpendicular to their surface. This effort subdivides into two forces; one perpendicular to the keel, the other in a line with it: the first is nearly overcome by the lateral resistance; the second, encountering less, causes the ship to advance, with a velocity proportioned to the smallness of the angle of incidence, and the disadvantageous application of the propelling power.

From what has been here stated, it would seem that, in theory, the situation of the wind most favourable to propelling a ship, is when it acts perpendicularly to the sails, and they in turn to the keel; that is, when dead aft. In gales of wind, this is likewise true in practice; but in moderate weather, a ship will sail faster with the wind on the quarter, or even abeam; for then the sails do not mask each other, but all receive the wind without interruption. On this account they more than make up the disadvantages of the unfavourable angle; of having the sails transported to leeward, by reason of which that side tends to advance faster than the other, to the disordering of the steerage; of the ship's heeling, and receiving the wind obliquely in the vertical direction; and, finally, of making her sail partially on one side, instead of on an even keel, as she is designed to do. On this account our sharp schooners will sail nearly or quite as fast on a wind as off it, the sea being smooth and wind light; for whilst all their sails act advantageously, by approaching the wind, they add to its force, instead of diminishing it, as when running from it. In square-rigged ships, bracing the yards correctly is one of the nicest points of seamanship; in general, the nearer the yards approach to being perpendicular to the keel, consistently with keeping the sails full, the greater will be the velocity.

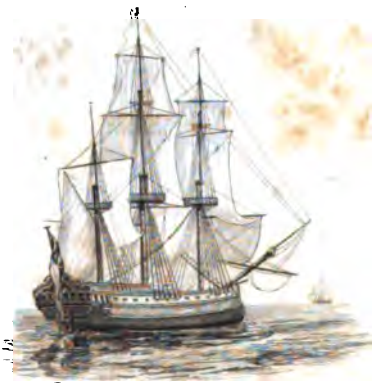
But to return to our ship; It may chance that the wind does not stop at the exact point which would enable her, close-hauled, barely to go her course, but even heads her off so far that she can no longer approach it nearer than a right angle. It is evident, now, that she is gaining nothing; but since she can sail within sixty degrees of the wind, by closing with it on the other side, she may approach within thirty degrees of the desired course. Hence it becomes essential to change sides. There are two ways of performing this evolution: the first consists in turning round towards the wind, and is called *tacking*; the second in turning before it, and is called *veering*. As the first requires the ship to turn a much smaller segment of a circle and moreover maintains her head towards the desired course, so that all her progress during the evolution is gain, and finally, since it is performed with greater ease and expedition, it is always preferred when practicable. To tack, the crew are all stationed at the tacks, sheets, braces, and bowlines ready to change the position of the sails. The ship being already close to the wind, the helm is gradually eased down, so that the rudder may not exert its full force until she begins to turn, nor act suddenly to check the headway, so essential to the success of the evolution; at the same time, the head sheets are flown, so as to cause the sails before the centre of rotation to shake, and lose their power of balancing the after ones. As the ship approaches the wind, the spanker is drawn gradually from the lee side towards the centre, that it may keep full, and, by its action so near the stern, continue promoting the rotation. As soon as the sails reach the direction of the wind, and cease to draw, the corners of the courses are drawn up, and the tacks and sheets overhauled, ready to swing the yards. After a while, the sails catch aback, and the fore sails, soon masking the after ones, act with a powerful lever to turn the bow. At length, having come head to wind, without loss of headway, and the evolution being certain, the after yards are swung round, ready to receive the wind on the opposite side; which operation is then more easily performed, from the sails being becalmed by the fore ones. Lastly, when the after sails are filled by the wind, the head yards are also braced round to receive its impulse, and the ship at once recovers headway. Should she gather sternway before the sails become full on the new tack, the helm is shifted, that its action in a backward direction, instead of checking, may aid the rotation. There may, however, be occasions in which it is impossible to tack, either because the wind is not of sufficient force, or else so strong as to render it dangerous; then veering is resorted to. To veer, we put the helm hard up, brail the spanker, and shiver the after sails: in this situation the pressure of the head sails, not being balanced by the after ones, tends, in conjunction with the rudder, forcibly to turn the ship. As she falls off, the after sails are still kept shivering until braced sharp on the opposite tack; when before the wind, the spanker is set to aid the after yards and helm in bringing her to; the fore sails are then squared, and gradually braced forward until the ship be by the wind again.

Thus easily is a ship manœuvred in fine weather. Not unfrequently, however, a gale comes to disturb the peaceful course of the mariner, and call forth all his exertions. Let us suppose that, whilst our ship is contending against the head wind, the misfortune is augmented by its gradual increase. Shortening sail becomes necessary, and is determined by two leading considerations—the stability of the ship, and the strength of her masts: it is to diminish the careening of the one, and avoid endangering the other, that the surface spread to the wind is reduced. In shortening sail, we always begin with the highest and lightest sails, descending gradually, and keeping pace, in an inverse ratio, with the increase of wind. The sails do not, however, come in uniformly in the direction of the length; but the after sails most rapidly; because,

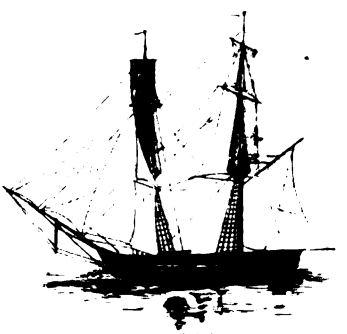
MAN OF WAR



FRIGATE

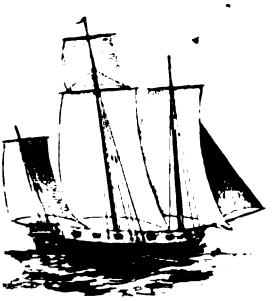


MERCHANTMAN



BRIG

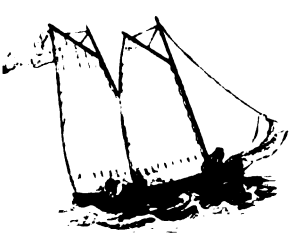
SCHOONER

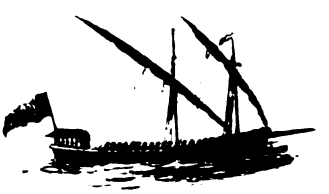


LUGGER

SLOOP

XEBEC





GALLEY

Engraved by W.B.

as the wind increases, the energy which it exerts in a forward direction upon the masts, tends, with a powerful lever, to depress the bow and raise the stern; hence the latter drifts more easily to leeward, thereby bringing the bow towards the wind; this effort is also promoted by the action of the sails passing farther to leeward, and by the ship ceasing to sail on an even keel. From all these reasons, the more the wind increases, the more she tends to come to; so, to avoid a constant recurrence to the action of the rudder, it becomes necessary to shorten sail faster aft than forward; taking in the mizzen-top-gallant-sail, and even the spanker, before the fore and main-top-gallant-sails: for the same reason, when it becomes necessary to reef, it is not unusual to begin with the mizzen-top-sail. Reefing consists in binding a portion of the sails to their respective yards, so as to reduce the surface. To reef the top-sails, we clew the yards down, haul up the sides of the sails by means of reef-tackles, and brace the yards to the wind, until the sails shiver and spill; then the men go out on the yard, and, by means of the earings and reef-points, securely bind the requisite portion. When the top-sails are double-reefed, it is time for the jib to come in to relieve the jib-boom and fore-top-mast of the pressure: to counterbalance the loss of this head sail, the mizzen-top-sail may be furled. When the top-sails are close-reefed, the main-sail is either reefed or furled. As the gale increases, furl the fore-top-sail; taking care to draw up the weather clew first, that the sail may not be in danger of shaking and blowing away. Our ship is now under reefed fore-sail, main-top-sail close-reefed, fore-top-mast-stay-sail, and storm stay-sails; these are stout triangular sails, running in the direction of the fore, main, and mizzen-stays; they are often advantageously replaced by gaff-sails, which are similar to the spanker. Should it blow still harder, it may be necessary to take in the fore sail, replace the fore-top-mast by the storm stay-sail, and even furl the main-top-sail. The ship now drifts much, and, tending to fall off, from her greater draught abaft, and consequent resistance of the water, will require the reefed spanker, and even the continued assistance of the rudder, to keep her to: the helm being kept constantly hard down, she is said to *lie to*. This is the way in which most ships make the best weather; some, however, tend so much to fall off into the trough of the sea, as to be in perpetual risk of being boarded by the waves (which wash the boats and other movables loose, sweep the crew overboard, to creep up the sides again by the channels, or find a watery grave), and, if the hatches be not well secured, of having her existence fatally endangered. In this case, it may become necessary to bear up and scud. To do this with least risk, it is necessary to show the head of the fore-top-mast-stay-sail, or part of the fore-sail or fore-top-sail; taking advantage of a momentary lull and smoothness of the sea to bear away. The after sails are taken in on putting up the helm, and it may even be necessary to cut away the mizzen-mast. When before the wind, sufficient sail must be spread to keep the ship before the waves, that they may not overtake and strike her with too much force; the main-top-sail, from its height, is never becalmed by the sea, and is therefore a good sail to scud under. At such a season, special care must be taken to provide for the security of guns, boats, and other moveables, liable to tear themselves loose; also that the pump well be sounded at short intervals, to have timely notice of a leak. Too often the ship yields to the fury of the elements, disappearing for ever, with all her treasures of property and of life; oftener, however, the elements become weary with their own violence, and man remains triumphant; the gale abates; the mariners, all alacrity, send up the masts and yards which they had housed and taken down on the approach of the tempest; the reefs are all shaken out, and sail is added, to keep the ship from labouring in the still raging waves. Hope mounts with the ascending canvass: and now the wind, become less wayward, again permits us to turn the prow towards the haven whither we would arrive: the wings, whose spreading and furling are ever the signal to the mariner of joy or of sorrow, are once more wide extended; every spot is white with the bellying canvass, the sea foams beneath the bow, and we bound merrily towards the land.

And are we not justified in expressing our admiration at this great achievement of man—the production of this wonderful machine—the most complicated, most perfect, sublimest of all the works of art? If it be well said that man is the noblest work of God, it may with equal truth be asserted that the ship is the noblest work of man. Our language has indeed done well in awarding to her the honours of personification.* It were a vain task to attempt enumerating the various geometrical problems involved in her design, or the multiplied mechanical principles combined in her construction. Let us only, forgetting all we know, endeavour for a moment to realize the immeasurable distance and difficulties between the trees growing in the forest, the iron and copper buried deep in the bowels of the earth, the hemp waving in the fields, the tar sealed up in its timber, and the actual achievement of the sailing ship? Yet a very short time—a single month—suffices to transform these rude productions into the magnificent machine, which, notwithstanding its mountain form, obeys each command of the mariner; goes from the wind, towards it, halts, or redoubles its velocity, obedient to his voice; in which he launches boldly forth amid the horrors of a troubled ocean; braves them successfully, conducted by the inspirations of a sublime philosophy; attains the most distant shores; accomplishes his purpose, and returns, enriched, enlightened and triumphant, to his home. For the sequel of this subject, see *Navigation*, and *Navy*.

In plate LXXXII, will be found representations of various kinds of vessels—a man of war, a frigate, a merchantman, a brig, a schooner, a lugger, a sloop, a xebec, a wherry and a galley. Some of these are described under their proper heads. A *man of war* belongs to the largest class of war vessels; a *frigate* to the secondary class. A *merchantman* represents

* It is a peculiarity of the English language to apply the feminine pronouns to a vessel; in fact the illiterate in England have a peculiar inclination to give the feminine gender to inanimate objects. Carpenters, moving a large piece of timber, will say, Here *she* comes; a sailor calls his watch *she*. The navy, in England, being a subject of universal interest and pride, peculiarities in the language of seamen would be more likely to come into general use, than the cant phrases of other classes. The mower calls his scythe *she;* but this was never admitted into good language. Mr Cobbett, in his Grammar of the English Language, Letter V, says—"It is curious to observe that country labourers give the feminine appellations to those things only which are more closely identified with themselves, and by the qualities and condition of which their own efforts and their character as workmen are effected. The mower calls his scythe *she;* the ploughman calls his plough *she;* but a prong, or a shovel, or a harrow, which passes promiscuously from hand to hand, and which is appropriated to no particular labourer, is called *he*," &c. The Scotch Highlanders even use the feminine pronoun for male persons, as our readers know from Scott's novels.

the highest class of merchant vessels. A *ship*, in the strict application of the term, has three masts; a *brig* has only two, but it is square-rigged like a ship. A *schooner* has two masts; but though it has top-sails and top-sail yards, it is not, in general, square-rigged like a brig. A *lugger* is a small kind of vessel, but which carries three masts and a running bow-sprit. Its sails are of a description called lug-sails. A *sloop* has but one mast, and is generally employed on the coasting trade. There are, however, sloops of war, which carry ten or twelve guns. A *brigantine* is a brig which can either be sailed or rowed. A *xebec* is a light swift-sailing vessel, of three masts and a long prow, peculiar to the ports of the Mediterranean. A *galley* is another vessel peculiar to the ports of the Mediterranean. It is low-built and carries two masts, but depends chiefly upon being rowed with oars. Galleys were formerly much used by the Barbary pirates. A *yacht* is a small vessel with one deck, designed either for state or pleasure. A *wherry* is a small kind of yacht, used chiefly by fishermen.

SHIP OF FOOLS. See *Brandt*.

SHIRAZ. *Schiraz*.

SHIRE; a Saxon word, signifying *division*; the old Saxon name for the larger districts into which England was divided, and which has been, in a great measure, superseded by the Latin term *county*. (See *County*.) Hence the name *sheriff* given to the chief officer of the shire, and *shire-gemote* (Saxon, *gemote*, meeting), to the sheriff's tourn or county court. (See *Courts*.) The English county members of the house of commons are called *knights of the shire*.

SHIRLEY, JAMES, a poet and dramatic writer, was born in London about 1594, educated at Merchant Tailors' school, and thence removed to St John's college, Oxford. He became a favourite with Doctor Laud, who discountenanced his entry into the church, on account of a large mole upon his cheek, which he deemed a disqualification by deformity, according to the canons. On removing to Cambridge, he met with no difficulty on this score, and obtained a curacy near St Alban's. He soon after went over to the church of Rome, and, giving up his curacy, sought to establish a grammar-school in the same town. Failing in this endeavour, he removed to London, became a writer for the stage, and acquired a reputation which caused him to be taken into the service of queen Henrietta Maria. His first comedy is dated 1629, and he wrote nine or ten between that year and 1637, when he accompanied the earl of Kildare to Ireland. He returned the following year, and when the civil war broke out, he left London, with his wife and family; and, being invited by the earl of Newcastle, he accompanied that nobleman to the wars. On the decline of the king's cause, he returned to London, and, the acting of plays being prohibited, resumed his school. In 1666, he was forced, with his wife, by the great fire, from his house in St Giles's parish; and, being extremely affected by the loss and terror that the fire occasioned, they both died, October 29, within twenty-four hours. Besides thirty-seven tragedies and comedies, he published a volume of poems, some specimens of which may be found in Ellis's Collection.

SHISHAC OR SESAC; an Egyptian king, mentioned by the Hebrew writers, who made an incursion into Judea in the reign of Jeroboam, and pillaged the temple (about B. C. 791). He has been commonly supposed to be the same as Sesostris (q. v.); but Champollion has proved (*Précis du Système hiéroglyphique*, pp. 255—257) that he is the Sesonchis of the Greeks, or Sheshonk; and an inscription at Karnac represents him as carrying into captivity the king of the Jews.

SHIUMLA. See *Choumla*.

SHOCK. See *Choc*.

SHORE, JANE; the wife of a rich goldsmith of London, in the fifteenth century, and mistress of Edward IV., whose favour, which she entirely possessed, she never abused to any man's hurt, but often employed to many a man's relief. After the death of Edward, in 1482, she seems to have been the paramour of lord Hastings. (See *Edward IV.*) Richard III. partly to revive among the citizens the memory of his brother's licentiousness, and partly on account of her connexion with Hastings, whom he accused of being "the chief abettor of that witch Shore," determined to expose her to public ignominy. Laying bare his arm, all shrivelled and decayed from his birth, he declared before the council, that the incantations and witchcraft of Jane Shore and her associates had reduced him to that condition. He then had her summoned to answer against a charge of sorcery; but, unable to effect his purpose in this manner, he directed her to be tried for adultery and lewdness by the spiritual court, and she was obliged to do penance in a white sheet, at St Paul's, before the whole people. She is supposed to have died at an advanced age in the reign of Henry VIII. Her story has been consecrated by the muse of Shakspeare (Richard III.) and Rowe, and has been introduced upon the French stage, in the tragedies of Liadières (Jane Shore, 1824) and Lemercier (*Richard III. et Jane Shore*).

SHORT-HAND. See *Stenography*.

SHORT-SIGHTEDNESS. See *Optics*.

SHOT; a missive weapon, discharged by the force of ignited powder from a fire-arm in battle. Of these there are various kinds. Round-shot or bullets are balls or globes of iron, whose weight is in proportion to the bore of the cannon. Double-headed, or bar-shot, are formed of a bar, with a round head at each end, which fits the muzzle of the cannon. The middle is sometimes filled with a composition, and the whole covered with linen dipped in brimstone, so that the cannon, in firing, inflames the combustibles or composition of this ball, which sets fire to the sails of the enemy. One of the heads of this ball has a hole to receive a fuse, which, communicating with the charge of the cannon, sets fire to the bullet. Chain-shot consists of two balls chained together, being principally designed to annoy the enemy by cutting sails, rigging, &c. Grape-shot is a combination of balls strongly corded in canvass upon an iron bottom, so as to form a sort of cylinder, whose diameter is equal to that of the ball which is adapted to the cannon. Case-shot, or canister-shot, are composed of a great number of small bullets, put into a cylindrical tin box. They are principally used, when very near, to clear the decks of the enemy. Besides these, there are others of a more pernicious kind, used by privateers, pirates, &c.; such are langrage-shot, star-shot, fire-arrows, &c. Star-shot consists of four pieces of iron, whose bases, when separate, form the quadrant of a circle; so that the whole, being joined, forms a cylinder equal to the shot of the cannon. Each of these pieces is furnished with an iron bar, the extremity of which is attached to a sort of link, as keys are strung upon a ring. Being

discharged from the gun, the four branches or arms extend every way from the link in the centre. These are chiefly intended to destroy the sails or rigging; but their flight and execution are very precarious at any considerable distance.

SHREW-MOLE (*scalops*, Cuv.); head elongated and terminating in an extended and cartilaginous snout, which is very flexible; eyes exceedingly small, and entirely concealed by the hair, requiring the closest attention for their detection. The auricle is entirely wanting, and the integument of the head nearly covers the tube leading to the internal ear. The feet are very short, and five-toed; the fore feet terminate in a remarkably large hand, of which the fingers are armed with long, flat and linear nails. The hind feet are very delicate, and the toes are provided with small hooked nails. When at rest, the shrew-mole resembles a small stuffed sack. This animal is found abundantly in North America, from Canada to Virginia. He burrows with great quickness. His soft and polished fur, preventing friction, tends to facilitate his subterranean march. Numerous galleries, communicating with each other, enable the animal to travel in various directions without coming to the surface. Under ordinary circumstances, the burrows are simply oval-arched galleries, running forward, either straight or in gentle curvatures; sometimes only one to three inches deep, at other times much deeper. His favourite food is the earth-worm; and he destroys grubs, and insects of various kinds, in great quantities. In the winter, he burrows near streams, where the ground is not so deeply frozen. The shrew-mole is not only able to make his way rapidly under ground, but can run quite fast when on the surface. If you attempt to draw him, by his posterior extremities, out of his hole, he clings by his fore paws with great force, and, when finally dragged out, frequently inflicts a severe bite on his disturber. Shrew-moles are most active early in the morning and at mid-day. The precision with which these creatures daily come to the surface at twelve o'clock, is remarkable. The shrew-mole is covered with a bright glossy fur, about half an inch in length, and of a bright plumbeous colour, very closely set, and in all parts directed backward. The whole fore arm is concealed by the skin, leaving the broadly expanded palm, with its fore nails, projecting from the fore part of the body in an awkward manner, if compared with the interior extremity of other animals. The snout is composed of a cartilage, articulated with the premaxillary bones, and is moved in various directions by muscles situated on the side of the head; it is naked, and of a very light flesh-colour. The mouth is large, and the size of the tongue considerable. The eyes are difficult to be discovered externally, without a good glass. The eye-balls are less in size than a grain of mustard seed. The aperture of the eye-lids will about allow the passage of an ordinary sized human hair. The vision of this animal seems to be barely sufficient to give him an intimation of light, without allowing him to distinguish the figures of bodies. His whole structure seems to be studied with a view to facilitate his progress under the earth. The total length, from the point of the snout to the beginning of the tail, is five inches, and the tail is one inch long; the longest fur on the body, half an inch in length. A living specimen, kept for many weeks in a room, spent the greater part of the day in sleep, and was very active at night. He could not see in any light, as he uniformly ran his nose with some violence against every obstacle several times, before he learned to avoid those that were permanent.

SHREWSBURY; a market town and borough of England, in Shropshire, and the chief town in the county, is situated on the Severn, 153 miles N. W. from London, and forty west from Litchfield. There is a very fine public walk, called the Quarry, along the banks of the Severn. The streets are, some of them, steep and narrow, and indifferently paved. The public buildings deserve attention, both for their architecture and antiquity. The ruins of the castle consist of two round towers and a curtain, the work of Edward I.; the walls of the inner court; and the great arch of the interior gateway. There are six churches, a Roman Catholic chapel, and meeting-houses for Presbyterians, Unitarians, Baptists, Methodists and Quakers. The charitable institutions of Shrewsbury are the infirmary, the house of industry, an hospital, &c. In the suburb called the abbey Foregate are the remains of the abbey dedicated to St Peter, at one time a great resort of people from all parts of the kingdom, to the shrine of St Winefrid. Besides the abbey, Shrewsbury had formerly three convents and five chapels. Shrewsbury is a place of considerable trade. Flannels used to be the staple articles, and a coarse kind of woollen cloth, made in Montgomeryshire, called *Welsh webs*. Some manufactures are also carried on in the town, viz. of linen yarn, porter, &c. It is famous for its excellent bran, which is sent to various parts of the kingdom. It sends two members to parliament. Its origin is referred to the fifth century, when the Britons are thought to have established themselves here. It was often visited by the English monarchs, and became the scene of many military events. About two miles from the town was fought the battle of Shrewsbury, in which Henry V., then prince of Wales, first distinguished himself in the field, and Hotspur was slain. At the entrance of the town is a column of freestone, to commemorate the military achievements of lord Hill. Population in 1831, 21,227.

SHRIMP (*crangon*); a small, crustaceous animal, allied to the lobster and craw-fish, which frequents shallow waters along the sea-coast. In shape, it resembles these animals, but it is more elongated in proportion, and is destitute of the large anterior claws; and it is distinguished from the prawn by the absence of the long, anterior, serrated spine. The term is sometimes, but improperly, applied to the species of *gammarus*, which are much more abundant along the American coasts; but these are readily distinguished by the compressed form of their bodies. The shrimp has ten feet; the tail is as long as the body, and terminated at the extremity with scale-like appendages, which unfold somewhat in the manner of a fan. During life, the body is semi-transparent, and so much resembles sea-water that the animal is distinguished with difficulty. Its ordinary motion consists of leaps. It is abundant in sandy places, and furnishes nutriment to great numbers of fishes, aquatic birds, &c. In England, it is in great request for the table, and, in the summer season, is carried in vast quantities to the principal towns, even at a considerable distance in the interior.

SHROPSHIRE, OR COUNTY OF SALOP, an inland county of England, extending in length about forty miles from North to South, and thirty-

five in breadth from east to west. The general outline of this county approaches to a quadrangle, with several considerable indentations and projections. Its aspect is much diversified; the western parts, especially towards the south, being mountainous and rugged, while the eastern side is more level, though not destitute of hills and some elevation. What is called the Plain of Salop extends about thirty miles from Whitchurch and Oswestry on the north, to Colebrook Dale and Church Stretton on the south: it is unequally divided by the Severn; and from this plain, near Wroxeter, rises the hill of Wrekin, the height of which is about 1200 feet. On the south-eastern border of the plain is the more elevated district of Colebrook Dale, but the loftiest eminences in the county are the hills called Stiperstones, near the western border; and towards the south are the Clee Hills. The views from these heights are varied and extensive. All the rivers of this county communicate with the Severn, which enters Shropshire just after its confluence with the Wirnew, which joins it from the north-west; after which, passing in a south-east direction, winding through deep romantic valleys, finely wooded, it receives, on the eastern side, the united streams of the Tern and the Rodon, the former of which rises in Staffordshire; and on the western side several small rivers. This part of the county also is watered by the Camlet, the Clun, or Colun, the Oney, and the Corve, which, uniting with the Teme, join the Severn below Worcester. This county contains several lakes, or meres, the largest of which is that of Ellesmere. The soil presents many varieties of quality; but it is in general well cultivated. In the more level districts, great numbers of cattle are pastured; and much cheese is made, of a similar kind with that of Cheshire. The sheep, which are fed on the hilly tracts, afford some of the finest wool produced in England. North-eastward of the Severn, turnips are largely cultivated; there is a good deal of arable land, yielding large crops of wheat and other grain; potatoes are raised very extensively; and on the south, bordering on Herefordshire, are hop-yards and orchards. This county has been denuded of much of the timber which formerly clothed it, considerable quantities having been used for ship-building in the western ports, but there are yet remaining some fine woods and coppices. Extensive moors and mosses exist in some parts of the county, especially near Kinnersley; and there is a tract called Clun Forest, consisting of more than 12,000 acres of land, forming an extensive sheep-walk. The mineral productions of this county consist of iron and lead-ores, limestone, freestone, pipe-clay, and coal, besides petroleum and salt-springs. The district of Colebrook Dale, eastward of the Severn, is noted for its iron-works, which are among the most important in our island. The other manufactures of Shropshire are those of China-ware, earthen-ware, pipes, bricks and tiles, glass, and flannel. Population in 1831, 222,503.

SHROUDS; a range of large ropes extended from the mast-heads to both sides of a ship, to support the masts, and enable them to carry sail, &c.

SHROVETIDE, OR SHROVE TUESDAY; the day before the first of Lent or Ash-Wednesday, so called because on that day it was customary for all persons to confess their sins. (See *Carnival*, and *Lent*.) After confession, at least in England, it was usual to eat pancakes. Shrove Tuesday is called in German *Fastnacht* (fast eve), and in French *Mardi Gras* (fat Tuesday).

SHUMLA. See *Choumla*.

SIAM; a country in the peninsula of Farther India, or Chin-India, which is but imperfectly known to us. The Siamese empire is composed of Siam Proper, a large portion of Lao, a portion of Cambodia, and some tributary Malay states, extending from about lat. 5° to 21° N., and from lon. 97° 50′ to 105° E. Its area may be estimated at 190,000 geographical squares miles, with a population of not more than 2,790,500, of which 1,260,000 are Siamese, 840,000 Laos, 195,000 Malays, 440,000 Chinese, &c. The greater proportion of the territory, although it contains some rich alluvial plains, appears to be mountainous: the soil is, much of it, fertile, the climate favourable, and the communication easy, so that the thinness of the population must be ascribed to the barbarism and bad government of the country. The capital of the empire is Bangkok (lat. 13° 50′ N.), near the mouth of the Menam, the great river of Siam, the population of which Crawfurd estimates not to exceed 50,000. Ayuthia, the old capital, eighty miles from the mouth of the same river, which here becomes navigable, is the next considerable city of the empire. Siam Proper is the valley of the Menam, which, at its southern extremity, does not exceed sixty miles in breadth: its length is stated at about 360 miles, and its superficial area may amount to 20,000 square miles. The country of the Laos—a people speaking a dialect of the Siamese language—appears to be divided between the Siamese, the Chinese, and the Birmans, with which latter empires that of Siam is thus brought into contact. Subsequently to the civil war which broke out in Cambodia in 1809, that kingdom was divided between the Siamese and the Cochin-Chinese governments. The Malay states tributary to Siam are Queda, on the western coast of the peninsula, with Patani, Kalantan and Tringano on the east. The Siamese are one of the most considerable and civilized of the group of nations inhabiting the tropical regions beyond Hindoostan and China. In stature they are shorter than Europeans, averaging about five feet three inches in height. Their complexion is a light brown, rather darker than that of the Chinese. In the useful arts they have made little progress, and, in this respect, are much behind the Hindoos and Chinese. Their alphabet consists of thirty-eight consonants, and numerous vowels and diphthongs, and the characters are written from left to right. The language is destitute of inflections, and its construction depends, therefore, like the English, on juxtaposition. The literature is very meagre, consisting merely of some songs, romances and chronicles. Their sacred literature, like that of all other Buddhist countries, is in the Bali or Pali language. The Siamese are represented by travellers as servile, rapacious, slothful, disingenuous, pusillanimous and vain. The religion is Buddhism, resembling, in its morality and doctrines, that which prevails in Ceylon, but differing considerably from the Buddhism of Tartary, China and Japan. (See *Buddha*, and *Fo*.) The priests, or *talapoins*, live in monasteries, and are bound to celibacy. The earliest event of which we have any information in Siamese history, is the introduction of the religion of Buddha from Ceylon in the seventh century of the Christian era. In 1511 began the first intercourse of Europeans with this country, through the Portuguese. In 1684, the

celebrated Siamese embassy was sent to Louis XIV., through the influence of Constantine Phaulcon or Falcon, a Greek adventurer, who by a singular destiny, had become *phraklang* or foreign minister of Siam. In the middle of the last century, the country was conquered by the Birman prince Alompra (see *Birman Empire*); but it has since recovered its independence, and, during the reign of the late king (1809—1824), considerable acquisitions of territory were made.—See Crawfurd's *Journal of an Embassy to Siam and Cochin-China* (London, 1828).

SIAMESE TWINS, two youths born in the kingdom of Siam, with bodies singularly united by a strong band at the lowest part of the sternum of each, were carried from Siam, April 1, 1829, by captain Coffin, of the American ship Sachem, and extensively exhibited in Europe and the United States during that and the three subsequent years. "The substance by which they are connected," says doctor Warren, "is a mass two inches long at its upper edge, and about five at the lower. Its breadth, from above downwards, may be four inches, and its thickness, in a horizontal direction, two inches. Of course it is not a rounded cord, but thicker in the perpendicular than in the horizontal direction. At its lower edge is perceived a single umbilicus, through which passed a single umbilical cord to nourish both children in the fetal state. Placing my hand on this substance, which I will denominate the cord, I was surprised to find it extremely hard. On further examination, this hardness was found to exist at the upper part of the cord only, and to be prolonged into the breast of each boy. Tracing it upwards, I found it to be constituted by a prolongation of the ensiform cartilage of the sternum, or extremity of the breast bone. The breadth of this cartilage is an inch and a half; its thickness may be about the eighth of an inch. The cartilages proceeding from each sternum meet at an angle, and then seem to be connected by a ligament, so as to form a joint. This joint has a motion upwards and downwards, and also a lateral motion, the latter opening in such way that when the boys turn in either direction, the edges of the cartilage are found to open and shut. The lower face of this cartilage is concave, and under it is felt a rounded cord, which may be the remains of the umbilical cord. Besides this there is nothing remarkable felt in the connecting substance. I could distinguish no pulsating vessel. The whole of this cord is covered by the skin. It is remarkably strong, and has no great sensibility; for they allow themselves to be pulled by a rope fastened to it without exhibiting uneasiness." To this we add, from the report of G. B. Bolton, esquire, read before the London royal society, April 1, 1830: "Under the cartilage, while they stand in their ordinary posture, are large hernial sacs opening into each abdomen, and into which, on coughing, congenital herniæ are forced, probably in each boy, formed by a portion of the transverse arch of the colon. Generally, however, and under ordinary circumstances, these herniæ are not apparent. Whether there is a communication between the two abdominal cavities, or a distinct peritoneal sac belonging to each hernia, is by no means obvious. When these herniæ protrude, their respective contents are pushed forwards as far as the middle of the band." If the connecting link be touched in the centre, the touch is equally felt by both; but, at half an inch from the centre, it is felt by but one. These two young persons, Eng and Chang by name, are natives of a small village, called Maklong, on the sea-coast of Siam. They were born in May, 1811, of Chinese parents. Their mother observed that she suffered no greater inconvenience at their birth than at that of her former children, as they were very small, and the head of one was presented between the legs of the other. Their parents were of the poorer class, and, until the youths left their home, they were engaged in fishing, manufacturing cocoa-nut oil, keeping poultry, &c., for the support of the family. They are about five feet two inches in height, are well made and muscular. They have been known to carry a person weighing 280 pounds a hundred feet. They are agile, can walk or run with swiftness, and can swim well. Their intellectual powers are acute: they play at chess and draughts remarkably well. Their feelings are warm and affectionate, and their conduct amiable and well regulated. They never enter into conversation with each other beyond a simple remark made by one to the other, which seems to be rationally accounted for by the fact that, their experience being all in common, they have nothing to communicate. The attempt has frequently been made to engage them in separate conversations with different individuals, but always without success, as they are invariably inclined to direct their attention to the same thing at the same time. In their movements perfect equanimity is observed, the one always concurring with the other, so that they appear as if actuated by a common mind. In their employments and amusements, they have never been known to utter an angry word towards each other. Whatever pleases or displeases one has the same effect on the other. They feel hunger and thirst at the same time, and the quantity of food taken by them is as nearly alike as possible. Both feel the desire to sleep simultaneously, and they always awake at the same moment. Upon the possibility of separating them with safety there is some difference of opinion among medical men. The majority believe it impossible.

SIBERIA; a vast country of the north of Asia, with the Altai and Caucasus mountains on the south, and the Ural mountains on the west, the Pacific on the east, and the frozen ocean on the north. It is one of the most desolate regions on the globe. A great portion of it is included within the limits of the frozen zone; and even the southern parts, from their physical structure, are exposed to a high degree of cold. Its situation also nearly excludes it from communication with the civilized parts of the world. The rivers generally have a northern direction, flowing into the Frozen ocean, the shores of which are barred by almost perpetual ice. Of the rivers, the Oby, Enisei and Lena are amongst the largest on the globe; others are the Irtisch, Angara, Selinga, &c. The Ural mountains on the west, and the Altaian range in the south, form striking features of Siberia. Another characteristic feature consists in the immense steppes, or elevated plains, covered with long rank grass and aquatic shrubs, and filled with saline lakes. The natural productions of Siberia are gold, silver, copper, lead, iron, zinc, arsenic, sulphur, plumbago, &c. In the northern districts, the prevailing animal is the rein-deer. The chief fur animals are the sable, black fox, ermine, martin, &c. The ferocious animals are the bear, wolf, lynx, and wild hog. In various parts of Siberia there are found remains of extinct species of animals. (See *Organic Remains*.) The mass of the population of Siberia consists of the native tribes, who are in a degree

subjected to the Russian empire. Some of the most numerous tribes are the Burats, Yakoutes, Tunguses, Samoeides and Monguls. The prevailing religion is the system of Buddha, or of the Lamas. The commerce consists chiefly of two branches, one formed by the exportation of metals and furs, the other a mere transit trade, consisting in an overland intercourse carried on across Siberia with the Chinese empire. The theatre of this commerce is Kiachta. In 1825, Siberia was divided into the four governments of Tobolsk (with the province of Omsk), Tomsk, Yeniseisk and Irkutsk, with the province of Jakutsk, and the two maritime provinces of Okotsk and Kamtschatka. The population of the country is about 2,000,000, on a superficial extent of 4,280,000 square miles. Siberia was attached to the Russian dominions towards the end of the sixteenth century, and the sovereigns of Russia assumed the title of *czar of Siberia*, which they still retain. The importance of this region did not escape Peter the Great, who introduced manufactures, and settled Russian colonies in it. State criminals are also banished to Siberia. See Martoinoff's *Voyage Pittoresque de Moscou aux Frontières de la Chine* (1819), and Cochrane's *Pedestrian Journey through Russia* (1827).

SIBYL, AND SIBYLLINE BOOKS. Sibyl (derived by some authorities from σιος, Æolic for θεος, God, and βολη, for βουλη, counsel) signified, originally, a female inspired or counselled by God. Of these prophetic virgins, who were believed to be thrown by a god into a kind of transport or insanity, in which they were able to unveil futurity, ancient writers mention ten, among whom the Sibyl of Cumæ, in Campania, was the most celebrated. According to O. Müller, the oracle of the Sibyls, and the worship of Apollo, were carried to Cumæ from the Trojan Ida. The Sibyl of Cumæ is said to have written in Greek verses, the collection of prophecies famous under the name of *Sibylline books*, which, according to some, she herself, according to others, an unknown old woman, offered to Tarquin for sale. When the king, on account of the high price asked, refused to buy them, the old woman threw three of the books into the fire, and, on a second refusal, three more, after which the king, alarmed, paid for the three remaining the price originally asked for the whole, and committed them, as an oracle, to be consulted on important political occasions, to the keeping of two men. The number, at a later period, was increased to ten, and by Sylla to fifteen. About that time, the temple of Jupiter, where the Sibylline books were preserved, was burned down, with the capitol. After the rebuilding of the capitol, the senate, in 677, sent delegates to all the Italian and Greek cities, especially to Erythræ, in order to collect whatever Sibylline verses they could find; and, after the rejection of those which were considered spurious, about one thousand of them were retained, and preserved in the new temple of Jupiter Capitolinus. The senate, at different times, ordered all the Sibylline books which could be found in private hands to be burned. Augustus did the same, and destroyed above two thousand such books, but caused the genuine Sibylline books to be preserved in two chests of gold under the pedestal of the Apollo Palatinus. Yet the belief in every thing which went by the name of a Sibylline prediction was so strong that, in 772, Tiberius caused an investigation of all such prophetic verses to be made, and received some of them as genuine; whereupon, in 785, one of the keepers of the sacred volumes proposed the admission of another book. In general, the Sibylline books remained longer in authority with the Romans than the oracles with the Greeks. Though they were burned a second time, in the reign of Nero, yet in the time of Aurelian (A. D. 270), some senators were in favour of consulting the Sibylline books, respecting the event of the Marcomannic war. Yet they were then so corrupted, that Christians could find in them predictions respecting the Messiah. This collection was burned under Julian (A. D. 363); and a fourth collection was burned under Honorius (395), by Stilicho; in spite of which a fifth collection was believed to be genuine. When Belisarius, in the middle of the sixth century, was besieged in Rome by the Goths, two Sibylline verses were considered as predicting that the siege would last but five months, which, however, did not agree with the event. It may be easily imagined that the Sibylline books can have retained their authority through so many centuries only by the greatest vagueness, admitting of any interpretation, and never committing themselves. The still-existing collection of Sibylline verses, most complete in the edition of Gallæus (Amsterdam, 1689), is of a later date, and is not considered genuine. These had their origin in the second century, when there were persons called *Sibyllists* in the Christian communities, who uttered poetic oracles, and whose outpourings were collected, and also called Sibylline books, on which Theoloririus wrote a Latin essay.—See Frederic Bleek's essay on their origin and composition, in Schleiermacher's *Theolog. Zeitschrift*, vol. i., no. 1; and Angelo Maio, in the preface to his edition of a Sibylline Book (Milan, 1817).

SICARD, ROCH AMBROISE CUCURRON, successor of the abbé l'Epée at the Parisian institution for the education of the deaf and dumb, was born September 20, 1742, at Fousseret, near Toulouse, and entered into holy orders. He devoted himself to the instruction of persons born deaf and dumb, and became, in 1786, director of a school established for that purpose by the archbishop of Bordeaux, whence, in 1789, he removed to Paris, and was chosen successor to the abbé l'Epée, in whose system he made some important improvements. In 1792, he was arrested in the midst of his pupils, by order of the commune of Paris; and, September 2, was transferred to the prison of the abbey of St Germain, where he narrowly escaped becoming a victim in the ensuing massacres. On the foundation of the normal school, in 1795, he was appointed professor of grammar; and, about the same time, he was made a member of the institute. He then became one of the conductors of the *Annales Catholiques*, on account of which he was included by the directory in the number of the journalists sentenced to be exiled to Sinamari. He concealed himself, and thus avoided deportation; but it was not till after the overthrow of the directory that he was able to return to his situation at the school of instruction for the deaf and dumb. The old age of Sicard was clouded with misfortunes arising from his improvidence; but, after the restoration, he was made a knight of the legion of honour, administrator of the hospital of the Quinze-Vingts, &c. His death took place May 10, 1822. Besides other works, he was the author of *Elémens de Grammaire générale appliquée à la Langue Française* (2 vols., 8vo.); *Cours d'Instruction d'un Sourd-muet de Naissance* (8vo.); and *Théorie des Signes pour l'Instruction des Sourds-muets* (2 vols., 8vo.)

SICILIAN VESPERS. Charles of Anjou had established himself, through the favour of the pope, in possession of Naples and Sicily. The unfortunate Conradin had perished on the scaffold, October 29, 1268. But the haughty Charles ruled with an iron sceptre, and the oppressed people applied in vain for relief to the pope. Giovanni di Procida, a nobleman of Salerno, distinguished for his talents and accomplishments, determined to deliver Sicily from her sufferings. He had stood high in favour with the emperor Frederic II., and king Manfred; and had been stripped of his estates by Charles, on account of his attachment to the Suabian house. Meditating revenge, he went to Arragon, and invited king Peter, whose wife Constantia was a daughter of Manfred, to undertake the conquest of the kingdom of Sicily. Peter was disposed to embrace his proposals; but he was destitute of money and men. Procida promised to make all necessary provision. He accordingly went to Sicily in disguise, and found the public feeling favourable to his wishes. He then hastened to Constantinople, represented to the emperor Palæologus the danger which threatened him from Charles, and prevailed upon him to promise pecuniary aid to Peter. Procida next had a private audience of the pope, and found him inclined to assist in effecting the humiliation of Charles. He returned to Arragon with this account of his success, and a large supply of money; and Peter immediately began to make extensive preparations for the expedition, under pretence of an attack upon the Moors in Africa. Charles, though suspecting the truth, neglected to prepare any measures of resistance. Meanwhile pope Nicholas III., upon whom Peter chiefly relied, died, and caution became doubly necessary. He therefore embarked, with his forces, and sailed for Africa, to keep up appearances of hostilities against the Moors, while he expected some demonstrations of a rising among the Sicilians. March 30, 1282, at the hour of vespers on Easter Monday, the inhabitants of Palermo flew to arms, and fell upon the French, who were all massacred. Women and children were not spared, and even Sicilian women with child by Frenchmen were murdered. This massacre is called the *Sicilian Vespers*. The other towns of Sicily, at first, remained quiet. Before the end of April, Messina followed the example of Palermo, and the French were either murdered or driven from the city. As soon as Charles, who was at Orvieto with the pope, received information of what had occurred, he hastened to Naples, and set his forces in motion. In July, he appeared before Messina, which was disposed to surrender. But when Charles required unconditional submission, the Messinese determined to resist to the last drop of blood, and conducted the defence with the most desperate valour. The women and children exposed themselves fearlessly to death; and by this universal co-operation of all classes, the efforts of superior numbers were baffled. Thus stood matters when Peter of Arragon landed at Trapani, August 30, with 10,000 foot-soldiers and 800 men at arms, and entered Palermo, where he was hailed as king by the people. Charles still besieged Messina; but fearing the interruption of his connexion with Calabria, he raised the siege, and fled in haste across the straits, leaving behind him a great quantity of military stores. On the passage, he was met by Peter's brave admiral Ruggieri di Loria, who took twenty-nine of his ships, and committed great devastation on the Neapolitan shores. October 2, Peter entered Messina, and was received with acclamations; whilst the pope excommunicated him and the Sicilians. In the following year, Constantia appeared in Sicily with her sons, and was received as the rightful possessor of the island. The succession was settled on her second son, James. See *Delavigne*.

SICILIES, THE KINGDOM OF THE TWO, consisting of Naples (*Dominj al di qua del Faro*) and Sicily (*Dominj al di la del Faro*). In the most ancient times of Rome (see *Italy*), Lower Italy was inhabited by the savage Ausonians, amongst whom were the mountaineers of Lucania and Bruttii (Abruzzo), including the Samnites. The country on the eastern coast was called Apulia (Puglia); and the small peninsula at the extremity of the country, Calabria. In Lower Italy, the Greeks settled chiefly on the coasts; hence its name, *Magna Græcia*. The dominion of Rome over Lower Italy commenced with the conquest of Tarentum, 272 B. C. (See *Fabricius*, and *Pyrrhus II.*) After the fall of the Western Roman empire (A. D. 476), Lower Italy became subject to the Ostrogoths. About the middle of the sixth century, Naples and Sicily fell under the power of the Greek emperors. Both countries were subject to one governor, the exarch of Ravenna, who conducted the administration by means of dukes. During the contest between the exarchs and Lombards, there sprung up, in the ninth century, several independent duchies, such as Salerno, Capua and Tarento. The most powerful was the Lombard duchy of Benevento. Naples, Amalfi and Gaeta maintained themselves as republics. About the same time, the Saracens invaded Calabria, from Sicily. They conquered Bari, and contended with the Greeks for the possession of Lower Italy, until the emperor Otho I. (967) subjected Benevento to the German empire. Germans, Greeks and Arabs now struggled for the possession of this beautiful country. This induced some warlike adventurers, Normans from France, in the eleventh century, to lend their aid to the princes in Lower Italy. They assisted the Greek duke Sergius against prince Pandorf, of Capua, and were rewarded with the tract of land on which they founded the town of Aversa. More Normans soon followed. In 1047, the twelve sons of Tancred de Hauteville, a count in Lower Normandy, came in with their followers. Among these brothers, Robert Guiscard was the boldest and most artful. He contrived to gain over the peasants, and formed out of them his best soldiers. His policy led him to hold Apulia, which he had conquered, as a papal fief (1053); and he promised, likewise, to hold, as papal fiefs, such tracts as should afterwards be subdued by the Normans, in Calabria and Sicily. He then (1060) took the title of duke of Apulia and Calabria. His youngest brother, count Roger, conquered Sicily in 1072. After the death of count Robert and his sons, he united in his own person the whole power of the house of Hauteville, and received, in 1098, by an extraordinary bull of pope Urban II., for himself and his successors, the supreme spiritual power in his dominions on the island. His son and successor, Roger II., completed, after 1101, the conquest of all Lower Italy by subduing Capua, Amalfi and Naples, at that time celebrated commercial republics. He then received, in 1130, from pope Anacletus II. by whom he was solemnly infeoffed, the title of king of Apulia, Calabria and Sicily. The same year, he united all the countries on both sides of the straits

of Messina, under the name of *the kingdom of the Two Sicilies*. This union of Naples and Sicily continued 150 years. Palermo was his residence. Each country preserved its existing laws. In Naples, however, besides the ancient Lombard laws, the French feudal law was also introduced. To the pope, as lord paramount of Naples, a tribute was paid of a palfrey and a bag of ducats. When William, grandson of Roger II., died, in 1189, the race of Tancred became extinct. The German emperor, Henry VI., of the house of Hohenstaufen, now claimed the right of succession to the throne of Naples and Sicily, as belonging to his wife, Constantia, the daughter of Roger II. The Sicilians, however, detested the German dominion, and elected Tancred, natural son of Roger, to be their king, and, after his early death, made choice of his son, William III., a minor. Henry VI. then entered the kingdom a second time, with more success than during the lifetime of the brave Tancred, and, by horrid cruelties, maintained possession of it. His memory was held in abhorrence by the Sicilians; but they, nevertheless, allowed his son Frederic II., a child three years old, to succeed him, in 1197. During the reign of this distinguished emperor, Naples was made the capital. The neighbourhood of the powerful imperial house was disagreeable to the popes, and pope Urban IV. granted the kingdom of the Two Sicilies, on the death of Conrad IV. (1254), to Charles of Anjou, brother of Louis IX., of France, who caused the legitimate heir, Conradin of Suabia (1268), to be beheaded. Sicily, however, freed herself, in 1282, from the oppressions of the French (see *Sicilian Vespers*), by the aid of king Peter III., of Arragon, whom Conradin had made his heir, and whose wife was a daughter of Manfred, natural son of the emperor Frederic II. Sicily now remained separated from Naples for 160 years. She acknowledged Peter III., of Arragon, as her sovereign, who left this kingdom to his younger son James. The kings of Arragon withdrew the island from the feudal sway of the pope, and Sicily was united to the Spanish monarchy until the time of the Spanish war of succession. In Naples, the house of Anjou maintained itself, and Charles bound himself to pay an annual tribute to the pope of 8000 ounces of gold, and every three years to send a white horse to Rome. His great-grandson, Charles Robert, king of Naples, was made king of Hungary by the Hungarian diet, in 1307. After the death of king Robert, in 1343, under the reign of queen Joanna I., his granddaughter, great disturbances arose in Naples; for pope Urban VI. crowned Charles of Durazzo, of the house of Anjou-Naples in Hungary, as king of Naples. He caused queen Joanna to be suffocated in 1382, and united the kingdoms of Hungary and Naples; but in the year 1386, he was assassinated in Hungary. His son Ladislaus maintained a successful struggle for the throne of Naples with Louis of Anjou, the adopted son of Joanna. He took possession of Rome, and was on the point of uniting the whole of Italy into one kingdom, when he died, in 1414. Upon this, his sister, queen Joanna II., in the year 1420, adopted king Alfonso V., of Arragon and Sicily, who drove his rival, the French prince Louis III., of Anjou, out of Naples in 1458. Thus arose the jealousy between France and Spain, which, towards the end of the fifteenth century, wrapt the whole of Italy in flames. Alfonso V. was succeeded in Naples by his natural son Ferdinand I., whose grandson, Ferdinand II., was attacked by Charles VIII., of France, the champion of the claims of the house of Anjou, and whose second son, king Frederic III., was dethroned by his cousin, Ferdinand the Catholic, king of Spain and Sicily, in conjunction with Louis XII. of France. The conquerors disagreed respecting the partition of Naples, and the cunning Ferdinand the Catholic (see *Ferdinand V. of Arragon*, and *Gonsalvo*) managed to maintain himself in the sole possession of the whole, by artifice and force, in 1504. During this warfare of countries and crowns, which had been carried on for centuries almost without interruption, the constitution of the cities had been developed, and the kings of the house of Anjou began to summon delegates from them to the diet, which had been done previously in Sicily; but the feudal system continued, and the barons were constantly increasing their privileges. They even acquired the right of life and death over their vassals, in return for which the kings hoped to obtain their assistance in time of war. Thus the people were plunged into the greatest misery; and at no time have the Neapolitans been able to withstand foreign arms. The aristocracy, however, remained the same under every sovereign, and the depraved manners of the court, and the example of such licentious princesses as the two Joannas, corrupted the public morals. At that period there were feudal estates, which limited the power of the kings. But in the two centuries after the peace with France in 1505, during which the kingdom of the Two Sicilies remained a part of the Spanish monarchy, the diets were no longer convened in Naples, and the viceroys consulted merely with a committee of the estates, in which the city of Naples represented the whole third estate. Thus the regal power increased, and with it the burden of taxes. The rebellion which took place in April, 1647 (see *Massaniello*), owing to the arbitrary mode of raising the taxes, might, under more prudent management, have led to independence. Still more did the prosperity of the country decline under the oppression of the nobility and the power of the clergy. No law limited the extension of the property of the church, and both in Naples and in Sicily, two thirds of the landed property gradually came into their possession. On the extinction of the Austro-Spanish male line, in 1700, Naples and Sicily fell into the hands of Charles V., of Spain, who governed arbitrarily, without consulting the chambers. At the peace of Utrecht, through the influence of the English, who were jealous of their commerce, Naples and Sicily were divided: the former fell to Austria, the latter to Savoy. King Philip V. of Spain re-conquered Sicily in 1717, at the instigation of Alberoni, but was forced to cede it to Austria in 1720; and Savoy received Sardinia in return (see *Sardinian Monarchy*), by which means the Two Sicilies became a part of the Austrian dominions; however, in the war which was occasioned by the election of a king for Poland, in 1733, Spain conquered the Two Sicilies, and retained them at the peace of Vienna (1735), for the Infant Don Carlos. In 1759, when he ascended the Spanish throne, under the name of Charles III., he conferred the kingdom of the Two Sicilies on his third son, Ferdinand, and decreed, at the same time, that it should never again be united to the Spanish monarchy. Ferdinand reigned in the Two Sicilies under the name of Ferdinand IV., (see *Ferdinand I.*,—the title which he took after having united all his states under one kingdom of

the Two Sicilies, 12th of December, 1816). July 7, 1820, he was forced to establish the new Spanish constitution, in consequence of an insurrection which originated principally amongst the army. He therefore conferred the regency on his son; but Austria, Russia, and Prussia, determined at Laybach, January, 1821, in concurrence with king Ferdinand, to occupy the country with an Austrian army, and restore the old system, in which they succeeded. (See *Acton*, *Bonaparte*, *Murat*, and *Naples and Sicily, Revolution of*.). King Ferdinand I. returned from Laybach to his capital, May 15, 1821, with the promise of giving a constitutional organization to the government. May 26, a decree was issued respecting the new constitution, providing that the government should be conducted by a council of ministers and secretaries of state, under the presidency of the king or the crown-prince (duke of Calabria), or one of the ministers; that Sicily should be governed separately from Naples, by a distinct council; that there should be two state councils (*consulte di stato*), one at and for Naples, consisting of thirty members, the other, consisting of eighteen members, at Palermo, for Sicily, to deliberate on the laws and financial measures laid before them by the council. The ultimate decision, however, was to rest entirely with the king, who was to appoint the president and members of these bodies out of the landholders and principal officers of the state, church, law and army. These *consulte di stato*, did not, however, go into operation until the year 1827, after some alterations, by the decree of 14th June, 1824, which provided that the council of Naples should not have more than sixteen members, and that of Sicily not more than eight. In matters relating to both countries, they form a general council. Both have their seat at the residence of the king. A new system of education, projected by the clergy, was introduced by the committee of instruction, to whom was likewise intrusted the examination of all foreign books. The Jesuits were re-established in their privileges, and received houses and money; and other orders were restored, as for example, the Camaldulians, in 1822. Continual arrests and trials for high treason kept the people in a state of irritation. From all parts, search was made for the adherents of the revolution. A severe law against secret societies had already been passed, 3d October, 1822. Notwithstanding, the conspiracies continued. The government, in consequence of the increasing number of prisoners, prescribed to the grand criminal courts a new mode of proceeding, January, 1824. During the space of a few years, this was the fourth time that the king had adopted extraordinary measures by the way of obviating the overcrowding of the prisons. After the death of Ferdinand I., January 5, 1825, his eldest son, till then duke of Calabria, ascended the throne as Francis I. In May and June, he undertook a journey to Milan and Turin, by the way of Genoa, and effected a reduction of the Austrian army in Naples. On his return, by the decrees of 18th and 19th August, king Francis permitted all the Neapolitans, who had quitted their country through fear of political persecutions, with the exception of those who were capitally condemned, to return. In consequence of a deficiency in the revenue, amounting to ten million ducats, and to reduce the paper currency, the government contracted two loans, in 1821, with the house of Rothschild and the English banker Goodhouse, amounting together to twenty million ducats. With a view of bringing coin into the country, the minister contracted a new loan in February, 1824, with the English house of Rothschild, amounting to three million pounds sterling. The regular troops were now disbanded, in consequence of the part which they had taken in the revolution; the militia was also dissolved, and a new army was formed. The dissolution of the militia gave rise to numerous bands of robbers, for the destruction of which, the greatest part of the Austrian auxiliary army marched through the country in moveable columns. A treaty was concluded at Naples, 18th October, 1821, between the emperor of Austria and the king of Naples, in reference to the occupation of the kingdom of the Two Sicilies by an Austrian auxiliary and protecting army of 55,500 men, for three years. The reduction of the forces therein stipulated was gradually executed, after the formation of the Neapolitan army was sufficiently advanced. Seventeen thousand Austrians evacuated the kingdom of the Two Sicilies, in 1823, agreeably to the treaty of Naples of 24th April, 1823. The treaty of 31st August, 1824, fixed the number of auxiliary Austrian troops in the kingdom of the Two Sicilies, at 33,500 men, to remain till the end of May, 1826; accordingly, in the same year, 1824, 5000 Austrians left the kingdom. But as the formation of the Neapolitan army advanced but slowly, on account of the aversion of the Swiss to the Neapolitan service, it was concluded in Milan, during the presence of king Francis I., to maintain other troops in Naples and Sicily, even after the expiration of the treaty of 31st August, 1824. A reduction, however, of the auxiliary forces was then determined upon. May 28, 1825, it was stipulated that the Austrian auxiliary army should remain at the disposal of his Sicilian majesty, until the end of March, 1827; but it might be reduced to 15,000 men, and, in proportion to the augmentations of the Sicilian army, as low as 12,000 men. The troops, retiring by degrees, had all left the country in 1827. In the island of Sicily, confusion and misery of every kind existed in a far greater degree than in Naples. The deficiency in the revenue rose to 600,000 ounces, and the public debt to 1,000,000. The duty on flour was, therefore, doubled. This provoked the people to a bloody resistance. To this was added the mischief done by large bands of robbers. But the Austrian general, count Wallmoden, occupied the island with 12,000 Austrian troops, which traversed the country, and soon restored order. About 16,000 political offenders were arrested. A conspiracy was detected, 10th January, 1822, the object of which was to murder the governor and cardinal archbishop Gravina, and to compel general Wallmoden to sign an order for the evacuation of the fortresses of the country by the Austrians. After this, the Austrians disarmed the country people and the most turbulent citizens of Palermo. Twenty-eight conspirators were arrested, and nine of them shot. A royal ordinance abolished all guilds and corporations of tradesmen and artisans, as dangerous to the public tranquillity. Thus some time elapsed before the regular course of administration could be restored. To this was added the stagnation of all the sources of public prosperity, and further calamities. February 23, 1823, Palermo experienced a dreadful conflagration, and, March 5th, a violent earthquake; Messina, 14th

May, suffered from a tremendous flood. Steam navigation was introduced, in 1824, between Palermo and Naples; a loan of a million ducats, contracted with Rothschild, in 1824, was applied to the improvement of the roads in Sicily. Francis died November 8, 1830; his son Ferdinand II. succeeded.

The kingdom of the Two Sicilies contains, at present, 42,100 square miles, and 7,414,717 inhabitants. The kingdom of Naples contains 31,630 square miles, with 5,626,946 inhabitants. (Respecting the island of Sicily, see the next article.) Naples is bounded on the north by the papal dominions, east by the Adriatic, south and west by the Mediterranean. Its soil is principally volcanic, and is covered with the most luxuriant vegetation. Fertile valleys descend on both sides of the Appennines towards the sea. Separate from these lies Vesuvius, 3730 feet high. The rivers are but few, and of moderate size. The volcanic soil is often convulsed by earthquakes. The Monte Nuovo, near Puzzuoli, arose in 1538, and attained, within forty-eight hours, to the height of 2100 feet. Through the grotto of Posilippo, near Naples, you pass, on a lava road, to the Phlegræan fields, whence the ancient poets took the imagery of the war of the giants, and of the infernal regions. Here the pozzolana earth is dug. This desert, as well as the extinct volcano of Solfatara and lake Averno, is bounded by blooming vineyards, with fruit-trees. Here you behold splendid ruins of ancient edifices, on the *Mare morto*, near the Elysian fields. In the charming environs of the capital lies the lake of Agnano, a sunken volcano, and in its neighbourhood the *grotto del Cane*. (See *Naples*.) The climate is warm. In Abruzzo alone the winter is severe. The strawberry ripens in January. The summer is sultry, and brings with it the debilitating sirocco wind from the south-east. The chief productions of this beautiful country, which is, however, not even yet sufficiently cultivated, are excellent wheat, maize, fruits of various kinds, oil, hemp, and flax, cotton, the *nuces Avellanæ* of Pliny, wines (*lachrymæ Christi*), capers, saffron, &c. The Neapolitan horses, the breed of swine, in Abruzzo, the silk, wool, buffaloes, mules, poultry, quails, &c., are celebrated. Among the noxious animals are wolves, tarantulas, and scorpions. Important articles of trade are furnished by the pozzolana earth, marine, and fossil salt, marble, iron, brimstone, jasper, lava, alabaster, alum, saltpetre, &c. There is, however, a deficiency of wood, so that in some places buffalo dung is used as fuel. In this warm country, however, the date-palm, the Spanish cane, the aloe, and Indian fig, thrive. The Neapolitan is lively, intelligent, and good-natured, but impoverished and exasperated by feudal oppression; the defective administration of justice often allows excesses, and the banditti are not yet rooted out. The Neapolitan dialect differs much from the Italian employed in literature. In the south, near Otranto, you will meet with villages inhabited by Arnauts and Greeks (about 40,000). Manufactures are more flourishing in Naples than in Sicily. Naples contains silk, woollen, and cotton manufactories; linen is woven, and metal ware made, besides articles of marble and precious stones. Mining is neglected. The maritime commerce is almost confined to exports of natural productions. The inland commerce is obstructed by the want of good roads, canals, and navigable rivers. The principal commercial towns are Naples, Palermo, and Messina. The people are extremely ignorant, being mostly unable to read and write. Among the better class, however, there are persons of distinguished talents, particularly among the Neapolitans. Antiquities are a favourite subject of study. The people are passionate lovers of music. Cicero, Horace, Ovid, Juvenal, Statius, Tasso, Thomas Aquinas, Filangieri, Galiani, and other men of eminence in the arts and sciences, were natives of Naples. Sicily is the native soil of pastoral poetry. There are universities at Naples, Salerno, Palermo, and Catania, and academies at Naples and Palermo. There are schools for music, and cabinets of works of art at Naples (*Museo Borbonico*, with a particular gallery for the paintings of the Neapolitan school); the Herculaneum museum at Portici; a cabinet of medals and an observatory at Palermo. In Naples, there are four public libraries and forty-five printing-offices. The institution for the deaf and dumb deserves mention; likewise the lunatic hospital at Aversa, which is peculiarly well arranged. The kingdom of Naples (*al di qua del Faro*), in 1817, was divided into fifteen provinces—Naples, with the volcanic islands Capri, Procida, and Ischia; Abruzzo, Ulteriore I. and II., with Aquila, Sulmona, &c.; Abruzzo Citeriore; Terra di Lavoro, with Caserta, Gaeta, Arpino, and the volcanic island Ponza; Principato Citeriore, with Salerno, Amalfi, and Pæstum; Principato Ulteriore; Capitanata; Molise; Bari; Otranto, with Lecce; Basilicata; Calabria Citeriore, and Ulteriore I. and II., with Reggio, Sciglio (where the rock so celebrated among the ancients, under the name of *Scylla*, projects into the strait) and Pizzo, where Murat fell, and which the king called the *most faithful town*, and delared free of taxes, on account of its fidelity. The united kingdom of the Two Sicilies forms, according to the fundamental law of 12th December, 1816, a constitutional monarchy, hereditary in the male and female line. Agreeably to this law, which, however, was never carried into effect, the king possesses supreme executive power. In the absence of the king, a governor (*luogotenente generale*) resides in Palermo, as viceroy of Sicily. This was the crown-prince until 1820. All public offices in the island are to be held by natives. The feudal system is now abolished in Sicily. It was earlier abolished in Naples. It existed at the time of the breaking out of the revolution, July 7, 1820. By the concordate concluded with the pope in 1818, the bond of feudal dependence on the papal see was totally broken, and the papal power in general limited. Nevertheless, the Jesuits were re-established. The duchies of Pontecorvo and Benevento were restored to the papal government. The clergy of the Two Sicilies (twenty-four archbishops, ninety-one suffragan, and twenty-one exempt bishops, 348 abbots, 47,233 secular priests, 25,399 monks, 26,659 nuns, with 3700 parishes, and 19,300 pious institutions, in the kingdom of Naples, and three archbishops, seven bishops, fifty-one abbots and priors, and 70—80,000 clergymen of all kinds, on the island of Sicily) are in possession of nearly a third of the landed property. The inquisition was abolished in Sicily in 1782. In no country are there so many princes (120), dukes (150), marquisses (170), counts and barons, as in Naples. However, the king abolished the *fidei-commissa* (q. v.) in Sicily (1818), which threatened to bring the whole of the landed property into a few hands, and were a great impediment to moral improve-

ment. The great abuses in the judicial administration and in the condition of the prisons (particularly in Sicily) have been gradually remedied. In consequence of the new constitution of the courts of 29th May, 1818, all the proprietary and local jurisdictions have been done away, and the royal courts of justice put on much the same footing as those of France. This system was extended to the island of Sicily, by the decree of 22d December, 1818, and a supreme court of justice established there. A new civil code was drawn up for this island in 1819. The revenue, in 1820, amounted to about twelve and a half million dollars. The new land force amounts to 30,000 men; the naval force comprises three ships of the line, five frigates, four corvettes, and a number of gun-boats. The standing army in Sicily is said not to exceed 8000 men. The orders of knights are, that of St Januarius; the order of Constantine; the order of St Ferdinand, and of merit; and the order *S. Giorgio della riunione.*

Among the latest publications respecting this country are to be noticed the work of the Russian senator, count Orloff, *Mémoires historiques, politiques et literaires sur le Royaume de Naples avec des Notes par Amaury Duval* (5 vols., Paris, 1819), and the *Costituzione del Regno di Sicilia, stabilita dal Parlamento dell' Anno* 1812 (Palermo, 1813, 2 vols.); History of the Kingdom of Naples, from 1800 to 1820 (Darmstadt, 1828), taken from the memoirs of prince Pignatelli Strangoli, and other original sources. Count Forbin's *Souvenirs de la Sicile* (Paris, 1823) present a faithful picture of the beauties of nature, and the degeneracy of society in Sicily. Captain William H. Smith's Memoir Descriptive of the Resources, Inhabitants, and Hydrography of Sicily and its Islands, &c. (London, 1824, 4to.), accompanied by an accurate atlas of charts, is a work of much observation. Rich in interesting research is the work of Blunt—Vestiges of Ancient Manners and Customs, discoverable in Modern Italy and Sicily (London, 1822).—Respecting the noble remains of antiquity in the churches of Messina, Catania, Palermo, and particularly in the cathedral of Montereale, see *Architecture Moderne de la Sicile, ou Recueil des plus beaux Monumens, mesurés et dessinés par J. Hittorff et L. Zanth* (Paris, 1827, 1st *livr.*, fol.)

SICILY (anciently Trinacria and Sicilia); the largest, most fruitful, and most populous island of the Mediterranean, lies to the south of Italy, from which it is separated by the strait or *faro* of Messina, which, in the narrowest part, is only two miles wide. The surface is greatly diversified by mountains and valleys. A chain of mountains extends through the island from east to west; but the most elevated summit is the famous volcano, mount Ætna. The climate is warm, but pleasant, the winters mild, and the heat of summer tempered by sea breezes. Sicily has always been celebrated for its fertility, and is well watered by a great number of streams and rivulets; but the state of cultivation is very backward. The principal products are maize, wheat, other kinds of grain, flax, hemp, vines, saffron, cotton, silk, olives, and various fruits. The exports consist chiefly of silk, corn, salt, olive oil, sumac, wine and fruits. The manufactures, consisting of silk, cotton, linen, and some woollens, are confined to the three large towns of Palermo, Messina, and Catania. According to the last census, Sicily contains 1,787,771 inhabitants, of whom 300,000 are ecclesiastics, or persons living on ecclesiastical revenues. There are in the island 1117 convents, containing 30,000 monks and 30,000 nuns. The nobility of this small population consists of six dukes, 217 princes, 217 marquisses, 2000 barons, and the same number of an order called gentlemen. In 1817, the island was divided into seven intendancies, which takes the names of their chief towns —Palermo, Catania, Messina, Girgenti, Siragosa (Syracuse), Trapani, and Calatanisetta. To Sicily belong the groups of the Lipari (Æolian) islands on the north, and Ægades on the west, Pantellaria on the south, &c. Between the latter island (which is twenty-one leagues from the coast) and Sciacca, in Sicily, a volcanic island, about one mile in circumference and 150—160 feet high, rose from the sea, in the summer of 1831, but disappeared after a few months, and again appeared in the spring of 1832. Notwithstanding the natural wealth of the island, the inhabitants are kept in a state of poverty by the great numbers of the religious and nobles (who possess almost all the land), the heavy duties upon commerce, and the want of secure communication.

Sicily has been, from ancient times, a prize of war. The original inhabitants appear to have been Iberians (Niebuhr, *Roman History*, ch. On the Three Islands); but the conquests and colonies of the Greeks rendered the Greek language prevalent, and, in reality, converted Sicily into a Greek island—a character which it retained till the middle ages. The Carthaginians also founded colonies here. The island was divided between different republics, among which Syracuse was the wealthiest and most powerful, and most celebrated, in ancient history, for its princes (Gelo, Agathocles, Hiero), its wars, and the high degree of cultivation to which it carried the arts and sciences.—See Gärtner's *Views of the Greek Monuments in Sicily* (Munich, 1819). Next to Syracuse, Messana, now Messina, and Agrigentum (Girgenti), were most famous in history. In the middle of the third century B. C., the Romans became masters of Sicily, and remained in possession of it until Genseric, king of the Vandals, conquered it, in the middle of the fifth century A.D. Belisarius, Justinian's general, drove out the Vandals (535); and it remained in the hands of the Greek emperors nearly three centuries, when it was taken by the Saracens (827). The Normans, who ruled in Naples, conquered Sicily in 1072, and received it from the pope as a papal fief. Roger, a powerful Norman prince, took the title of king of Sicily (1102), and united the island with the kingdom of Naples, under the name of the kingdom of the Two Sicilies. (See *Sicilies, The Two.*) But a dislike always prevailed between the Sicilians and the Neapolitans; whence frequent attempts on the part of the former to obtain their independence. This idea was encouraged by the constitution given them by the British, and their old right to a separate parliament. This was the root of the furious outbreak of July 16—20, 1820, in Palermo. (See *Naples and Sicily, Revolution of.*) The pastoral muse has never abandoned this island; and the first notes of Italian poetry were heard in Sicily. (See *Italy*, division *Italian Poetry.*) The idyls of the Sicilian poet Giovanni Meli, published by the abbate Scopa, at Paris, 1820, unite depth of feeling and simplicity with uncommon grace and sweetness;—for the recent works on Sicily, see those mentioned at the close of the article *Sicilies, The*

Two, and, likewise, Bigelow's *Travels in Sicily and Malta* (Boston, U. S. 1831), and Simond's *Travels in Italy and Sicily*.

SICKINGEN, Francis von, a German knight of the palatinate of the Rhine, imperial counsellor and general, one of the noblest characters of the disturbed times in which he lived, was born in 1481, at Sickingen. From early youth, he devoted himself to the military life. The protection of the oppressed was his chief occupation. He assisted many a creditor in procuring what was due him from a powerful debtor. He was the enemy of tyranny, of princes and priests. Without being a scholar, he loved science, and protected men of learning (for instance, Reuchlin, whom he defended against the monks of Cologne); and in his castle, called Ebernburg, many persecuted scholars found a safe asylum. He was a friend of the reformation, and contributed greatly to extend it in the countries which bordered on the Rhine. At last, he engaged in a quarrel with Treves, the palatinate and Hessia, which drew upon him the ban of the empire. He died in 1523, soon after the surrender of Landstuhl, one of his castles, having previously received a severe injury from a fall during a sally.

SICYON (now Basilicon, a village with about fifty families); one of the oldest, most celebrated, and handsomest cities of ancient Greece, lying not far from the gulf of Corinth, on which it had a port. The city was occupied by the Dorians; but the Sicyonians enjoyed so much consideration, that, with the Spartans, they acted as umpires and mediators. They were not less distinguished for their superiority in the arts of peace than the Spartans for their military fame. Sicyon, although powerful by sea, was seldom engaged in wars; but was celebrated for its schools of sculpture and painting. The city, with its environs, formed a small state (Sicyonia) at a very early period; and the names of several princes, who are said to have reigned there, are given. At the time of the return of the Heraclidæ, it formed a part of the kingdom of Argos. It afterwards became a democracy, and the supreme power was several times usurped by individuals. It maintained its independence subsequently to the period of the Persian war, but suffered much from the civil contests among the Greeks, in which it was sometimes in favour of, and sometimes in opposition to, Athens. Sicyon was induced, by the influence of Aratus, to join the Achæan league, in which it acted an important part, and of which it finally shared the fate, and fell under the dominion of Rome.

SIDDONS, Mrs, daughter of Roger Kemble, the manager of an itinerant company of players, was born at Brecknock, in South Wales, in 1755. She commenced her theatrical career as a singer, but soon relinquished that line, and attempted tragedy. In her fifteenth year, she conceived a passion for a young man, who was an actor of all work in her father's company; but her parents, considering her too young to form a connexion with him, placed her, as lady's maid, with a lady in Warwickshire. In her eighteenth year, however, she was married to Siddons, with their consent; and the new-married pair entered into a strolling company. She and her husband played at Liverpool, Birmingham, and other places, gaining both reputation and profit. The theatrical character which she had acquired induced the manager of Drury lane to offer her an engagement, which she accepted. It was, however, only in secondary parts that she appeared. But in a short time she quitted the London boards, in consequence of the scurrilous attacks of a disappointed editor of a newspaper, in whose condemned after-piece she had been unlucky enough to perform. Bath was the next scene of her exertions; and, while there, she improved rapidly, and became a general favourite. The duchess of Devonshire, then in the zenith of her charms and influence, became her friend; and, through the intervention of that accomplished lady, she was again engaged at Drury lane. The re-appearance of Mrs Siddons in London took place on the 10th of October, 1782, in the character of Isabella. Her success was complete. The public were astonished by her powers. She was acknowledged to be the first tragic actress of the English stage, and tragedy became fashionable. The manager gave her an extra benefit, and increased her salary. For that benefit she came forward as Belvidera, and at once exalted her fame, and made a considerable increase to her fortune. Such was the delight which she gave, that the gentlemen of the bar subscribed a hundred guineas as a present to her. She subsequently visited Dublin and Edinburgh with equal applause. In 1784, some calumnies circulated against her, with respect to her conduct towards an unhappy sister, occasioned her to meet with an unkind reception from a London audience, and affected her so much, that she resolved to retire from the stage; but the calumnies were speedily refuted, and her resolution was given up. For more than twenty years, she continued to astonish and enchant the lovers of the drama; and she was often invited to Buckingham house and to Windsor to read plays to their majesties. But her readings there were rather productive of honour than of profit. The fortune which she had accumulated was, however, large, and for many years she enjoyed it in the privacy of domestic life. It was not only as an actress that Mrs Siddons displayed talents. She had considerable merit as a sculptor, in which capacity she produced, among other things, a medallion of herself, a bust of her brother, John Philip Kemble, in the character of Coriolanus, a study of Brutus before the death of Cæsar, and a bust of president Adams. The symmetry of her person was captivating. Her face was peculiarly happy, having strength of features, but so well harmonized when quiescent, and so expressive when impassioned, that most people thought her more beautiful than she was. So great, too, was the flexibility of her countenance, that it caught the instantaneous transitions of passion with such variety and effect, as never to fatigue the eye. Her voice was plaintive, yet capable of firmness and exertion. Her eye was large; her brow capable of contracting with disdain or dilating with sympathy or pity; and her articulation clear, penetrating, and distinct. So entirely was she mistress of herself, so collected and so determined in her gestures, tone and manner, that she seldom erred, like other actors, because she doubted her own powers of comprehension: she studied her author attentively; she was sparing in action; though her acting was the result of the most refined and assiduous attention, no studied trick or start could be predicted; none of those arts in which the actress is seen, and not the character, could be found in Mrs Siddons. What was still more delightful, she was an original; she copied no one, living or dead, but acted from nature and herself. Mrs Siddons, having acquired an ample fortune, took her leave of the stage, in 1812,

before an audience which melted into tears on the occasion. She, however, performed, in 1816, for the benefit of her brother, Mr Charles Kemble, and a few nights in Edinburgh, to assist her daughter-in-law. Her greatest characters are well known to have been Catharine, in Henry VIII., and lady Macbeth, in which she manifested a dignity and sensibility rarely equalled. She died June 8th, 1831.—See Campbell's *Life of Mrs Siddons*.

SIDEREAL MAGNETISM, with the believers in animal magnetism, denotes the beneficial influence of the stars upon patients.

SIDEREAL TIME. A sidereal day is the time during which the whole body of fixed stars appears to revolve round the earth. It is found by observing two successive passages of the same star over the meridian. The time from one passage to the other consists of twenty-four hours, each of sixty minutes, each of sixty seconds, &c. Sidereal time is not adapted to the purposes of common life (see *Solar Time*), but is particularly suitable for astronomical observations, on account of its perfect uniformity. Astronomers have sidereal clocks. The sidereal day, and of course each subdivision, is shorter than the solar day, because the sidereal day is determined simply by the rotation of the earth on its axis, and is completed as soon as this rotation is performed; but in the case of the solar day, the earth's revolution round the sun is also to be taken into the account. The earth advances in its orbit nearly a degree each day; and to bring the sun to any particular meridian, it has to make so much more than a complete rotation on its axis as will counterbalance its advance in its orbit. The average amount of this daily advance is 59′ 8″. So much, therefore, must the earth turn on its axis beyond one rotation in order to complete the solar day, which is therefore three minutes fifty-six seconds longer than a sidereal day. Hence the mean solar day is twenty-four hours three minutes fifty-six seconds sidereal time; or the sidereal day is twenty-three hours fifty-six minutes four seconds mean solar time.—See Lalande's *Abrégé d' Astronomie* (Paris, 1795); see, also, the article *Day*.

SIDERISMUS (from σίδηρος, iron); the name given by the believers in animal magnetism to the effects produced by bringing metals and other inorganic bodies into a magnetic connexion with the human body. Hence we hear of *sideric* bodies and *sideric* power. The former are inorganic bodies, in contradistinction to the animated bodies, which produce somnambulism.

SIDEROGRAPHY; the art of engraving on steel. (See *Engraving*.) The word comes from σίδηρος, iron.

SIDNEY, Algernon, a celebrated English republican and martyr to liberty, was the second son of the earl of Leicester, by the daughter of the earl of Northumberland. He was born, according to some accounts, in 1617, and to others, in 1622, and educated under the inspection of his father, whom he accompanied in his embassies to Denmark and France. He was also early trained to a military life, and served with some distinction under his brother, lord Lisle, during the Irish rebellion. In 1643, both brothers returned to England, and joined the parliament. In 1645, Algernon was promoted by Fairfax to the colonelcy of a regiment of horse, and, after being present in several actions, was intrusted with the government of Chichester. He was then stationed in Ireland (1646), but soon after returned to England, where he was thanked by parliament for his services, and made governor of Dover. When the high court of justice was formed for the trial of the king (see *Charles I.*), he was nominated a member, but was neither present when sentence was pronounced, nor signed the warrant for the execution. It appears, however, that he vindicated that measure, which has led to a supposition that, in withholding his signature, he only yielded to the influence of his father. A politician so inimical to the encroachments of authority was not likely to acquiesce in a usurpation; and he warmly opposed the designs of Cromwell. During the government both of the protector and his son Richard, he lived in retirement at Penshurst, where he is supposed to have composed his celebrated Discourses on Government. When the return of the long parliament gave expectations of the establishment of a republic, he assumed a public character, and was nominated one of the council of state. He was soon after appointed a commissioner to mediate a peace between Denmark and Sweden, and while engaged in this embassy, the restoration took place. Conscious of the offence he had given the royal party, he refused to return, and remained an exile for seventeen years; and, although occasionally assisted by his family, he found it difficult to support himself in conformity to his birth and rank. At length, in 1677, the influence of his father obtained leave for him to return, with a pardon for all offences. At the time of his return, parliament was urging the king to a war with France; and it was feared by the opposition that Charles II. would agree to it until he obtained the supplies, and would then squander them on his pleasures, or devote them to arbitrary purposes. The English patriots were therefore opposed to this war, and some of the leaders intrigued with the French ambassador, Barillon, to defeat the measure. (See *Russel, Lord William*.) It even appears, according to the Barillon papers, as given by Sir John Dalrymple, that the name of Sidney was among those who received pecuniary aid from France. The testimony thus afforded against a man of high character, and whose sacrifices to principle were notorious, has led to the suspicion of fabrication and interpolation. The death of his father, soon after his return, led him openly to join in the opposition, and he consorted much with the duke of Monmouth and others who held views kindred or similar to his own. In the Rye-house plot he is named as one of a council of six, who were to organize an insurrection in conjunction with the Scottish malcontents. It was, however, for his supposed share in the subordinate conspiracy for assassinating the king, that he was arrested, with lord William Russel and others. After the sacrifice of the latter, he was tried, as the next most obnoxious person, for high treason, before the hardened tool, chief-justice Jeffreys, November 21, 1683. There was no direct evidence against him, except that of the disgrace to nobility, lord Howard, while the law for high treason required two witnesses. To help this defect, the attorney-general had recourse to the expedient of producing passages from some discourses on government, found in manuscript in his closet, which maintained the lawfulness of resisting tyrants, and the preference of a free to an arbitrary government. Although there was no proof that these papers were in his own hand-writing, in defiance both of law and common sense, they were deemed equivalent to a second witness; and,

in spite of his spirited defence, he was declared guilty. After his conviction, he sent, by his relation, the marquis of Halifax, a paper to be laid before the king, requesting his review of the whole matter; but it served only to delay his execution about a week. Hume acknowledges the illegality of his condemnation, for which he observes, "the jury were very blamable," but remarks, that an interference by the king might be regarded as an act "of heroic generosity, but could never be deemed an indispensable duty." Sidney was executed on Tower hill, December 7, 1678, when he delivered the sheriff a paper, alleging the injustice of his condemnation, and concluding with a prayer for "the good old cause." He suffered with all the firmness and constancy belonging to his character. One of the first acts of the revolution was to reverse his attainder; and the name of Algernon Sidney has since been held in great honour by the majority of those who maintain the fundamental principles of free government. Burnet speaks of him as of extraordinary courage, steady, even to obstinacy, impatient of contradiction, and a decided enemy to monarchy and church government. His Discourses on Government were first printed in 1698, and reprinted in 1704 and 1751 in folio, and in 1772 in quarto, at the expense of Thomas Hollis, esquire, with the trial letters prefixed. They contain much historical information, and are composed with clearness, acuteness and force.

SIDNEY, Sir Philip, an ingenious writer and accomplished statesman in the reign of queen Elizabeth, was the son of Sir Henry Sidney, of Penshurst, in Kent, where he was born November 29, 1554. After studying at Christ-church, Oxford, and Trinity college, Cambridge, he set off on his travels, at the age of eighteen, visited France, Hungary and Italy, and, returning through Germany and Flanders, arrived in England in 1575. He became a favourite with the queen, who, in 1576, sent him on an embassy to Germany. Having had a quarrel with the earl of Oxford, in consequence of a dispute at a tournament, her majesty interposed her authority to prevent a duel from taking place. Sidney, displeased at the issue of the affair, retired to Wilton, in Wiltshire, 1580, and amused himself with the composition of a pastoral romance, which, in compliment to his sister, was entitled the Countess of Pembroke's Arcadia. In 1581, he again appeared at court, where he distinguished himself in the jousts and tournaments celebrated for the entertainment of the duke of Anjou; and on the return of that prince to the continent, he accompanied him to Antwerp. The prince palatine being invested with the order of the garter in 1583, Mr Sidney was appointed his proxy, when he received the honour of knighthood. In 1585, he projected, in concert with Sir Francis Drake, an expedition against the Spaniards in America; and he had gone to Plymouth to embark on the undertaking, when an express mandate from the queen recalled him to court. Her influence also was exerted to prevent him from being elected king of Poland; "refusing," as Camden says, "to further his advancement, out of fear that she should lose the jewel of her times." He was subsequently appointed governor of Flushing, and general of the cavalry under his uncle, Dudley, earl of Leicester, who commanded the forces sent to assist the Dutch against the Spaniards. September 22, 1586, being at the head of a detachment of the English troops, he fell in with a convoy of the enemy marching towards Zutben. An engagement took place, in which his party gained the victory, dearly purchased with the life of their commander, who received a shot in his thigh, which shattered the bone. He was carried to Arnheim, where he expired, October 17. His works, besides the Arcadia, consist of the Defence of Poesy; Astrophel and Stella; a collection, entitled Songs and Sonnets; and other poetical pieces. The Defence was republished in 1752 (12mo.), and in 1831 (Boston); and a complete edition of his works appeared in three volumes, 8vo. (London, 1725). His Miscellaneous Works, with a life by W. Gray (one volume, 8vo.), appeared at Oxford (1829). The work by which Sir Philip Sidney is principally known is his Arcadia, which is one of the earliest specimens of the grave or heroic romance. It is a mixture of prose and verse, the latter exhibiting various attempts to naturalize the measures of Roman poetry.—See the *Life of Sidney* by Sir Fulk Greville, and Zouch's *Memoirs of the Life and Writings of Sir P. Sidney* (1808).

SIDON. See *Phœnicia*.

SIEBENBURGEN. See *Transylvania*.

SIEBENGEBIRGE (German, *Seven Mountains*); a group on the right bank of the Rhine, near the town of Königswinter, not far from Bonn, consisting of basalt, granite, porphyry and sandstone. Seven mountains tower above the rest of the group, of which the Drachenfels, close to the Rhine, and presenting a splendid view from the river, is the most beautiful, and the Löwenberg, 1896 feet high, the highest. All of them contain ruins of ancient castles.

SIEGE. The taking of a fortified place may be attempted, 1. by surprise (*coup de main*), in case the defenders should be off their guard, or treachery should enable the assailants to enter the fortress by means of secret or unguarded passages; 2. by a sudden onset (*une affaire brusquée*), usually connected with an assault and scaling of the walls (*escalade*), if the place should not be strongly garrisoned, or not in a proper state of defence—or if the assailants have no time to lose, or are possessed of strength and means sufficient for carrying their point (of late years, this method of attack has been strongly recommended, especially if it can be seconded by an efficacious and skilful use of artillery); 3. by blockade out of gun-shot (see *Blockade*); 4. by a siege, properly so called. The fortress is first blockaded, so as to cut off all intercourse from without; it is then important to examine the nature of the fortification, to discover the strength of the garrison, as well as the means of defence, and, if possible, the weakest parts of the place, in order to mark out a proper plan of attack: after this, the cannon, together with the necessary ammunition and implements for the pioneers, are brought forward; and the other requisites (fascines, gabions, &c.) are prepared and kept in readiness. The engineer who directs the operations must accurately calculate his time, the resistance to be expected, as well as the means at his disposal, and form his plan of attack accordingly. If any detached works are situated before the fortress, their capture becomes necessary to admit the opening of the trenches, at the distance of 500—900 paces from the covered way. After they are properly marked out (*tracées*), several columns of pioneers, furnished with fascines and instruments for digging, and defended by regular troops, advance (commonly by night) towards the fortress as far as the spot designated for the trenches, and there immediately engage in opening a trench.

Each labourer places his fascine before him, throws the ground over it, and thus a kind of breastwork is formed, constituting the first parallel, where the forces directed against the fortress may be collected. The besieged, by sallies and counter operations of every kind, strive to drive off the labourers and to destroy their work, while, on the other hand, the besiegers make efforts to establish themselves more and more securely, to raise batteries, and then, by means of trenches, dug for this purpose, and new parallels, which more and more closely encircle the fortress, to approach the moat, while the artillery is kept constantly playing from the batteries on the garrison as well as the works and guns of the besieged. With this the bombardment from the mortar-batteries is usually combined (see *Battery)*, for the purpose of dislodging the garrison from their works, of dismantling the works themselves, and of destroying buildings, magazines, &c. From the last parallel, which approaches very near the moat of the fortress, the besiegers prepare to cross the moat, and endeavour to make breaches. Here likewise mining operations (see *Mine)* are carried on, whenever they are found advisable. The moat is crossed in saps, or covered passages of a similar kind, and, should it be filled with water, on rafts, bridges, &c. When at last the breaches are practicable, the works of the strong-hold as much as possible demolished, the garrison and their artillery impaired, then follows the storming or scaling of the walls.—*To raise the siege* of a fortress, is to compel the enemy to retire from the place. They may be forced to this by inundations, if the situation of the place admits of them; by want of provisions, if the surrounding country has been desolated, or the convoys intended for them be captured; or, finally, by assault. If it is impossible to drive away the enemy, a temporary interruption of the siege is attempted, in order to introduce provisions or fresh troops into the fortress. This is generally done by a sudden attack on the lines of the besiegers, and forcing a way through them, with the co-operation of the besieged.

SIENITE; one of the primitive rocks, differing from granite chiefly in the substitution of hornblende for mica; but feldspar forms its most abundant ingredient, and is often red. When the quartz and hornblende are fine-grained, and the feldspar in distinctly imbedded crystals of considerable dimensions, the rock is called *porphyritic sienite*, or *sienite-porphyry*. Sienite is sometimes unstratified, though more commonly manifesting a tendency to the columnar structure. It embraces no foreign beds. It occurs in unconformable and overlying stratification, over granite, gneiss, mica-slate and clay-slate. It is equally prolific in metals as porphyry. In the island of Cyprus, it affords much copper. Many of the important silver and gold mines in Hungary are situated in sienite. In the forest of Thuringia, it affords iron. It abounds in Upper Egypt, at the city of Syene, in the Thebaid, at the cataracts of the Nile, whence it derives its name. The Romans brought it thence to Rome, for architectural purposes and for statuary.

SIENNA, or SIENA; an ancient city of Tuscany, the capital of the province of Sienna. Being built on three eminences, the streets are extremely uneven, winding, and narrow, so that the chief part of the town is impassable for carriages. The only handsome public square is that in which is the town-house, and which contains a beautiful fountain. The esplanade is a fine shady avenue leading to the citadel, the ramparts of which, planted with trees, and laid out in the form of terraces, afford several interesting points of view. The cathedral of Sienna is a magnificent marble structure in the Gothic style, built in the thirteenth century, by Giovanni Pisani, and accounted inferior to none in Italy, except St Peter's at Rome. The town-house is a large building, also in the Gothic style, and surrounded with porticoes. Adjoining is the theatre, rebuilt since 1750. There are in Sienna several family mansions, or palaces, but none of remarkable architecture. The manufactures of Sienna comprise woollen, leather, paper, and hats, but all on a small scale. This town is the seat of a university. Sienna lays claim to great antiquity, but it was long a petty place. Its prosperity was greatest during the middle ages, when it enjoyed an extensive commerce, and is said to have had a population of 150,000. It long maintained itself as an independent republic; but, intestine divisions favouring the designs of foreign powers, it became successively subject to French and Spanish invaders. Population, 24,000; lon. 11° 10′ 15″ E.; lat. 43° 22′ N.

SIERRA (*Spanish*), SERRA (*Portuguese*); a chain of mountains.

SIERRA LEONE; a country of Western Africa, on the Atlantic, distinguished for the colony formed there by the British nation, rather from motives of philanthropy than from those of commercial advantage. It is traversed by a considerable river, called the Mitomba or Sierra Leone. The name is derived from a ridge of mountains, which rises near the southern bank of the river. This country equals, in fertility and populousness, any other in this part of Africa. It consists generally of one vast, almost impenetrable forest, only particular spots of which have been cleared and cultivated. Rice is raised wherever the ground is sufficiently watered for its production, and forms the constant food of the rich; but the poor content themselves with millet, yams, and plantains. There is great abundance of the most delicate fruits. Elephants' teeth and civet are brought to the coast. The woods and mountains are infested with wild animals, particularly lions, from the multitude of which the country appears to have derived its name. There are swarms of insects, flies, mosquitoes, and particularly ants, the white species of which commit extraordinary devastation. The serpent species are also very numerous. The rivers, besides yielding an ample supply of fish for food, contain large alligators, and the manata or sea-cow. The natives of this country are not of so deep black a complexion as those of cape Verd, nor have they the flat nose of the negro race to such a degree. The character of the different tribes varies greatly.

The Portuguese were the first who discovered and formed settlements on the river Sierra Leone. Towards the close of the eighteenth century, the British began to turn their views towards Sierra Leone, with a view to colonization, for the more effectual abolition of the slave-trade, by raising up an African colony, whither the slaves might be sent as freemen. Lord Mansfield having decided, in 1772, that a slave who sets foot in Britain becomes free, a number of blacks in England left their masters, and were wandering about in a desolate condition. Granville Sharp formed the plan of transporting them to Africa; and, the aid of the government having been obtained, they

were landed (1787) upon a district purchased from the king of Sierra Leone. These negroes and the white females sent with them were mostly of indifferent characters, and a severe mortality ensued among them. In 1792, about 1200 negroes, who had been seduced from their masters in the United States during the revolutionary war, were also landed at Sierra Leone; and several years later the colony was increased by 550 Maroons from Nova Scotia. Little progress, however, had been made in the objects for which the colony was formed, and, in 1807, it was surrendered into the hands of the crown. At that period Great Britain received permission from several powers to treat as pirates such of their subjects as should be found engaged in the slave-trade north of the line; and the liberated negroes seized by her cruisers were placed at Sierra Leone. For the first six months they receive a daily allowance from the government, after which lands are assigned them, and they are left to support themselves. The number thus liberated has been about 40,000; and although their wild and improvident habits have thrown many difficulties in the way of the benevolent exertions of the British authorities, recent accounts give decided proofs of great improvements in the spirit and condition of the colonists. Freetown, the principal place of the colony, has an excellent harbour on the river Sierra Leone, about six miles from the sea (lat. 8° 32′ N.), and upwards of 6000 inhabitants. Regent's town, six miles south of Freetown, founded in 1816, has a population of 1300; and in the vicinity are several villages, with the more distant stations of Waterloo, Wellington, and Hastings. Bathurst, on the Gambia, is a settlement also connected with this colony.

SIERRA MORENA. See *Morena, Sierra.*

SIERRA NEVADA (Spanish, *Snowy Range*); a chain of mountains in Spain, the most elevated range in the peninsula, which derives its name from the perpetual snow that covers its loftiest summits. It extends through Granada and Andalusia, from west to east, and terminates on the shores of the Mediterranean, in several promontories, of which that of Gibraltar is the most remarkable. The highest peak is Cumbre de Mulahacen, which has an elevation of nearly 14,000 feet. The principal river which descends from the Sierra Nevada is the Xenil. See *Granada.*

SIESTA (Spanish, for *noon*); the heat of the noon; whence it came to signify the rest or nap taken after dinner during the season of heat.

SIGÆUM; a celebrated cape on the coast of Asia, with a town of the same name, not far from Troy, near which the Greeks encamped during the Trojan war. Here Achilles drew his fleet on shore, and here he was buried with his friends Patroclus and Antilochus. Large mounds of earth are still to be seen here, which have been taken for their tombs. A remarkable inscription has been found upon a block of marble at Sigæum, of which a part, written in the Æolic dialect, is thought to be prior to the time of the poet Simonides. The people in the neighbourhood considered this monument as a sort of palladium; and the sick laid or seated themselves upon it, so as almost to obliterate the inscription. However, it has been copied entire, and was carried to England by lord Elgin.

SIGHT. See *Eye*, and *Optics.*

SIGNALS; certain notices used to communicate intelligence to distant objects. At sea, they are made by firing artillery, displaying flags and pendants, lanterns, or fire-works, as rockets and false fires; and these are combined by multiplication and repetition; by which combination of preconcerted signals, the admiral conveys orders to his fleet, every squadron, every division, and ship, of which, has its particular signal. Every ship to which a signal is made, immediately answers it by hoisting some particular flag, to show that she has received and understands the order thereby conveyed. All signals at sea may be reduced to three different kinds, viz. those which are made by the sound of particular instruments, as the trumpet, horn, or fife, to which may be added striking the bell, or beating the drum; those which are made by displaying pendants, ensigns, and flags of different colours, or by lowering or altering the position of sails; and, lastly, those which are executed by rockets of different kinds, by firing cannon or small arms, by artificial fire-works, or by lanterns. All signals, to be effectual, must be simple, and composed in such a manner as to express the same signification, at whatever mast-head or yard-arm they may be displayed. They should be issued without precipitation, exposed in a conspicuous place, so as to be seen at a distance, and sufficient time should be allowed to observe and obey them. Signals are very numerous and important, and are all communicated in the instructions sent to the commander of every ship of the fleet or squadron, before their putting to sea. Few subjects have more seriously engaged the attention of nautical men. In the land forces, signals are made by the firing of cannon, or by sound of trumpet. Balloons are sometimes used for signals. For the *Telegraph*, see that article.

SIGNATURE; among printers, a letter or figure at the bottom of the first page of a sheet or half sheet, by which the order of the sheets is designated, so as to guide the binder. Every successive sheet has a different letter or figure; and, where letters are employed, if the sheets are more numerous than the letters of the alphabet, then a small letter is added to the capital one, as, A a, B b, &c. In large volumes, the signatures are sometimes composed of letters and figures, thus, 5 A, 5 B. It is now becoming more common, however, to use only figures.

SIGNET; one of the king's seals, made use of in sealing his private letters, and all grants that pass by bill, signed under his majesty's hand. It is always in the custody of the secretaries of state. See *Seal.*

SIKHS, or SEIKS; a religious sect in Hindoostan, which professes the purest Deism. It is chiefly distinguished from the Hindoos by worshipping one only and invisible God. It was founded by the estimable Nanac Shah, of the caste of Cshatriyas and the Hindoo tribe of the Vedis, who was born A. D. 1469, in the village of Talwandi (now the town of Rajapoor), in the province of Lahore. When Nanac was very young, he met some fakirs, who converted him to the Nagornai worship, which consists in the adoration of one God. His lively imagination made him dissatisfied with traffic; and, to gratify his thirst for knowledge, he travelled through Hindoostan, Persia, and Arabia, visited Medina and Mecca (the Mohammedan places of pilgrimage), and the sacred sects of the Hindoos in Vatala, and the Picos (Mohammedan saints) in Moultan. Afterwards he became acquainted with the system of the Sufi,

and adopted their doctrines. He read, particularly, the works of a Mohammedan named Cabik, belonging to this sect, who enjoined, in all his writings, universal philanthropy, and, particularly, religious toleration. Nanac now renounced all worldly business, and consecrated his life to the purest devotion. He entertained the noble and benevolent idea of effecting a union between the Hindoos and Mohammedans, by introducing simplicity of faith and purity of morals. Hence he treated both religions with respect, laboured to remove only what was superfluous and dissonant, and to lead the people to a practical religion, to a pure worship of God, and love to mankind. Thus he used to say, "Hundreds of thousands of Mohammeds, millions of Brahmas and Vishnoos, and hundreds of thousands of Rahmas, stand before the throne of the Almighty, and they all die. God alone is immortal. He only is a good Hindoo who is just, and a good Mohammedan whose life is pure." Nanac died about 1540, at Kirtipur, where he lies buried on the banks of the Ravee. Hence Kirtipur is deemed a sacred place by the Sikhs; and a relic of Nanac's dress is preserved in his temple there, which is shown to pilgrims. The ennobling religion established by Nanac, and the benevolence of his doctrines, corresponded to the purity of his whole life. Far from deceiving his adherents with pretended miracles, he replied to the Yogiswares (to whom a dominion over the powers of nature, procured by self-torture, is attributed in Hindoostan), when they importuned him to perform a miracle, "I have nothing worth showing. A holy teacher has no defence but the purity of his doctrines. The world may alter, but the Creator is unchangeable." As a governor and priest, he exercised, during his life, a spiritual and temporal dominion over his disciples. At his death, he transferred the power, not to his sons, but to a favourite disciple named Lehana, whom he had himself initiated into his doctrines, and dressed in the sacred garb of a fakir. Of his successors in the government of the Sikhs, Arjun gave stability to the religion, and unity to its professors, by collecting the writings of Nanac, and publishing the *A'di Grant'h*, the first sacred book of the sect. But this drew upon him the notice and the jealousy of the Mohammedan government, and he was put to death. Eager to avenge his father's death, Har Govind, the son and successor of Arjun, transformed the Sikhs from peaceful believers into valiant warriors; and, under his reign, and that of his posterity, a bloody contest was maintained between them and the Mohammedans, till the day of Behadur's execution, whose son, Guru Govind, was forced to retreat with his adherents to the Punjab, where a Hindoo chief kindly entertained him, and gave him Mekhamel, on the banks of the Setledge. Guru Govind established there the state of the Sikhs, destroying among them the Hindoo distinction of castes, and giving equal rights to the lowest Soodra and the highest Brahmin. This procured him great accessions to the numbers of his disciples, whom he excited to seek for happiness in this and the future world by destroying the tyrannical Mohammedans. From this time, in consequence of their heroic conduct during the protracted contest with their oppressors, Guru Govind's followers received the title of Sikhs or lions, which before had been confined to the Rajaputs, as the first military order among the Hindoos. This ruler, equally great as a soldier and a lawgiver, wrote the *Dasema Padshah ke Grant'h*, or the book of the tenth prince (so called because he was the tenth ruler of the Sikhs from Nanac). Besides treating of religious subjects, it contained also the history of the author's exploits. It is regarded by the sect with the same veneration as the *A'di Grant'h* of Arjun. Guru Govind directed the Sikhs, in order to distinguish them for ever from Mohammedans and Hindoos, to wear a blue dress, to let their hair grow, and to be always armed. To make his religious institutions more stable, he founded a religious order, the *acalis* (immortals), and assigned the members of it a *bonga* (monastery) by the sacred fountain at Emoilser, on the income of which they were supported. To these *acalis* he committed the care of converting and initiating new Sikhs; and in their hands still rests the supreme direction of all the religious and civil affairs. Guru Govind was the last head of the Sikhs; for a prophecy limited the number of the rulers to ten; and as he was the tenth ruler after Nanac, he said to his friends, on his death-bed, "I commit the state to God, who never dies." Hence the Sikhs suppose that their state is under the peculiar care of the Deity. Their government, therefore, is a pure theocracy. The popular faith would prove an insurmountable obstacle to any one who should attempt to subject the Sikhs to his rule. After the death of Guru Govind, the Sikhs gradually yielded to the superior power of the Mohammedans; and even Banda, one of their most heroic leaders, after a fearful struggle, was taken prisoner in the fort of Lagab, with all his followers, sent to Delhi, and put to death with the most barbarous tortures. To exterminate at length the hated sect, a price was set upon their head by the Mohammedan government, and every adherent of it, who could be taken, was put to death. But they suffered, with the greatest firmness, the pains of martyrdom, often courting, rather than fleeing from them. Nothing could induce them to renounce their faith; and a Mohammedan writer has stated that no Sikh was taken on the pilgrimage to Amritsar (the holy place of the Sikhs) who ever abjured his religion to save his life. A very small number of the Sikhs escaped to inaccessible mountains, and faithfully preserved the doctrines of their fathers, and an inextinguishable hatred towards their persecutors. After Nadir Shah's return to Persia, they ventured to leave the mountains; and, taking advantage of the confusion into which Nadir's expedition had plunged Hindoostan, they subdued all Lahore. At present, the territory of the Sikhs extends from 28° 40′ to beyond 30° north latitude, and comprehends all the Punjab, a part of Moultan, and the largest portion of the country lying between the Jumnah and the Setledge, or the north-western corner of Hindoostan, containing 69,000 square miles, and 4,000,000 inhabitants. A few chiefs, who form a diet at Amritsar, and deliberate on subjects of general interest, under the direction of the *acalis*, rule over portions of country of greater or less extent. According to the account of general Malcolm, who was in the Punjab with the British army in 1805, and to whom we are indebted for the most accurate information concerning this interesting sect (see vol. xi. of the *Asiatic Researches*, containing his *Sketch of the Sikhs*, also printed separately in 1812), they are able to bring into the field 100,000 horse. Their present governor, or *maha raga*, is said to have subjected portions of Afghanistan and Cashmire to his rule. In the separate

districts, subordinate chiefs, or *sirdars*, possess unlimited power. Lahore is the residence of the chief ruler, and contains 100,000 inhabitants. The city of Amritsar is the great depot of Cashmere shawls and of saffron.

SILENUS; the tutor and companion of Bacchus; according to some, the son of Mercury, or of Pan, by a nymph; according to others, he sprang from the blood of Uranus. According to Pindar, his wife was the nymph Nais; according to others, a nymph of Malea, in the island of Lesbos, who bore him the Arcadian Centaur Pholus. He educated Bacchus, instructed him in the sciences, and was ever afterwards his constant companion. He loved the inspiring beverage of his pupil's invention so well, that he was generally intoxicated; and in this plight he was found by two young Satyrs, who bound him with garlands, and compelled him to sing. Midas caught him in the same condition, and entered into a philosophical conversation with him. In the war of the giants, Silenus aided the gods, and terrified their enemies by the braying of his ass. A whole race of Silenuses sprang from him. The name is often applied to old Satyrs, of a cheerful, good-natured disposition. They are represented with a curly beard, a low forehead, and a bald head. The chief of the race is the companion of Bacchus above described, known by the cantharus or bottle which he bears. He is often also distinguished from the other Sileni, by being mounted on an ass, or by his accompanying Bacchus, and is frequently represented holding the infant Bacchus in his arms. He sometimes also appears treading out grapes, and covered with hair. In the latter case, a caricature is intended.

SILESIA (in German, *Schlesien*); formerly a duchy belonging to Bohemia, now divided, politically, between Prussia and Austria, and geographically, into Upper and Lower Silesia. The *Prussian* province of Silesia (15,264 square miles; population 2,396,551) borders on Posen and Poland to the east, on the Austrian territories to the south, and on Saxony and Brandenburg to the west and north. (See *Prussia*.) The southern part of the province is mountainous, being intersected by different ridges of the Sudetic chain. (q. v.) Towards Brandenburg and Posen it is level, but in part marshy and sandy, although throughout adapted to tillage. The principal river is the Oder. The soil of Silesia is fertile, yielding corn of all sorts, fruits, and tolerable wines. The mountainous parts are covered with wood, or afford good pasturage and meadow land. Flax is raised in large quantities, and affords an important article of manufacture and trade, and madder, hemp, hops, and tobacco are among the productions of the province. The wool of Silesia is of the best sort produced in Prussia. Among the mineral productions are iron, copper, lead, some silver, sulphur, vitriol, &c., and there are mineral waters in several places. Linen is the principal article of manufacture, and owes its excellence to the inspection system, which has been introduced here. Cotton and woollen goods, and leather are also manufactured to a great extent. Silesia is divided into three governments—Breslau, Leignitz, and Oppeln. The inhabitants are chiefly Lutherans and Catholics, with some Calvinists, Hussites, Herrnhutters, Jews, &c. There is a university in Breslau, the capital of the province, with two theological faculties, one for Catholics and the other for Protestants, and numerous gymnasia, or high schools, in the large towns. The revenue is about six million dollars.

Austrian Silesia consists of the southern part of the old Silesian duchy, which was left to Austria by the peace of Hubertsburg, in 1763. It is divided into the circles of Teschen and Troppau, and attached to the Moravian *gubernium* of Brünn. Population, 350,000; square miles, 2500. It is mountainous, and although the soil is not in all parts favourable, it is rendered productive by the industry of the inhabitants, who are also extensively engaged in linen, cotton, and woollen manufactures. In the sixth century, this country was occupied by Sclavonians, who drove out the Lygii and Quadi, and thus annexed it to Poland. It was afterwards divided into a great number of petty principalities, and in the fourteenth century, it became a dependency of Bohemia. Although, in consequence of its annexation to Bohemia, it came to be considered a part of Germany, it never actually formed a member of the empire. For the more modern history of Silesia, see *Frederic II.*, *Seven Years' War*, and *Prussia*.

SILESIAN POETS. See *German Poetry*.

SILESIAN WARS. See *Frederic II.*, *Maria Theresa*, and *Seven Years' War*.

SILEX, or SILICA. The mineral species quartz, it was mentioned under that article, consists almost exclusively of silex. It also forms a principal ingredient in nearly all the earthy minerals, and was regarded as one of the primitive earths, until after the discovery of the composition of the fixed alkalies by Davy, when it was ascertained, by this philosopher, to consist of oxygen and an unknown base, which has been called *silicon*, or *silicium*. If we ignite powdered quartz with three parts of pure potash in a silver crucible, dissolve the fused compound in water, add to the solution a quantity of muriatic acid, sufficient to saturate the alkali and evaporate the dryness, we shall obtain a fine, gritty powder, which, being well washed with hot water, and ignited, will yield pure silex. By passing the vapour of potassium over silex, in an ignited tube, we obtain boron, the basis of the earth. Thus obtained, as well as by several other methods, silicon is of a deep brown colour; is a non-conductor of electricity: it stains the fingers, and adheres to every thing that comes in contact with it. Like carbon and boron, it may be exposed to a very high temperature in close vessels, without fusion; but it becomes harder, the greater the heat to which it has been subjected. By this treatment, its properties are very materially altered. Before it has been heated, it is readily combustible in the air, and burns with a very lively flame. By this combustion, about one third of it is converted into silica, while the rest is preserved by the silica formed, which prevents the unburnt portion from coming in contact with the atmosphere. Silex, or silica, is the only compound of silicon and oxygen with which we are acquainted. It is a white, tasteless powder, feeling gritty between the teeth, and having a specific gravity of 2·65. When originally formed by the combustion of silicon, it is so soluble in water, that the liquid, when concentrated, gelatinizes. But after it has been exposed to heat, it loses its solubility altogether. When silex is mixed with thrice its weight of potash, or with a quantity of carbonate of potash, containing thrice as much potash as the weight of silex employed, and the mixture is exposed to a strong heat, it fuses, and assumes, on

cooling, the appearance of glass. This glass dissolves in water. If to an aqueous solution of it we add as much muriatic acid as will saturate the alkali, and concentrate the solution sufficiently, the silica assumes the form of a white translucent jelly. This characterizes silica. If we evaporate the whole to dryness, and wash off the salt of potash from the dry mass, the silica remains behind in the state of a very fine powder. Silex consists of about 48 silicon, and oxygen 52. It may be subjected to a very violent heat, without suffering any change; there is no difficulty in causing it to melt, however, before the compound blow-pipe. Though silex does not redden vegetable blues, yet it enters into definite compounds with the different bases, and forms saline compounds, which are distinguished by the name of *silicates*, and is hence called *silicic acid* by some writers on chemistry. Like other weak acids, it is capable of entering into a great variety of combinations with bases. The combinations which it forms are frequently so intimate, that no other acid is capable of removing the base and setting the silica at liberty. The different kinds of glass consist of two or more silicates melted together. Silicon burns vividly when heated in chlorine gas, and the compound formed is a colourless liquid, which is a *chloride of silicon*. It evaporates almost spontaneously, in the form of a white vapour, when exposed to the open air. It boils at a temperature below 212°. It reddens litmus paper very strongly. When dropped into water, it swims on the surface of that liquid. It is gradually dissolved in the water, but deposits, at the same time, a little silica. Silicon unites with fluorine, and forms an acid gas, which is called *fluosilicic acid*. It is easily obtained by mixing together fluor spar and glass, or quartz, both in fine powder, in a small retort, and adding a sufficient quantity of sulphuric acid, to form the whole into a semi-fluid mass. When heat is applied to this mixture, fluosilicic acid comes over in the form of a transparent invisible gas. This gas is rapidly absorbed by water, while silica is deposited in a gelatinous state. Its specific gravity is 3·6. It consists of fluoric acid 17·6, silica 27·2. When potassium is heated in it, combustion takes place, and a chocolate-coloured substance is formed, which differs in its nature, according to the proportion of potassium employed. Fluosilicic acid gas combines with twice its volume of ammoniacal gas, forming a volatile salt. Silicon and carbon combine, when they come in contact in a nascent state. The *carburet* formed is a dark brown powder. *Sulphuret of silicon* is formed by heating silicon in the vapour of sulphur, and the union is attended with the phenomena of combustion. It is a white, earthy-looking substance, which is instantly converted by the action of water into sulphureted hydrogen and silica. Silicon is more allied to carbon and boron than to the metals.

SILHOUETTE is the representation of the outlines of an object filled with black colour, in which the inner lines are sometimes slightly drawn in white. The name comes from Etienne de Silhouette, French minister of finance in 1759. He strove by severe economy to remedy the evils of a war which had just terminated, leaving the country in great exhaustion. At the end of nine months, he was obliged to leave his place. During this period, all the fashions in Paris took the character of parsimony. Coats without folds were worn; snuff-boxes were made of plain wood; and, instead of painted portraits, outlines only were drawn in profile, and filled with Indian ink, &c. All these fashions were called *à la Silhouette;* but the name remained only in the case of the profiles, because the ease with which they may be drawn, or cut out of black paper, makes them popular, though, considered as works of art, they have little value. Some faces—those with a marked profile—are easily taken in this way, whilst others lose their character entirely, particularly those whose traits are well harmonized. In general, the extremes of expressions, as the expression of great savageness or sternness, great mildness or obstinacy, deep reflection, or great stupidity, are those most easily given in this mode. But the expression of blended imagination, thought, and goodness of disposition, is not easily conveyed in profile. On the whole, the silhouette expresses more the original disposition of the mind, than its cultivated character. These representations may be taken very well from the shadow of a person on a paper held on the wall; and in order to make the shadow more steady, it is well to rest the head on a book or the like, put between the face and the paper. The paper is then cut according to the outline of the shadow, and the outer surface pasted on black paper. The likeness can be taken still better, and of any size, by means of an instrument called a *pantograph*. A frame with a glass, on which paper slightly oiled and well dried is fastened, attached to a chair on which the person sits, whose likeness is to be taken, is also of much advantage. The invention of the silhouette, in ancient times, is said to have given rise to the art of painting. This invention is ascribed to the daughter of the potter Dibutades, who drew the outline of her lover's shadow on the wall. The time of this invention may be placed at the renewal of the Olympic games, shortly before the expulsion of the Bacchiades from Corinth, about 776 B. C. Sicyon and Corinth were the first places where painting flourished. Crato of Sicyon, Philocles of Egypt, and Cleanthes of Corinth, are mentioned as inventors of the monochromes, they having filled the outline with colours. The silhouettes were soon applied to large objects; thus Saurias of Samos drew the shadow of his horse on a wall. The estimation of these drawings with the ancients, the beauty and delicacy with which they were executed, may still be seen from the Etruscan vases.

SILICATE OF MANGANESE; the name of a chemical family in mineralogy, which consists of two mineralogical species, viz. the *Fowlerite* and the *manganese spar*, or siliceous oxide of manganese. The *Fowlerite* occurs in feld-spar-looking crystals, differing, however, in the valve of its angles, from feld-spar. Its angles are 95° 0′, 121° 0′, and 113° 0′. Its hardness is the same as feldspar; specific gravity 3·5 to 3·8; colour flesh-red. It is fusible with difficulty, and tinges borax red. It consists of

Silex,	29·48
Protoxide of manganese,	50 58
Peroxide of iron,	13·22
Water,	3·17

The *manganese spar* occurs massive, fine, granular, and, rarely, somewhat fibrous; colour rose-red; lustre intermediate between pearly and resinous; translucent; hardness but little inferior to feldspar; specific gravity, 3·5. Heated before the blow-pipe, it becomes dark-brown, and melts into a reddish globule. It tinges borax hyacinth-red. It consists of

Silex,	40·56
Protoxide of manganese,	38·92
Protoxide of iron,	13·50
Water,	3·
Carbonic acid,	3·23
	99·23

It is found in primitive districts, usually in connexion with beds of iron ore. Localities of it exist in the Hartz, in Sweden, and in Devonshire, England. This species is sometimes wrought into articles of ornament. When polished, its colour and lustre are extremely delicate.

SILIUS, Caius, surnamed Italicus, was born in the reign of Tiberius, about the year fifteen. The origin of his surname is uncertain. At Rome, he applied himself to the bar, and became a celebrated orator and advocate. He was consul at the time of Nero's death, and incurred some reproach for assisting in that tyrant's prosecutions, but acquired honour from his conduct in the proconsulate of Asia, assigned to him by Vespasian, from which he retired into private life, and collected books, statues, and busts of eminent men. He finally retired to his seat in Campania, where, being seized with an incurable ulcer, he put an end to his life by starvation, in his seventy-fifth year. The only work of Silius which has reached modern times, is an epic poem on the second Punic war, in sixteen books, written with more diligence than genius. It contains, however, occasional splendid passages; and his description of the passage of Hannibal across the Alps is particularly admired. The best editions are those of Drakenborch (1717, 4to.), and of Ruperti (Göttingen, 1795—8, 2 vols., 8vo.).

SILK, a well known species of glossy thread, spun by several species of the larvæ or caterpillars of the insects classed by Entomologists under the genus *Phalæna*. Of these, the species *Phalæna Atlas* produces the greatest quantity of thread, but the species most commonly employed in Europe is the *Phalæna Bombyx*. The silk worm, like all others of its class, undergoes, during the course of its existence, several transformations. The changes of form it assumes are four. The eggs of the silk worm are deposited during the summer, by the female, at this period in the form of a grey moth. The eggs, when first laid, are in size similar to a grain of mustard seed and of a yellow colour, which colour, in two or three days, changes to a bluish cast. These eggs are covered with a liquid which glues them to the cloth or paper on which the female is made to deposit them, but from which they are freed easily by immersion in cold water; and being afterwards dried and kept at a proper temperature, they may be preserved during the winter and spring without danger, until the food on which they feed, when in a more perfect state, is ripe for consumption. The temperature at which the eggs ought to be kept must not vary many degrees from 55° Fahrenheit. The eggs are preserved by being tied up in flat packages, containing about an ounce each. For hatching in France they are tied round the girdles of the women during the day, and placed under their pillows at night. When otherwise treated, they are placed in a room heated gradually by a stove up to a temperature of about 80°. In the course of eight or ten days the eggs are hatched. The worms are now covered with sheets of paper on which leaves of the mulberry tree have been spread. The sheets of paper are perforated with numerous small holes, through which the worms make their way up to the mulberry leaves, their natural food. The leaves soon become covered with worms. These leaves with the worms are now carried off the sheets of paper, and laid upon shelves of wicker work covered with brown paper. This is repeated twice a day, until all the hatched worms are laid on the wicker work. In a well appointed nursery, this ought to be completed in from two to three days. Great care and attention is required on the part of the nurses to keep the room at a proper temperature and well ventilated, and to supply the worms at proper intervals with fresh leaves, with as little trouble to the animal as possible, as the silk worm is remarkable for its indisposition to move from its place; a circumstance which greatly lessens the labour of the attendants.

The silk worm, when first hatched, is black in the colour, and in length does not exceed one fourth of an inch. The desire for food is the first symptom it exhibits of life, and at this period it is more active than at any other. When about eight days have elapsed after its hatching, its head becomes considerably enlarged, and it turns sick, refuses food, and remains in a state of lethargy for about three days. This sickness would appear to arise from the pressure of the animal's skin, which has become too tight for the increased bulk of its body. Indeed the very great difference in the size of the worm, from the beginning to the end of its caterpillar state is so great, that nature has furnished it with several skins, each of which it casts in succession. The necessity of these wise arrangements will be the more apparent to the reader, when he is informed, that in the short space of one month, the weight of the worm is increased several thousand times. When the process of casting the skin has been performed, the animal again revives and betakes itself to food. It is extremely interesting to watch the several steps in the process of moulting. In order to diminish the action of the skin to be cast, upon the new skin, the animal exudes a lubricating humour between them, which renders them more easy of separation. Small silken threads are likewise emitted, which bind the skin to the spot on which it now rests. These acts call forth considerable exertions, and after they are performed, the worm rests quiet for a little to recover its energy. It now rubs its head among the leafy fibres surrounding it, and breaks through the skin of the head, then its front legs, and afterwards the whole body. On examining the cast skin, it will be found that the covering has been thrown off the animal entirely, even to the jaws and teeth. Sometimes the outer skin is not entirely detached, in which cases the animal generally dies. In five days after the first moulting, the worm has acquired considerable size, being now generally about half an inch long, at which period it again sickens, and a second moulting takes place. In five days more, it has acquired the length of three fourths of an inch, and a third moulting comes on. In five days more, the worm casts its fourth and last skin, having increased in length to about two inches. It now devours much food, and increases greatly in magnitude for ten days, when it has reached its full growth of about three inches in length.

The worm may now be more advantageously examined as to its structure than at any other period. Its body is begirt by twelve rings, which approach to or recede from each other during the motion of the animal. It is furnished with six scaly legs on front, and ten membranous ones, called holders, behind which latter are terminated by small hooks.

The mouth is very large compared to the size of the body; it opens vertically, unlike the mouths of most animals, and the jaws are formed after the manner of the teeth of a saw. There are nine breathing holes on each side of the body, and there are likewise seven eyes on each side of the head. Below the jaw there are two small orifices, through which the worm ejects its silken filament.

At the period of the worm's existence of which we have been speaking, it shows a disposition to leave its food, voids its excrement, and diminishes in bulk, becoming at the same time semitransparent. Twigs of broom or green oak are now laid on the wicker frames, and the worms are placed more closely together. The spinning process now commences. The worm throws its head about in various directions and spins the floss or outer net work of its cocoon, and then winds the silk thread round its body as regularly as a spinner builds the thread upon the cope. The silken substance is a glutinous liquid matter in the body of the animal, which hardens by coming into contact with the air, and this glutinous property causes the two filaments issuing from the orifices above mentioned, to adhere and form one continuous thread. The spinning process is finished in the course of from three to four days, after which the cocoons are collected together, the finest being selected for seed and the rest set apart for unwinding.

The animal remains in its silken tomb for about twenty days; it then exudes a lubricating liquid to facilitate its freement, and by knocking its head against the cocoon it extricates itself in the form of a butterfly. The butterflies are laid upon a soft piece of cloth, where they copulate, and speedily terminate their existence.

The number of eggs produced by the female moth varies from 200 to 500, and about 200 cocoons will yield one ounce of seed. Six full grown worms will on an average weigh one ounce, which will give an idea of the wonderful increase of weight that the worm acquires during its progress from hatching. One of the best writers on the subject, states that the relative lengths at the different stages are,

At hatching,	1
At the end of the 1 stage,	4
—— 2 ——	6
—— 3 ——	12
—— 4 ——	20
—— 5 ——	40

According to Dr Ure, " fifteen parts by weight of mulberry leaves furnish one part of cocoons, and one hundred parts of cocoons furnish eight parts of reeled silk. Under favourable circumstances, one ounce of seed eggs will produce eighty pounds of cocoons, or even more. One pound of cocoons is required to yield one ounce of eggs, the silk of a cocoon weighs two and a half grains, and affords a length of thread equal to from 750 to 1,160 feet." The great quantity of food they consume is surprising. The authority last quoted, states that the worm increases in weight so much as 30,000 times the weight of the egg, and Bonafons renders this not improbable from his observations on the quantity of mulberry leaves consumed by the animal.

	lbs.	oz.
In the 1 age they consume	7	
— 2 ——	21	
— 3 ——	69	12
— 4 ——	210	
— 5 ——	1281	
In all,	1588	12

The mulberry is the natural food of the silk worm, and therefore it can only be reared in those climates where such trees grow. Attempts have been made to substitute other vegetables, such as lettuce leaves, but the results have not been such as to induce the practice to any extent. Attempts have likewise been made to obtain a substitute for silk from other animals, as the spider and the pinna, but these have never been made available in a commercial point of view, and specimens are only to be found in the cabinets of the curious.

The art of making the filamentous substance of the cocoon available for the use of man, seems to have originated with the Chinese, and to have been discovered at a very early period. The most ancient of their records describe the queen as surrounded by her female attendants all engaged in the silk manufacture, and, according to the written documents of this nation, the art seems to have been known among this singularly ingenious people 2700 B. C. Until the time of the emperor Justinian, the silk worm was cultivated only in China, but the raw material was purchased and manufactured by the inhabitants of Persia, Tyre, &c. for a long time before. Aristotle relates that the inhabitants of the island of Kos were in the habit of unweaving the heavy fabrics of the east, and of again spinning and weaving them into fabrics of a more variegated texture; and this, which is said to be the invention of Pamphela, appears to be the origin of silk gauze. Before the reign of Augustus, the use of silk was little known in Europe.

About the beginning of the sixteenth century, the silk trade of Constantinople was greatly depressed in consequence of the impolitic interference of the emperor Justinian. The culture of the silk worm was at this period unknown in Europe; but was introduced in rather a singular manner. Two Persian monks had gone as missionaries to the Christian churches at this time established in India; these monks devoted great attention to the culture of the silk worm, and perceiving that this species of industry would be highly advantageous to other countries, they managed to carry away a quantity of the eggs packed in a hollow cane, which they conveyed to Constantinople. This occurred in the year 552. The monks superintended the hatching of the eggs, and thus originated all the silk worms that have ever been nurtured in Europe. Justinian took the manufacture entirely into his own hands, and all the silk rearers and weavers were compelled to work under the superintendence of his treasurer. Justinian was strongly imbued with a love of that restrictive policy as regards commerce and manufacture, for which emperors and kings have been ever remarkable. He prevented the importation of eastern silk, and raised the price of the home manufacture to eight, and in cases of dyed goods to thirty times the price of the silks of the east. This produced, if not its desired at least its necessary result, i. e. the cultivation of the silk worm in a neighbouring country. Silk was soon manufactured in Greece and particularly in Peloponnesus. The merchants of Venice formed the channel through which the silk produce of the Greeks was transferred to the west of Europe. The silk manufacture continued in this state for six centuries; but in 1146, Roger I. king of Sicily, in his conquest of Greece, took many of the people engaged in this species of industry, whom he compelled to prosecute their avocations in his own dominions, at Palermo. A knowledge of the management of

silk soon spread through Italy, and ultimately reached Spain, from whence it was, in the reign of Francis I., introduced to France. Yet while the silk manufacture was thus gradually moving to the west, China, which had been its birth place, did not remain inactive. The celebrated traveller, Marco Polo, informs us that towards the close of the thirteenth century there were not fewer than 1000 carriages and pack-horses, laden with silk, that came in daily to Cambalu, the royal city of the Chinese empire.

Bologna was the only Italian city, before the commencement of the sixteenth century, in which the throwing or twining of silk was performed by machinery. Antwerp was for a long period celebrated for its trade in silken goods, but, having been taken by the duke of Parma in 1585, a check was for a time put upon its commerce, and also that of the Low Countries. Those engaged in the silk and other manufactures in Flanders and Brabant, sought and obtained refuge in England, where they found a home, and laid the foundation of many of those branches of industry that have contributed to make this kingdom the first in the world.

Partly from superiority, and partly from fashion, foreign silks were for a long time preferred to those of home manufacture; and for a considerable period, the silk trade made slow progress in England. Still the manufacture did progress, and received no small impetus from the invention of the stocking frame, insomuch that the silk stockings of English manufacture were preferred above all others, and it was customary for the manufacturers of Naples to say, by way of recommending their silk stockings, that they were "right English." It is worthy of remark that we are indebted to clergymen for the invention both of the stocking frame and the power loom; but, it is matter of regret that the Rev. William Lea, of St John's college, Cambridge, the inventor of the stocking frame, not finding sufficient patronage at home, was obliged to apply to Henry IV. of France, who established him at Rouen. The monarch was soon after murdered, the ingenious clergyman was deprived of his patron, and died, neglected and destitute, in the capital of France. Henry, with a view to extend the manufacture, enlisted by title in the ranks of the nobility every person in his dominions who should successfully pursue it for twelve years, and by every means in his power endeavoured to extend the rearing of the silk worm throughout the whole of his kingdom; but experience showed that the silk worm could not be bred with advantage beyond the line of the Loire. James I. of England seeing, as he himself says, that the French king "had gained to himself honour" by his encouragement of the silk trade, tried by sundry means to establish the culture of the mulberry tree in this country; but these, and all other attempts to rear the silk worm in England, have been rendered abortive by the coldness of the climate. Attempts were made by the same monarch to introduce the culture of the silk worm into America, but these, and subsequent endeavours, seem not to have been crowned with much success. In the East Indian colonies, the rearing of the silk worm has been for a long time carried on extensively and with great advantage; and in the Company's possessions in Bengal, there are not fewer than 300,000 persons engaged in the silk manufacture. The culture of the mulberry tree was first introduced into Russia by Peter the Great, and the manufacture of silk afterwards encouraged by Catherine. Silk continues to be a branch of Russian industry. The culture of the silk worm has been introduced into some parts of Germany, Sweden, Malta, the Mauritius, St Helena, &c., with various success. From the high price of labour in Great Britain, silk cannot be reared here so as to be brought to market without loss, and the immense consumpt of this kingdom is supplied by importation. The average annual consumpt of raw silk in England alone is four millions of pounds, and for the production of this quantity fourteen thousand millions of animated insects yearly live and die.

A considerable stimulus was given to the English silk manufacture by the revocation of the edict of Nantes, in 1685. Louis XIV. drove, by that disgraceful measure, thousands of his most industrious subjects to seek an asylum in foreign countries; of whom it is supposed about 50,000 came to England. Such of these refugees as had been engaged in the silk manufacture, established themselves in Spitalfields. Foreign silks were at this time freely admitted; and it appears that from £600,000 to £700,000 worth were annually imported in the period from 1685 to 1692, being the very period during which the British silk manufacture made the most rapid advances. In 1692, the refugees, who seem to have been quite as conversant with the arts of monopoly as with those either of spinning or weaving, obtained a patent, giving them an exclusive right to manufacture lustrings and *à-la-modes*, —the silks then in greatest demand, and in 1697 an act was passed prohibiting the importation of all French and other European silk goods; and, in 1701, the prohibition was extended to the silk goods of India and China.

In 1719, a patent was granted to Sir Thomas Lombe and his brother for the exclusive property of the famous silk mill erected by them at Derby, for throwing silk, from models they had clandestinely obtained in Italy. At the expiration of the patent, parliament refused the prayer of a petition of Sir Thomas Lombe for its renewal, but granted him £14,000 in consideration of the services he had rendered the country, in erecting a machine which, it was supposed, would very soon enable us to dispense wholly with the supplies of thrown silk we had previously been in the habit of importing from Italy: but instead of being of any advantage, it is most certainly true, that the establishment of throwing mills in England has proved one of the most formidable obstacles to the extension of the manufacture among us. Such mills could not have been constructed unless oppressive duties had been laid on thrown or organzine silk; and the circumstance of their having been erected, and the large amount of capital vested in them, was successfully urged, for more than a century, as a conclusive reason for continuing the high duties! Of the multitude of acts that have been passed in reference to this manufacture, from 1697 to 1824, it would be exceedingly difficult to point out one that is bottomed on any thing like a sound principle, or that was productive of any but mischievous consequences. In 1763, attempts were made to check the prevalence of smuggling: and the silk mercers of the metropolis, to show their anxiety to forward the scheme, are said to have recalled their orders for foreign goods; but it appears, from a report of a committee of the privy council, appointed in 1766, to inquire into the subject, that smuggling was then carried on to a greater extent than ever, and that 7072 looms were out of employment. The

same committee reported, that though the French were decidedly superior to us in some branches of the trade, we were quite equal and even superior to them in others; but instead of proposing, consistently with their report, to admit French silks on a reasonable duty,—a measure which would have proved very advantageous to those branches of the manufacture in which we were superior, or nearly equal to the French, without doing any material injury to the others, which were already in the most depressed condition,—they recommended the continuance of the old system; substituting absolute prohibitions in the place of the prohibitory duties that formerly existed! Whatever immediate advantages the manufacturers might have reaped from this measure, the ultimate tendency of which could not fail of being most injurious, were effectually countervailed by the turbulent proceedings of the workmen, who succeeded, in 1773, in obtaining from the legislature an act which, by itself, was quite sufficient to have destroyed even a prosperous trade. This, which has been commonly called the Spitalfields Act, entitled the weavers of Middlesex to demand a fixed price for their labour, which should be settled by the magistrates: and while both masters and men were restricted from giving or receiving more or less than the fixed price, the manufacturers were liable in heavy penalties if they employed weavers out of the district! The monopoly which the manufacturers had hitherto enjoyed, though incomplete, had had sufficient influence to render inventions and discoveries of comparatively rare occurrence in the silk trade; but the Spitalfields Act extinguished every germ of improvement. Parliament, in its wisdom, having seen fit to enact that a manufacturer should be obliged to pay as much for work done by the best machinery as if it were done by hand, it would have been folly to have thought of attempting any thing new! It is not, however, to be denied that Macclesfield, Manchester, Norwich, Paisley, &c., are under obligations to this act. Had it extended to the whole kingdom it would have totally extirpated the manufacture; but being confined to Middlesex, it gradually drove the most valuable branches from Spitalfields to places where the rate of wages was determined by the competition of the parties, on the principle of mutual interest and compromised advantage. After having done incalculable mischief, the act was repealed in 1824. Had it continued down to the present day, it would not have left employment in the metropolis for a single silk weaver. The monopoly enjoyed by the manufacturers, and the Spitalfields Act, effectually put a stop to all improvement; so that the manufacture continued stationary in England, while on the Continent it was rapidly advancing. The principal manufacturers in and about London subscribed, in 1824, a petition to the House of Commons, in which they stated that "this important manufacture, though recently considerably extended, is still depressed below its natural level, by laws which prevent it from attaining that degree of prosperity which, under more favourable circumstances, it would acquire." Fortified by this authority, by the experience of 130 years, during which the prohibitive system had been allowed to paralyse the energies of the manufacturers, and by the sanction of parliamentary committees, Mr Huskisson moved, on the 8th of March, 1824, that the prohibition of foreign silks should cease on the 5th of July, 1826, and that they should then be admitted for importation on payment of a duty of 30 per cent. *ad valorem*. The effect of the opening of the trade has been such as to justify all the anticipations which the advocates of the measure had formed of its success. The silk manufacture has made a more rapid progress during the last twelve years, or since the abolition of the prohibitive system in 1826, than it did during the preceding century. So unprecedented has been its advance, that "the once existing disparity in quality between goods of French and English make has, with some very unimportant exceptions, not merely disappeared, but actually ranged itself on the side of the British artisan. Some of our readers will, probably, be not a little surprised to learn, that the real or declared value of the silk goods of British manufacture exported to France, in 1832, amounted to £75,187.

Most of the machines and processes known on the continent have been introduced amongst us, and many of them have been materially improved. Nor after what has taken place, can the least doubt remain in the mind of any one, that had the same freedom been given to the silk manufacture sixty years ago, that was given to it in 1826, it would now have ranked among the most important and valuable businesses in the kingdom, and would have had nothing whatever to fear from the admission of foreign silks, free of duty. It is the opinion of the most intelligent persons in the trade, that the existing duty of 30 per cent. on foreign silks ought to be reduced to twenty per cent.; and that it should be further reduced one per cent. per annum till it be brought to twelve or fifteen per cent., at which it might be allowed to continue stationary, not as a protecting duty, but as a duty imposed for the sake of revenue. A measure of this sort, by increasing *fair* competition, would continue the impulse already given to the manufacture, and excite to new efforts of invention. Under such a system, we are well assured that, in a very few years, perhaps not more than five or six, our superiority over France in some important departments of the silk manufacture would be little less decided than in that of cotton.

Account, illustrative of the progress of the Silk Manufacture, showing the quantities of Raw, Waste, and Thrown Silk imported at different periods.—(Report of 1832 on Silk Trade, p. 10, and Parl. Paper, No. 9, Sess. 1834.)

Average Imports.	Raw.	Waste.	Thrown.	Total.
	lbs.	lbs.	lbs.	lbs.
1763, 764, 1767, being the commencement of the absolute prohibition,	352,000	—	363,000	715,000
1785, 1786, 1787,	554,000	—	337,000	891,000
1801 to 1813,	760,000	—	350,000	1,110,000
1815, 1816, 1817, being 50 years after prohibition, and the last three years of peace,	1,095,000	27,000	293,000	1,415,000
1821, 1822, 1823, being the years immediately previous to the abolition of the prohibition,	1,970,000	74,000	355,000	2,399,000
1831, 1832, 1833, being three years previous to date of Report,	3,137,271	668,369	345,270	4,170,910

Manufacture.—The first operation in the silk manufacture is the unwinding of the cocoons, the thread being coiled upon a reel. Before the cocoons are reeled, the outward covering or floss, spoken of in our description of the silk worm, has to be disengaged, by opening the floss at one end, and causing the cocoon to protrude. Though the vender of cocoons is bound by law to perform this, yet it is seldom done perfectly, and the consequent loss to the purchaser is, on an average, about ten per cent. Before reeling, the cocoons have likewise to be assorted, as different classes require different treatment.

The reeling of silk, as practised in Piedmont,

where silks of the best description are manufactured, is performed in the following manner: the cocoons are placed in an oblong copper boiler, a foot and a half in length, and six inches deep; the boiler is supported upon a brick stove, and the water in it heated by charcoal. The boiler is divided into transverse portions, into each of which, generally, five cocoons are placed. The ends of the filaments are led from the cocoons in the boiler, and guided by passing on hooked wires, so as to be separated from each other, and also made to cross, so that by rubbing on one another, they may be cleaned. The threads then pass through a guide, which moves alternating transversely, from which they pass upon the revolving reel. The reel consists of four arms, which support rails parallel to the axis, and these rails are placed at such a distance from each other, that one turn of the reel winds off one yard in length of the filament. One of the arms of the reel is furnished with a joint, so that it may, as occasion requires, fold down, and, by slackening the coil, allow it to be slipped easily off the reel. Motion is given to the machine by a crank on the axis of the reel, or by a revolving pully connected to it and the traverse by bands and wheel work. The water in the copper is kept nearly at the boiling point, to soften the gummy matter of the cocoons. Four or more threads being led from the copper together, and uniting by the gum, form one thread. When any one of the filaments breaks, a union must be made by laying on another, the gum being sufficient to cause the adhesion without tying. Great care is required in reeling, however simple the process may appear. The filament grows smaller as the cocoon is unwound, so much so that when a cocoon is half unwound, the filament is only half the thickness of what it was at the beginning. A woman, with the assistance of a girl, can, on an average, wind off one pound of silk per day, when the silk is of the finest description; but if of the coarsest, six or eight times that quantity. The cocoons which have been pierced by the worm, are treated in a different manner. After being boiled and placed in a basin, they are wound upon a distaff; the silk thus obtained is called *fliuret*, and from its superior quality sells at a much higher price than that procured by the former process. By the latter method, a good spinner will not produce more than one ounce of thread in a day. The factory in which the reeling is carried on is called a filature, and the silk thread produced in the manner we have described is called *raw silk*.

Raw silk is not adapted for the purpose of the fabrication of cloth; and it must undergo the operation of throwing ere it passes to the hand of the weaver. By the throwing operation, the silk is produced in either of the three forms of *singles*, *tram*, or *organzine*.

In the throwing mill the first operation is the winding of the silk upon bobbins, which is effected by a winding engine, similar in its construction to those employed in the cotton manufacture for winding off the hank. The bobbins are made to wind off the silk from the beginning to the end of the process at a uniform speed, by being made to rest upon cylinders of metal, revolving uniformly by the geering of the machine, the rollers being turned by the friction arising from their weight pressing upon the cylinders.

This being done, and the silk assorted as to its fineness, it is carried to the throwing mill. This machine will be easily understood by a reference to our description of the bobbin and fly frame, under the article *Cotton Manufacture*. But in the throwing mill the process is somewhat different from the cotton spinning machine. On consulting the article above referred to, it will be seen that the thread or rove (according as the apparatus we are speaking of is used as a fly frame or throstle), is wound upon the bobbin; but in the silk throwing machine the process is reversed, the thread being unwound from the bobbin, twisted by the revolution of the flyer, and wound upon a reel. In the passage of the silk threads from the bobbins to the reel there is no drawing, or in other words, there are no rollers between which the threads pass, so as to be drawn out, as in the water frame of Sir Richard Arkwright. The silk is only twisted. The twist of the silk thread may be altered according to circumstances, by varying the relative velocities of the reel and flyer. The silk intended for organzine receives the greatest number of twists in the inch. The silk thus prepared is called *singles*.

The next operation is to bring two or more of these threads twisted upon one bobbin. This is done in a throwing machine, like that we have spoken of above, and the silk thus spun is called *tram* silk, commonly used for the woof of the silk weaver. In its formation, the twists have been given all in one direction, and it is accordingly of the nature of twine, or the strands of which a rope is composed.

Two or more of these threads of tram silk twisted in the throwing mill together, constitutes organzine, a species of silk thread employed for warps. There is, however, this distinction between organzine and tram silk, that whereas the threads of the latter are all twisted in one direction, forming individual strands, like twine, the threads of the former are twisted in an opposite direction, like rope, that is, if in a thread of organzine each strand be twisted to the right, then the collected threads are spun or twisted to the left, as in the formation of a rope or cable.

In the state to which we have now brought the silk, it is said to be *hard*, in consequence of the gum, which, however, is separated by boiling. The boiling process requires great care, and in consequence of ignorance or negligence often destroys the silk. It is much more safe to separate the gum by steam. The hanks of raw silk are not boiled but soaked in a tub of tepid soap water.

The throwing machine has been greatly improved both as to accuracy and produce, by assimilating it to the cotton throstle. The speed of the spindles of the machines in this country, till very lately, and still on the continent, was not above 1200 revolutions in the minute; but now, from the exertions of Messrs Fairbairn, Lillie and Ritson, the speed has been raised to 4500.

Another form of process in the manufacture of silk thread has been lately made the subject of letters patent, and brought into successful operation. The use of this process, or combination of processes, is to spin into thread the waste of the throwing mill.

The waste from the throwing mill is made to pass through an endless heckle of a construction that will be understood from what follows. The ends of the silk waste are placed between the edges of two boards, which are then firmly screwed together, so that the silk hangs out like a fleece; a

great many of these pairs of boards are placed firmly in an oblong frame. Over this frame, there is an endless web moving, which passes round rollers at each end. This web carries upon it a series of heckles, all moving with it. When these heckles pass along the under side, their teeth act upon the silk in the frame below, and clear it. When the heckling is finished in a coarse machine, the boards with the silk are placed in a finer heckle frame, and the process is thus continued as far as is found necessary.

The silk thus heckled is now carried to a cutting machine, where it is laid regularly upon an endless web moving at a certain rate along the side of the cutting machine. At the end, there are a series of revolving knives, which cut the silken fibres into lengths of an inch or more.

In this state it is opened up, by being passed through a blowing engine, similar to that described in our article *Cotton Manufacture*. After being blown, it is boiled in a lea of soap water for several hours, in order to free it of the gum.

After drying it passes through a carding machine, like that represented in our plates of linen manufacture. Like that machine, it is chiefly distinguished from the cotton carding engine, by having several doffers revolving on the surface of the large cylinder. After the carding, the drawing and roving processes are performed by machinery exactly the same as that used for cotton.

The preparation being made, the spinning is effected by the organ jenny, or rather mule, a minute account of which has been already given under the article cotton. The *singles* are thus prepared.

The doubling is effected by the common throstle.

SILLI; Greek poems written in hexameters, belonging to the class of satire, in which the philosophers, and their doctrines in particular, were ridiculed. The silli were often parodies on other poems. Tymon and Didymus are famous writers of *silli*.

SILO; a Spanish word, signifying an excavation about fourteen feet deep, for preserving grain. It is best made in marly ground, not too dry. Over the bottom a vaulted dome is built, rising eight and a half feet, and surrounding the tube through which the corn is poured in. The walls of the excavation are lined with straw. Three hundred bushels of wheat, preserved some time in a *silo*, were found, on careful examination, to have increased in measure one bushel, while the weight of the whole was diminished two and a half per cent. The expense of preserving grain in granaries is generally estimated at ten per cent.: in the larger *silos*, however, it is only one per cent., if the grain is left shut up for two years. On the farm of M. Ternaux, at St Ouen, near Paris, it was found that the grain put in his *silos*, in 1819, was sound and fresh in 1824. In Hungary, the same method of preserving grain is common.

SILOA, OR SILOAM; a fountain on the east side of Jerusalem, between the city and the brook Kedron, or Cedron. St John speaks of the pool of Siloam (John ix. 7). The tower of Siloam, mentioned in Luke xiii. 4, is thought to have been near this fountain.

SILONG; a city of China, of the second rank in Quangsi.

SILVANUS; an Italian rural deity, usually represented with a sickle in his right hand and a bough in his left, and sometimes with the horns and feet of a goat. He is described as the protector of herds and trees from wolves and lightning, the god of agriculture, or the defender of boundaries; and offerings of various kinds were made to him. He is often confounded with the Fauns, Pans and Satyrs. See the articles.

SILVER; a metal which appears to have been known almost as early as gold, and, without doubt, for the same reason, because it occurs very frequently in a state of purity in the earth, and requires but an ordinary heat for its fusion. Mention is made of silver in the book of Job, which is considered the oldest of the books contained in the Old Testament. The ores of silver are somewhat numerous; and we shall defer our account of them to the conclusion of the present article, commencing with the chemical history of this metal. Pure silver is of a fine white colour, with a shade of yellow, without either taste or smell, and, in brilliancy, is inferior to none of the metallic bodies, if we except polished steel. It is softer than copper, but harder than gold. When melted, its specific gravity is 10·47; when hammered, 10·510. It is next in malleability to gold, having been beaten out into leaves only $\frac{1}{1000}$th of an inch in thickness. Its ductility is no less remarkable. It may be drawn out into a wire much finer than a human hair; so fine, indeed, that a single grain of silver may be extended about 400 feet in length. Its tenacity is such, that a wire of silver 0·078 of an inch in diameter is capable of supporting a weight of 187·13 pounds avoirdupois without breaking. Silver melts when heated completely red-hot; and, while in the melted state, its brilliancy is greatly augmented. If the heat be increased after the silver is melted, the liquid metal boils, and may be volatilized; but a very strong and long continued heat is necessary. Gasto Claveas kept an ounce of silver melted in a glass-house furnace for two months, and found, by weighing it, that it had sustained a loss of one twelfth of its weight. When heated upon charcoal under the flame of the compound blow-pipe, however, the silver is volatilized with rapidity, passing off in a visible smoke. When cooled slowly, its surface exhibits the appearance of crystals; and, if the liquid part of the metal be poured out as soon as the surface congeals, pretty large crystals of silver may be obtained. Silver is not oxidized by exposure to the air; it gradually, indeed, loses its lustre, and becomes tarnished; but this is owing to a different cause. Neither is it altered by being kept under water. But, if it be kept for a long time, melted in an open vessel, it gradually attracts oxygen from the atmosphere, and is converted into an oxide. When silver is dissolved in nitric acid, and an alkali dropped into the solution, a brown-coloured precipitate falls in flocks, which, when washed and dried, constitutes the *oxide of silver*. Its colour becomes a dark brown when dried. Its specific gravity is 7·14. When exposed to the direct rays of the sun, it gives out oxygen gas, and is converted into a black powder, the nature of which has not been examined. The oxide of silver is a compound of 93·1 silver and 6·8 oxygen. When oxide of silver is dissolved in ammonia, and the solution left exposed to the air, it is soon covered with a brilliant pellicle, which is a *suboxide of silver*. A *superoxide of silver* appears to be formed, when a plantina wire from the positive extremity of a galvanic battery is plunged into a weak solution of nitrate of silver, the compound in question accumulating in iron-black octahedrons upon the wire. Silver does not burn in chlorine gas, even

when heated; but it gradually absorbs the gas, and is converted into the well-known compound formerly called *horn silver*, and afterwards *muriate of silver*, though now with more propriety denominated *chloride of silver*. This chloride, however, is more easily obtained by dissolving silver in nitric acid, and mixing the solution with a solution of common salt. A copious curdy precipitate falls. When this precipitate is washed and dried, it constitutes pure chloride of silver. Its specific gravity is 5·129. It is one of the most insoluble substances known, requiring no less than 3072 parts of water for its solution. When exposed to the air, it changes from white to a purple or blackish colour. It melts at 500° Fahr., and assumes, on cooling, the form of a gray-coloured, semitransparent mass, having some resemblance to horn, and for that reason called *luna cornea*. A strong heat sublimes it. When heated strongly in an earthen crucible, it passes through altogether, and is lost in the fire; but when mixed with about four times its weight of fixed alkali formed into a ball, with a little water, and melted rapidly in a crucible well lined with alkali, the silver is reduced, and obtained in a state of purity. *Chloride of silver* is composed of silver 13·75, and chlorine 4·50. A *bromide* and an *iodide of silver* may be formed simply by adding in the one case, a solution of a hydrobromate to one of nitrate of silver, and in the other, a solution of a hydrodate. If one ounce of silver, one ounce of phosphoric glass, and two drachms of charcoal, be mixed together, and heated in a crucible, *phosphuret of silver* is formed. It is of a white colour, and crystalline in its texture. It is composed of four parts of silver and one of phosphorus. Heat decomposes it by separating the phosphorus. When thin plates of silver and sulphur are laid alternately above each other in a crucible, they melt readily in a low red heat, and form *sulphuret of silver*. Its colour is black, and it crystallizes in small needles. It is capable of being cut with a knife, and is more easily fused than silver. It is well known that when silver is long exposed to the air, especially in frequented places, as churches, theatres, &c., it acquires a covering of a violet colour, which deprives it of its lustre and malleability: this coating is sulphuret of silver. Selenium appears to enter into combination with silver in two different proportions, forming *seleniets*. Arsenic forms an alloy with silver in the proportion of sixteen of the former to one hundred of the latter; it is steel-gray, brittle, and fine granular. Silver may be alloyed with antimony by fusion. Silver and iron unite readily: the alloy has the colour of silver, but it is harder, very ductile, and attracted by the magnet. When 500 parts of good Indian steel are fused along with one part of silver, the compound is greatly improved for the purposes of cutting instruments. Melted lead dissolves a great quantity of silver at a slightly red heat; the alloy is brittle and lead-coloured. Silver is easily alloyed with copper by fusion: the compound is harder, and more sonorous than silver, and retains its white colour, even when the proportion of copper exceeds one half: the hardness is at its maximum when the copper amounts to one fifth of the silver. The alloy of silver and tin is very brittle and hard. That of silver and mercury is formed by throwing pieces of red hot silver into mercury heated till it begins to smoke: it forms dendritical crystals, which contain eight parts of mercury, and one of silver. The most important combination among those of the acids and silver (the *nitrate of silver*) has been alluded to above, in the description of the oxide of silver. Nitric acid is the proper solvent of this metal, from which solution the other salts of silver are obtained: it dissolves more than half its weight of the metal, the solution being attended with effervescence: if the silver and the acid are pure, the solution is limpid and colourless, exceedingly heavy and caustic: it stains the skin, and all animal substances, of an indelible black colour; hence it is often used to dye hair, &c.; when evaporated till a pellicle begins to form on its surface, it deposits, on cooling, transparent crystals of nitrate of silver, in the form of six-sided, four-sided, or three-sided, thin plates; but, by slow evaporation, the salt may be obtained in short, right rhombic prisms of 129° 31′: its taste is intensely bitter and metallic, and it is usually employed as a corrosive substance, under the name of *lunar caustic;* it is soluble in its own weight of cold, and in half its weight of hot, water. From the solution, the silver is thrown down in a metallic state by a great number of bodies; for example, hydrogen, sulphurous acid, sulphate of iron, proto-chloride of tin, carbon, phosphorus, volatile oils, and many of the metals. The specific gravity of lunar caustic is 3·52. When heated, it readily melts, swells up, and then remains liquid: in this state it is cast into small cylindrical moulds by apothecaries, to be employed by surgeons for the purpose of opening ulcers and destroying fungous excrescences: as an escharotic, its action is powerful, and it is greatly preferred to caustic potash also, in consequence of its not be liable to deliquesce and spread. Both the crystals and the fused salt are anhydrous, consisting of 118 parts oxide of silver, and 54 nitric acid: it detonates, when heated with combustible bodies, and with phosphorus it detonates on percussion. *Sulphate of silver* is obtained with ease by mingling together solutions of nitrate of silver and sulphate of soda: it falls in the state of a white powder, which may be dissolved in water, and crystalized: the crystals are white and brilliant, and have the form of very fine prisms: it has the peculiarly disagreeable taste of the nitrate; is anhydrous, and composed of sulphuric acid 5, and oxide of silver 14·75. *Sulphite of silver* is obtained by mixing the solutions of sulphite of ammonia and nitrate of silver. It assumes the form of small, shining, white grains: when exposed to the light, it assumes a brown colour. *Phosphate of silver* is insoluble in water, and is hence precipitated when a solution of phosphate of soda is added to a solution of nitrate of silver. The *salts of silver* are decomposed by the alkalies and the earths. Prussiate of potash, when dropped into a solution of a salt of silver, occasions a white precipitate; hydro-sulphuret of potash produces a black precipitate; and an infusion of nut-galls gives a yellowish brown precipitate. A fulminating preparation of silver, similar to that of gold, but more energetic, is prepared by dissolving silver in nitrous acid, diluted with three parts of water: to the solution lime-water is added as long as any precipitation is occasioned; the precipitate is washed and dried; it is then allowed to remain for several hours in liquid ammonia, when it becomes a black powder; the liquor is decanted, and it is allowed to dry in the air; when completely dry, such is its tendency to explosion, that it cannot be touched, the slightest agitation causing it to detonate; and so violent is the detonation, that the experiment cannot be made with safety on more

than a grain. The theory of its detonation is considered as similar to that of fulminating gold; it probably consists of oxide of silver and ammonia, the elements being united by affinities so nicely balanced, that the slightest external force subverts them, and causes new combinations: the oxygen of the oxide unites with the hydrogen of the ammonia, and forms watery vapour; the nitrogen must assume the elastic form, and the augmentation of elasticity in these products, by the caloric suddenly extricated, may be the cause of the detonation. A fulminating silver totally different from that above described, is frequently sold as an object of amusement: it is enclosed between the folds of a card cut in two lengthways, the powder being placed at one end, and the other being notched, that it may be distinguished; if it be taken by the notched end, and the other be held over the flame of a candle, it soon detonates with a sharp sound and violent flame; the card is torn and changed brown, and the part in contact with the composition is covered with a slight metallic coating of a grayish-white colour. This compound is formed in the following manner: Into a pint tumbler, or other glass vessel, is introduced 100 grains of dry nitrate of silver, over which is poured one ounce of alcohol, and the same quantity of smoking nitric acid. The mixture of the alcohol and nitric acid occasions much heat and effervescence in the liquid: if this is so violent as to overflow the vessel, cold alcohol is added in small portions to abate the ebullition: in a few minutes the liquor becomes turbid, and a very heavy, white, crystalline powder falls down, which is separated by the filter, and thoroughly washed with tepid water: before being fully dry, it should be separated into parcels of ten or twenty grains, which portions, when thoroughly dried at a distance from the fire, present the following properties: The substance is white and crystalline; the light changes its colour to a dark brown; when heated, it explodes with great violence. It explodes also by percussion and friction, and the contact of sulphuric acid. When put into dry chlorine gas, it explodes with a loud report. So powerful is this powder in its explosion, that no person but chemists should venture upon its manufacture, or presume to experiment with it. The most painful accidents have repeatedly occurred with it, in the hands of the inexperienced and the careless. It is composed of oxide of silver 14·75, and of a peculiar acid, called the *fulminic*, 5·25. For some account of fulminic acid, see *Prussic Acid*.

Silver Ores.—There are five important ores of silver, viz.—1. *Native silver;* 2. *vitreous silver* (or silver glance); 3. *black silver;* 4. *red silver;* 5. *horn silver*.

Native silver is occasionally found crystallized in the following shapes, viz.—the cube, octahedron, tetrahedron, rhombic dodecahedron, trapezohedron, and six-sided tables. The cube is the primitive form; but it more often occurs in dentiform, filiform, and capillary shapes; also reticulated, arborescent, and in plates; likewise in plates, formed in fissures, and in superficial coatings; cleavage none; fracture hackly; lustre metallic; colour silver-white, more or less subject to tarnish; streak shining; ductile; hardness between gypsum and calcareous spar; specific gravity, 10·47. Native silver has been distinguished into *common* and *auriferous* native silver: the former consists of silver alloyed with a small proportion of antimony, arsenic, iron, &c.; the latter frequently contains fifty per cent. of gold. Native silver occurs principally in veins, traversing gneiss, clay-slate, and other primitive and transition rocks. There are but few countries in which it is found in any considerable quantity. Among these are the mining districts of Saxony and Bohemia, also Norway and Siberia, but particularly Mexico and Peru.

Vitreous silver presents itself crystallized in cubes, octahedrons, and rhombic dodecahedrons. Its primitive form is the cube. It also occurs in reticulated, arborescent, dentiform, and capillary shapes; also massive and impalpable; fracture imperfect, and small conchoidal, uneven; lustre metallic, subject to tarnish; colour blackish lead-gray; streak shining; malleable; hardness about that of gypsum; specific gravity, 7·19. It consists of silver 85·0, sulphur 15·0. It is easily fusible before the blow-pipe, and intumesces; but it gives a globule of silver by a continuation of the blast. It has been hitherto found almost exclusively in veins, along with ores of lead, antimony, and zinc. It occurs in Saxony, Bohemia, Hungary, Mexico, and Peru. It is an important species for the extraction of silver.

Black silver has for its primitive form a right rhombic prism of 100° 0′. The crystals, however, are not often observed; but it is more frequently in granular masses; fracture imperfect conchoidal, uneven; lustre metallic; colour iron-black; streak unchanged; sectile; hardness about that of gypsum; specific gravity 6·2. It consists of

Silver,	65·50
Antimony	10 00
Iron,	5·00
Sulphur,	12·00
Copper and arsenic,	·50
	93·00

Before the blow-pipe, upon charcoal, it yields a dark-coloured, metallic globule, which may be reduced with saltpetre. It is found in silver veins along with other ores of silver. It occurs chiefly in Saxony, Bohemia, and Hungary, in Mexico and Peru. It is a valuable ore for the extraction of silver.

Red silver. The primitive form of this species is an obtuse rhomboid of 109° 28′. Its secondary forms are six-sided prisms, variously truncated and acuminated, and an equiangular double six-sided pyramid; cleavage parallel with the sides of the primitive form, pretty distinct; fracture conchoidal; lustre adamantine; colour iron-black to cochineal red; semi-transparent to opaque; sectile; hardness about that of gypsum; specific gravity 5·84. The crystals are very liable to occur twin-shaped. Red silver is often found massive, granular, and even impalpable. It consists of

Silver,	58·949
Antimony,	22·846
Sulphur,	16·609

It decrepitates before the blow-pipe upon charcoal, melts, and emits fumes of sulphur and antimony, after which it yields a globule of silver. Red silver is confined to a small number of localities, and occurs in veins along with other ores of silver, galena, and blende. It is found in the metallic veins near Freiberg, also at Marienberg, Annaberg, Schneeberg, and Johanngeorgenstadt in Saxony; likewise in Bohemia, Hungary, Dauphiny, and Norway; but is much more abundant in Mexico and Peru. It is a valuable ore for silver.

Horn silver has the cube for its primitive form, in which shape it frequently occurs, as also in

acicular fibres; cleavage none; fracture more or less perfect conchoidal; lustre resinous, passing into adamantine; colour pearl-gray, passing into lavender-blue, and some shade of green; the colour becomes brown on being exposed to light; streak shining; translucent, sectile; hardness about that of talc; specific gravity 5·5. It occurs also in crusts and granular masses. It consists of silver 76·0, oxygen 7·6, and muriatic acid 16·4. It is fusible in the flame of a candle, and emits fumes of muriatic acid. Horn silver is most frequently found in the upper parts of veins in clay-slate, but occurs also in beds, generally along with other ores of silver, or with iron-ochre. It is not abundant in European countries, but occurs in large masses in Mexico and Peru. It is used for extracting silver.

Such are the ores of silver which are properly so called, and from which silver is chiefly extracted. Besides these, however, argentiferous sulphurets of lead and copper are sometimes smelted for the small proportion of this precious metal which they contain.

We have now to allude to the methods employed in obtaining the silver from its various ores. These are two in number, *smelting* and *amalgamation*. The former is founded on the great affinity of silver for lead, which, when fused with silver, acts as a solvent, and extracts it from its union with baser metals. The silver is afterwards separated from the lead by the well-known process of cupellation, which consists in exposing the alloy to a stream of atmospheric air, by which the lead is converted into an oxide or litharge, while the silver remains untouched. The latter method depends upon the property of mercury to dissolve silver without the aid of heat. The first is called the *dry*, the last, the *wet* way of treating silver ores. One or the other process is employed, according to the nature of the ores. The ores which are treated in the wet way are usually those which consist principally of argentiferous sulphuret of lead. The first thing to be done, by this method, is to pulverize and roast the ore in a furnace, to expel the sulphur. When the well or crucible is full of metal, it is tapped and run off. It is now ready for the process of refining, or cupellation. For this purpose, a reverberatory furnace is employed, the lower part of which is covered with wood ashes and clay, so as to form a cupel. On one side of the furnace there is a hole for the exit of the litharge; and on the opposite side is another for the admission of air to the surface of the metal, which is introduced through an aperture above, to which a cover is adapted. After the lead is melted and brought to a red heat, the blast of air is admitted, and the scoria, as it collects, is removed. When the litharge is formed, the heat is increased, and the quantity becomes greater, and is withdrawn through the opening in the furnace. At the same time, some lead is volatilized. Towards the end of the process, the litharge which comes off contains a small quantity of silver, and is therefore kept separate from the rest. After the whole of the litharge is removed, and the surface of the metal in the furnace becomes bright, a quantity of water is poured on it, to keep it from spirting, which it is apt to do when congealing. The metal thus obtained is subjected to a similar operation for about five hours, in a smaller furnace, and at a higher temperature, by which it is completely freed from the lead. With respect to the other method of reduction or separation—amalgamation—the following is an outline of the more important steps, of which it consists. The ores best adapted to this process are native silver and vitreous silver. The first operation that requires description is the selection of the ores to form a proper mixture, with reference to the quantity of silver and sulphur they contain. It has been observed that the amalgamation process succeeds best when the silver produce is about seventy-five ounces to the ton of ore; at the same time, regard being had to the quantity of sulphur present, which is ascertained from the quantity of sulphuret in the ore, previously learned by an assay in the crucible. The sulphur is got rid of, by adding to the mixture of raw ore ten per cent. of common salt, by which, during the furnace operation, the sulphur becomes acidified, and the acid thus formed, uniting with the base of the salt, forms sulphate of soda; whilst the muriatic acid, thus set free, combines with the silver in the ore, that was not in the metallic state, and forms muriate of silver. In this state, the ore is subjected to various mechanical operations, with riddles, mills, and sieves, until it is reduced to an impalpable powder. It is then submitted to the action of mercury. This operation is performed in barrels, which are arranged so as to revolve on their axes. The mixture or charge in each barrel consists of sifted calcined ore, mercury, metallic iron, and water, in certain proportions. The ore is composed of sulphate of soda, muriate of silver, and other metals and earthy matters. By the process of amalgamation, the barrels being made to revolve during a period of sixteen or eighteen hours, the muriate of silver becomes decomposed by the action of the iron on its acid; and the silver, thus reduced to the metallic state, combines with the mercury, forming what is termed *amalgam*, whilst the sulphate of soda, the muriate of iron, and other salts, become dissolved in the water. The silver combined with mercury is then filtered, by which the surplus metal is separated, and a compound remains in the sack, consisting of six parts of mercury and one of silver. This amalgam is subjected to the action of heat in a distilling furnace, by which the mercury is sublimated, and the silver remains. Silver is also sometimes separated from copper by the process of *eliquation*. The eliquation is effected by means of lead, which, possessing a greater affinity for silver than for copper, combines with the former, when brought into fusion with the alloy, and forms a new metallic compound. The argentiferous lead, thus obtained, is subjected to the usual processes of cupellation, and the coarse copper, from which the silver has been separated, is refined.

We shall now take notice of the mines of silver in different parts of the world, which furnish the silver of commerce. Those of Mexico and South America are incomparably more important than those of all the rest of the world. Mexico alone has above three thousand mines, or excavations for silver ores, which produced annually, during the last ten years of the seventeenth century, about £900,000. The mines of Guanaxuato yielded nearly one quarter of this amount, while the single mine of Valenciana, situated in the same district, has afforded, for years together, during the last thirty years, between two and four hundred thousand pounds. Nor are the ores of Mexico, for the most part, rich in silver; but the rich produce of that country has depended upon their abundance, and the facility

with which they have been explored. In Peru, the annual produce of this metal was formerly as great as £250,000; the major part of which was furnished by the mines of Tasco, of Chota, and of Huantajaya. Chile affords £33,750 per annum. Buenos Ayres contains the celebrated mines of Potosi, discovered in 1545, and which have produced, according to the estimate of Humboldt, from the time of their discovery, the enormous amount of £258,750,000. These mines have diminished in value of late, though they still rank next to those of Guanaxuato. The celebrated mines of Konigsberg, in Norway, once so rich in native silver, have now become in a great measure exhausted. They are estimated to have produced above £4,500,000 since they were opened in 1623. The most important silver mines of Europe at present, are those of Saxony, Hungary, and the Hartz. The annual produce of Saxony is about £56,250; while those of the Hartz and of Hungary are each about the same. Within the last twenty years there has been a great increase in the produce of silver from the Russian mines. According to a communication from baron Humboldt, made since his return from Asia, to the editor of Poffendorf's *Annalen*, it appears that the annual produce of the mines of precious metals of Europe and Asiatic Russia amounts to 25,500 marcs of gold, and 292,000 marcs of silver; of which 76,500 of silver and 22,000 of gold are supplied from the Russian empire. The value of all this silver is about £529,425. The present annual produce of all the silver mines in the world is probably within £4,500,000.

SILVER FISH. See *Gold Fish*.

SILVER TREE (*leucadendron argenteum*); so called from the appearance of the leaves, which are lanceolate and silky. It is a large evergreen shrub, with handsome foliage, a native of the cape of Good Hope, together with the other species of the genus, and is a favourite in green-houses. It belongs to the *proteaceæ*, the most remarkable family of plants in the southern hemisphere, and one which contributes largely to give peculiar features to the vegetation of that portion of the globe. More than four hundred species of these plants are known, which are arranged in numerous genera. They are usually shrubs or small trees, but some attain large dimensions: the leaves are simple, entire, or serrated, in most species flat, but sometimes cylindrical or thread-shaped; the flowers are sometimes distinct, upon solitary footstalks, or in clusters, spikes, or corymbs, with *bracteæ* at the base; sometimes they are sessile, situated upon a common receptacle, surrounded with a many-leaved involucre, or are disposed in scaly cones; the colour is green, yellow, or red: in short, the remarkable differences in the habit, foliage, and flowers of these plants have given rise to the name of the order. The greater proportion of these plants inhabit New Holland, where they adorn large tracts of country; they are numerous, likewise, at the cape of Good Hope, but a few species only are found in the southern parts of South America. They are generally favourite green-house plants, and are not delicate with respect to cold; but their culture, in other respects, requires many precautions.

SILVERING. The application of silver leaf is made in the same way as that of gold, for which see *Gilding*. Copper may be silvered over, by rubbing it with the following powder:—Two drachms of tartar, the same quantity of common salt, and half a drachm of alum, are mixed with fifteen or twenty grains of silver, precipitated from nitric acid by copper. The surface of the copper becomes white when rubbed with this powder, which may afterwards be brushed off and polished with leather. A cheap silvering is prepared as follows:—Half an ounce of silver that has been precipitated from aquafortis by the addition of copper, common salt, and muriate of ammonia, of each two ounces, and one drachm of corrosive muriate of mercury, are triturated together, and made into a paste with water; with this, copper utensils of every kind, that have been previously boiled with tartar and alum, are rubbed, after which they are made red-hot, and then polished. The intention of this process appears to be little more than to apply the silver in a state of minute division to the clean surface of the copper, and afterwards to fix it there by fusion; and, accordingly, this silvering may be effected by using the argentine precipitate, here mentioned, with borax or mercury, and causing it to adhere by fusion. The dial-plates of clocks, the scales of barometers, and other similar articles, are silvered by rubbing upon them a mixture of muriate of silver, sea salt, and tartar, and afterwards carefully washing off the saline matter with water. In this operation, the silver is precipitated from the muriatic acid, which unites with part of the coppery surface. It is not durable, but may be improved by heating the article, and repeating the operation till the covering seems sufficiently thick. The silvering of pins is effected by boiling them with tin filings and tartar. Holton mirrors or globes are silvered by an amalgam, consisting of one part by weight of bismuth, half a part of lead, the same quantity of pure tin, and two parts of mercury. The solid metals are to be first mixed together by fusion, and the mercury added when the mixture is almost cold. A very gentle heat is sufficient to fuse this amalgam. In this state it is poured into a clean glass globe, intended to be silvered, by means of a paper funnel, which reaches to the bottom. At a certain temperature it will stick to the glass, which by a proper motion may thus be silvered completely, and the superfluous amalgam poured out. The appearance of these toys is varied by using glass of different colours, such as yellow, blue, or green. To silver looking-glasses, the following articles are necessary:—first, a square marble table, or smooth stone, well polished, and ground extremely true, with a frame round it, or a grove cut in its edges, to keep the superfluous mercury from running off; secondly, lead weights covered with cloth, to keep them from scratching the glass, from one pound weight to twelve pounds each, according to the size of the glass laid down; thirdly, rolls of tin-foil; fourthly, mercury. The artist then proceeds as follows:—the tin-foil is cut a little larger than the glass, and laid flat upon the stone, and with a straight piece of hard wood, about three inches long, stroked every way, that there may be no creases or wrinkles in it: a little mercury is then dropped upon it, and with a piece of cotton wool, or hare's foot, it is spread all over the foil; then, the marble slab being kept nearly level with the horizon, the mercury is poured all over the foil, which is covered with a fine paper; two weights are placed near its lower end, to keep the glass steady, while the artist draws the paper from between the silver-foil and the glass. This must be done with great care,

so that no air-bubbles be left. After the paper is drawn out, weights are placed upon the glass to press out the superfluous mercury, and make the foil adhere. Another method is, to slide the glass over the foil without the assistance of paper. To make *shell silver*, silver leaf is ground with gum-water, or honey: the gum, or honey, is washed away, and the powder which remains is used with gum-water, or white of eggs, laid on with a hair pencil.

SILVESTRE DE SACY. See *Sacy.*

SIMEON STYLITES. See *Stylites.*

SIMOIS; a river of Troas, which rises in mount Ida, and falls into the Xanthus. It is celebrated by Homer, and most of the ancient poets, as many battles were fought in its neighbourhood during the Trojan war. Modern travellers call it a small rivulet, and some have even disputed its existence. See *Scamander.*

SIMON MAGUS, or the Magician; an impostor, mentioned in the Acts of the Apostles, a native of Samaria, who pretended to be an *æon* of an exalted nature, and called himself the supreme power of God. (See *Gnostics.*) Struck with astonishment at the miracles of the Apostles, he offered them money for their secret. (See *Simony.*) He then went about making proselytes, carrying with him a Tyrian courtesan, whom he represented as Helen who had been the cause of the Trojan war, and sometimes as Minerva; calling her, at the same time, the first intelligence, or mother of all things. Other stories are related of him, but are not well authenticated. It has also been said that he was worshipped as a god at Rome, and that his statue was erected there, with the inscription *Simoni Deo sancto.* His followers are called *Simonians.* See *Heretics.*

SIMON, ST; an ancient French family, which claims to derive its origin, through the counts of Vermandois, from Charlemagne. Louis de Rouvroy, duke de St Simon, a peer of France, known as the author of some very curious memoirs, was born in 1675, and died in 1755. He was employed in several diplomatic missions, and was made one of the council of regency by the notorious regent, duke of Orleans, after whose death he retired to his estates. His memoirs remained a long time in manuscript, and were afterwards published in a mutilated form, with many suppressions. The first complete edition appeared in Paris, in 1829—30 (in 21 vols., 8vo.), under the title of *Mémoires complets et authentiques du Duc de Saint Simon sur le Siècle de Louis XIV., et la Régence, publiés pour la première Fois sur le Manuscrit original entièrement écrit de la Main de l'Auteur, par M. le Marquis de Saint Simon.*

Claude Henri, count de St Simon, founder of the politico-philosophical-religious sect of St Simonians, or of the New Christianity, which has recently attracted attention in France, was born in 1760. We know little of his youth; but he appears to have been early tinctured with a spirit of enthusiasm, as we are told that he caused himself to be called, every morning, with the words, "Get up, count; you have great things to accomplish." He was attached to the French auxiliary corps, which served in America in the last years of the revolutionary war, and, soon after his return to France, was promoted to a colonelcy. Previous to the breaking out of the French revolution, the count travelled in Holland and Spain; but he took no part in the great events of 1789. He died in 1825, the last thirty-four years of his life, if we may believe his own account, having been devoted to the objects of his mission, as the apostle of the New Christianity. His disciples are not very communicative in regard to the history of their founder, whose reputation appears not to have been always the best. In 1790, he entered into financial speculations, for the purpose, as we are told, of raising the funds necessary to aid his great projects. His partner not participating in his philanthropic views, St Simon retired from the business at the expiration of seven years, and next applied himself to the study of the sciences. He took up his residence near the polytechnic school, formed an acquaintance with the professors, and attended their lectures. Three years were thus occupied with the study of inorganic nature, and the succeeding four years were spent in the study of organic bodies, for which purpose he lived near the medical school, conversed with the professors, heard their lectures, and kept open house and free table for men of science. A tour in Germany, England and Italy, completed his 'inventory of the philosophical treasures of Europe,' and he now felt himself master of his ideas and ready to communicate them. His fortune, however, was exhausted, and his friends had deserted him. His *Introduction aux Travaux scientifiques du 19e Siècle* (1807), contains an exposition of his philosophical views at this time. After the restoration, in 1814, his attention was turned to politics; and, partly in conjunction with his disciple and adopted son Augustus Thierry and others, he wrote several works, which show his political opinions. Among these are *De la Réorganisation de la Société Européenne* (1814); *Du Système Industriel* (1821); *Catéchisme des Industriels* (1824); *Discussions politiques, morales et philosophiques* (4 vols., 1817—18); and *Opinions littéraires, philosophiques et industrielles.* Seven years had thus been spent in obtaining pecuniary resources, seven in collecting scientific materials, ten in effecting the reformation of philosophy, and ten that of politics; and St Simon, reduced to extreme want by the exhaustion of his resources, and to despair by neglect and ill success, attempted to shoot himself through the head. The ball grazed his forehead: but "his hour," say his pupils, after their master, "was not yet come; the philosopher and legislator becomes the prophet of a law of love; God raises him from the abyss; sheds over him a religious inspiration which animates, sanctifies and renews his whole being; a hymn of love is poured forth from that mutilated body; the divine man is manifested; the New Christianity is sent to the world; the kingdom of God is come upon earth." The *Nouveau Christianisme* (8vo., 1825) is an exposition of St Simon's religious notions. By this new religion, the principle of antagonism is done away; a universal church, a brotherhood of peace, unites all mankind, and sanctifies all. Science is holy, industry is holy; society is formed only of priests, savans and labourers *(industriels);* government consists only of the chiefs of these three classes. The basis of the political system of the St Simonians is a new mode of the distribution of property, by substituting the right of capacity for the right of inheritance. "Each one according to his capacity, each capacity according to its works," is the rule of this new right. All property becomes, at the death of the proprietor, the property of the church or society; all children receive a general education to a certain point till their *capacities* are ascertained, and then, *chacun à sa capacité*, each be-

comes a priest (or artist), savant, or *industriel*, as his talents point the way; and thus whatever he acquires is the fruit of his own industry. There is nothing, however, like a distinct system developed in the writings of St Simon or his disciples, but abundance of crude notions and vague speculations, of which we cannot attempt to give an account. See *Doctrine de St Simon* (3d ed., 1831), and the numbers of the *Globe* and *Organisateur*, the organs of one party, and of the *Revue Encyclopédique* (since the close of 1831), that of another party of St Simonians. At the time of the death of the founder, this sect consisted of a small number of disciples, of whom Olinde Rodrigues was the principal, and who established the *Producteur*, a monthly journal, as the organ of their views. This, however, was discontinued for want of funds, when the revolution of July gave a new impulse to the society. A great number of converts was made, funds collected, and the *Globe*, a journal of reputation, passed into the hands of St Simonian editors. Families were organized, churches built, schools constituted, and the hierarchy established, under Enfantin and Bazard, who were entitled *pères suprêmes* (chief fathers). But when the time came for the development of a regular system, schisms began to appear in the society. The most important of these took place in November, 1831. Enfantin and Bazard were at the head of two parties, Rodrigues of a third, and Carnot (editor of the *Revue Encyclopédique*) belonged to a fourth. These divisions were produced partly by questions of government and partly by differences of doctrine. One of the new doctrines, in which, however, all parties seem to agree, is, that man is not, as heretofore, alone to form the political being, but that man and woman together are to form the social individual. But, on this principle, Enfantin declares that the moral law can be revealed only by the co-operation of woman; and he, therefore, awaits the appearance of the woman who shall be called to complete the *couple révélateur*. The *Globe* and *Organisateur* are in the interest of Enfantin. The French government has left the sect to itself; but the courts have decided that St Simonianism is not a religion,—the priests of the society having claimed exemption from military duty on the ground of their religious office. See the *Quarterly Review* for July, 1831, and the *Westminster Review* for April, 1832.

SIMONIANS, ST. See *Simon, St.*

SIMONIDES; a Greek lyric poet, born in the island of Cos, about 557 B. C., went to Athens, where he became the favourite of Hipparchus, and a friend of Anacreon and Theognis. In Thessaly, he was a welcome guest of the Scopades, whose victories at the public games he celebrated in song. According to a story related by Cicero, as he was once sitting at a feast with Scopas, having recited a hymn in praise of his patron, in which he dwelt much on the merits of the Dioscuri, Scopas told him that he could pay him only half of the price promised for the hymn, and that he must get the rest from the Dioscuri, who had occupied as large a share of his praises. Soon after, some one called him out of the house, with the information that two youths wished to speak to him. On going out, he found no person, and before he could return, the hall fell in, burying the guests under its ruins. When the rubbish was removed, it being impossible to distinguish the bodies, disfigured by bruises, Simonides was enabled to determine them by recollecting the order in which they had sat. This led him to the plan of facilitating the recollection of events by certain artificial associations with places or things. (See *Mnemonics*). Another wonderful escape of Simonides is related. Having once buried a body which he had found on the beach, as he was himself about to set sail, the spirit of the deceased warned him not to trust himself to the deceitful element. He complied with the warning, and soon after received news of the loss of the vessel, with all her crew. Simonides visited Athens several times, and is said to have conquered Æschylus, in a poetical contest, at the celebration of the victory of Marathon. During a residence in Sparta, he sang the heroic death of Leonidas, in several poems. An invitation from Hiero, king of Syracuse, induced him to go to Sicily, where he spent the rest of his days, and died, B. C. 467. Of his numerous poems, some fragments have come down to us, which are contained in Brunck's *Analecta*. The ancients celebrate the grace, ease, and simplicity of his poems; but he is accused of avarice, and of having been the first to take pay for his writings. The invention of five letters of the Greek alphabet, η, ζ, ξ, ψ, ω, is attributed to him.

SIMONY; the crime of trafficking with sacred things, particularly the corrupt presentation of any one to an ecclesiastical benefice for money or reward. Simony is also committed by buying or selling the sacrament of the Lord's supper, baptism, ordination or absolution. It is a crime severely prohibited by all Christian sects, though the theologians of the Roman *curia* do not consider the selling of certain church offices simony. The name of this offence, in which the seller and the buyer are equally guilty, is derived from the Chaldæan Magus, Simon, who, according to the Acts of the Apostles, wished to purchase from the apostles the communication of the Holy Ghost by the imposition of hands. Simony was committed in the middle ages with scandalous publicity and frequency.

SIMOOM, OR SAMIEL (that is, *poison*); a noxious, hot wind, which blows at the period of the equinoxes, on the borders of Arabia, in the neighbourhood of Mecca, on the Euphrates, and in Persia, and is fatal to animal life. It comes over burning deserts of sand, and its approach is indicated by terrible appearances. A dark yellow hue suddenly pervades the eastern horizon; a thick sulphureous exhalation rises from the ground, which is first hurried round in rapid gyrations, and then ascends into the air, and covers the whole heavens. Hissing and crackling noises are heard, and a hot current of air, accompanied by low sounds, rushes over the ground. Even the beasts manifest their terror by their howlings, and, when the burning current overtakes a caravan in the desert, bend their heads to the earth; camels plunge their nose and mouth into the sand. Travellers may have learned this means of safety from them, as they also throw themselves down with their faces to the ground, and lie immoveable until the hot exhalation has passed, which it does within a half hour at the most. Persons in a stream have nothing to fear. The bodies of those who perish by it swell, and very quickly begin to putrefy. The fine dust which the wind brings penetrates into all the folds of the clothes, and even into boxes and bales. It is not improbable that these and other hot winds are overcharged with electricity.—The simoom is different from the *chamseen*, or *khamseen*, a south-west wind, which blows three or four days, between July 15 and August 15, in

Egypt, Arabia, and on the Persian gulf, and is accompanied by similar appearances. It is very hot and drying. In those whom it surprises in the desert, the lungs are compressed, the breathing difficult, the skin dry; the body appears as if consumed by fire. The corpses of those who have thus perished are dried up, but do not putrefy. The same means of protection are employed as against the samiel. Still different from either of these winds is the *harmattan* (q. v.)

SIMPLON (Italian *Sempione*); a mountain in the Swiss canton of Valais, 10,600 feet high, belonging to the high Alpine ridge which separates Switzerland from Italy, and extends from Mont Blanc to St Gothard. (See *Alps*.) As this ridge is traversed by a valley, which lies below the snow line, Napoleon laid out one of his most remarkable roads here. (See *Alps, Roads over*.) The Hospitium, left unfinished by Napoleon, was sold by the government of the canton to the fathers of the Great St Bernard in 1824, who have since completed it.

SIMPSON, Thomas, an eminent English mathematician, was born at Market Bosworth, in Leicestershire, in 1710. He was brought up to his father's profession of a weaver, but such was his love of study, that he soon quitted his profession and supported himself by teaching a school. An absurd propensity for astrology, while it rendered him a sort of oracle in his neighbourhood, involved him in some difficulties, which obliged him to remove to Derby, where he continued some years, following his trade in the day, and teaching a school in the evening. Notwithstanding his industrious habits, he found it difficult to provide for his family, and he was then induced to remove to London in 1736. Here he followed his business in Spitalfields, and taught mathematics at his leisure hours, and so great was his success, that he brought his wife and three children to London, where he settled himself permanently.

His first work was a new treatise of Fluxions, which was published by subscription in 1737, and such was its reception, that, in 1740, he published a treatise on the nature and laws of chance, which was followed in the same year, with his essays on several curious and interesting subjects in speculative and mixed mathematics. These works extended his reputation even to foreign countries, and he was elected a member of the Swedish Academy of Sciences. His doctrine of annuities and reversions, appeared in the same year, and an appendix to it in 1741. Supported by the influence of Mr Jones, the father of Sir William, our author was, in 1743, appointed professor of mathematics in Woolwich, and the same year, he published his mathematical dissertations. In 1745, he was admitted a fellow of the royal society, having been excused his admission fees on account of his limited income. In 1744, he published his treatise on Algebra, which was enlarged in 1755. In 1747, he published his elements of Geometry, which was reprinted in 1760, and subsequent years. In 1748, Mr Simpson printed his trigonometry plane and spherical, with the construction and application of Logarithms. His select exercises for young proficients in mathematics appeared in 1752, and his last work, viz. his miscellaneous tracts, came out in 1757. Mr Simpson was likewise the author of several papers which appeared in the philosophical transactions, and he edited the lady's diary from 1754 till 1760, a work to which he had been a contributor since 1736, and which he raised to a very high degree of respectability. He died on the 14th May, 1761.

SIMSON, Robert, M.D., an eminent Scottish mathematician, was born on the 14th October, 1687, O. S. at Kirktownhill, Ayrshire, a small property which, for some generations, had been the residence of his immediate progenitors. He was the eldest son, and was educated at the university of Glasgow, where he devoted his attention principally to the philosophy and theology of the schools, and such was his progress that, at an early age, during the illness of the professor, he taught the class of oriental languages. While he was studying theology at the divinity hall he took a fancy for mathematics, and amused himself occasionally with this new study; but it soon gained upon his affections, and it was not long in supplanting his passion for theology. He accordingly abandoned himself wholly to the study of geometry, preferring the sure methods of the ancients to the analytical method which had now so many supporters.

At the early age of twenty-two, the members of the college offered him the mathematical chair in the university of Glasgow, in which a vacancy was soon expected. Reluctant, however, to advance at so early an age from the situation of a student to that of a professor in the same college, he solicited and obtained permission to spend one year in London. Here he became acquainted with Mr Jones, Mr Caswell, and Mr Ditton, who gave him ample information respecting the progress of mathematics both in England and on the continent of Europe. When the vacancy in the mathematical chair occurred in 1711, he was unanimously elected, after giving a specimen of his skill in mathematics, and of his dexterity in teaching geometry and algebra. Immediately after his admission, which took place on the 20th November, Mr Simson entered upon the duties of his class with much zeal and success, and, instigated by the advice of Dr Halley, he directed his private studies to the restoration of the ancient geometers. His first labour was to restore the Porisms of Euclid. The next object of his labour was the "Loci Plani" of Apollonius, which he completed in 1731, but which he did not venture to publish till 1746. Notwithstanding all this caution, he recalled all the copies in the hands of his bookseller, and kept the impression by him for several years. He afterwards revised and corrected this work, which greatly extended his reputation, and obtained him a high place among the geometers of his age. In 1750, our author published his *Sectionum Conicarum libri Quinque*, a work which he intended as an introduction to the study of Apollonius. The restoration of the elements of Euclid was the great object of Dr Simson's care; and, along with the data, he published this valuable work in 1750. The *Sectio Determinata* of Apollonius next occupied his attention; but this work was not published till after his death, when it was printed, along with the Porisms of Euclid, and published at the expence of earl Stanhope. Mr Simson died on the 1st December, 1768, leaving to the university his valuable library. He was never married. See his life by Dr Traill, London, 1822.

SIN. Every evil disposition, thought or action, by which the divine law (whether the positive revealed law, or the moral law, which God has implanted in the mind of man) is violated, is sin in the wider sense of the word, considered in relation to morals or religion; considered as an offence against the laws of society, an evil act is called a

crime, misdemeanour, &c. Strictly speaking, sin can attach only to an intelligent and free agent, who has or might have a knowledge of the existence and sacredness of the law. The imputation of sin to the transgressor of the divine law is the regarding him as the author of this transgression, and as justly punishable for it. Theologians and moral philosophers distinguish several species of sins, either with reference to the nature of the law which the sinner transgresses, or to the subject against which the sin is committed, or to the sinner, or to the nature and quality of the action itself. In the first point of view, sins are divided into those of omission and commission; but this division amounts, in fact, to nothing, because, whenever a man sins, he omits something which he ought to have done, and commits something which he ought to have left undone. The same sin may fall under either class, according as we express the moral law, which is violated positively or negatively. The moral relations between man and the objects of his duty are much too close to allow an essential difference between omission and commission. Sins are divided, like duties, into those towards God, our fellow-men and ourselves; but this division is little more than formal, for every sins falls, in some degree, under all three heads. As regards the sinner, sins are divided into premeditated and unpremeditated, the latter being the fruit of sudden impulse, and not of deliberate purpose. Moreover, there are internal and external sins (the former include bad appetites, evil thoughts, &c.), conditional and unconditional sins. Sin is often used also for that state of the soul which is properly called sinfulness. Lastly, sin is divided by theologians into original sin and actual sin; the former again into inherent sin (denoting that corruption of nature which is believed to have been transmitted from the first man to all his offspring), and imputed sin, denoting that liability to punishment to which all the posterity of Adam are subject by the imputation of his trangression. Actual sin is again divided by theologians into mortal and venial. Mortal sins, according to 1 John v. 16, 17, are those the commission of which is followed by spiritual death, that is, the loss of God's grace, and differ from those which may be more easily forgiven. All Christians, in early times, were of opinion that there was a difference between those sins which a Christian might fall into from the strength of natural propensity, and those which evidently showed that the offender was yet entirely in the slavery of sin, and not regenerated, such as the denial of Christianity, murder, theft, adultery, fraud, &c. But while one party (which subsequently became predominant) acted on the principle that the church was bound to receive every sinner, on condition of sincere penitence, and that absolution and communion could not be withheld from him, particularly in the hour of death, if his repentance had continued until then, there was another party which would never receive again one who had broken his baptismal vow, by committing a mortal sin, because, said they, we know of no revelation which authorizes us to do this. What sins were to be regarded as mortal was not fully determined by the first fathers of the church. Augustine considered blasphemy, incontinency and murder, as falling under this class. Petrus Lombardus (*Magist. Sentent.* ii, 41, 6), following Cassianus and Gregory the Great, enumerates the following: *superbia* (pride), *avaritia* (avarice), *luxuria* (voluptuousness), *ira* (wrath), *gula* (gluttony), *invidia* (envy), *acedia* (sluggishness of heart); and, in order to facilitate the remembrance of them, invented the word *saligia*, composed of the initial letters of the several names. These are the seven mortal sins which, since the twelfth century, have been enumerated in the scholastic theology, and even now are set forth in the doctrinal works of the Catholics, particularly in Catholic catechisms for the people, though even the contemporary of Petrus Lombardus, Richard de St Victor (*De Differentia Peccati mortalis et venalis*, Rouen, 1650), justly makes the degree of immorality in the sinner, the wrong done to others, and the contempt shown for God, the standard of mortal sin; and other schoolmen gave the name of *crying sins* to murder, sodomy, oppression of innocence, and forcible retention of well-earned wages, and, in fact, to all those sins which St Paul mentions in Gal. v. 19—21. But many modern Catholic writers have found this number insufficient, and some of them have classed other mortal sins under some of these general heads, while others give an entirely different list; and some, again, as the writer of the article *Péché*, in the *Dictionnaire de Theologie* (Toulouse, 1817), mention none by name, and say it is extremely difficult, in some cases, to distinguish whether a sin is mortal. Many Protestants also (the Calvinists excepted) adopt the distinction between mortal sins and those which may be forgiven; but they make this difference to consist only in the degree of moral responsibility or desert of punishment; so that every intentional and well-known violation of duty is followed by the loss of God's grace. The views of the Greek church are much like those of the Roman Catholic on this point.

SINAI; a mountain of Arabia, 150 miles south-east of Suez, near the head of the Red sea, celebrated in Scripture history as the spot whence the law was given to Moses. It is situated in the heart of a vast and gloomy desert, the few inhabited spots of which are occupied by hordes of Arabs, who subsist by plunder, and render the road impassable, unless for a large and well-defended caravan. At the foot of the mountain is the Greek convent of St Catharine, founded in 1331, by William Bouldesell, which has ever since continued to afford hospitality to the pilgrims whose zeal impels them to brave the perils of this road. The monks are kept, as it were, imprisoned in this convent by the wild Arabs of the surrounding country.

SINAMARI; a river of French Guiana, which flows into the Atlantic in lat. 5° 39′ N. To its banks were transported the victims of the 18th Fructidor.

SINAPISM; a poultice of mustard. These poultices are made in different ways. One is of mustard-seed and lin-seed or crumb of bread, equal parts, vinegar a sufficient quantity; another of mustard-seed pulverized, any quantity, vinegar a sufficient quantity.

SINCAPORE, OR SINGAPURA; capital of a small island at the southern extremity of Malacca, lat. 1° 15′ N.; lon. 104° E. It was ceded, with the neighbouring islands within ten miles around it, to the East India company by the sultan of Johor, in 1824, who had previously, however, made a similar treaty, in consequence of which it had been occupied by Sir T. S. Raffles in 1819. The climate is healthy. The interior is laid out in gardens and plantations, and its shores supply a valuable article of commerce in the agar-agar, a kind of sea-weed

(fucus saccharinus,) which is used in China for paint, glue and varnish, and the finer sorts make a sweetmeat. The town stands on a point of land near a bay affording a safe anchorage at all seasons, and commanding the navigation of the straits of Malacca. The population, which, in 1819, was 150, had increased, in 1830, to above 16,600 persons, exclusive of the garrison and the floating population. Many of the settlers are Chinese. The exports exceed £3,000,000 per annum. See Crawford's *Embassy to Siam and Cochin-China.*

SINCLAIR, SIR JOHN, Bart., a very active and useful agriculturist and general statist, was born at Thurso Castle, in the county of Caithness, May 10th, 1754, and received his education consecutively at the universities of Edinburgh, Glasgow, and Oxford. In 1775, he became a member of the Scottish bar, and was afterwards called to the English bar, but he did not follow out the profession of the law. In 1776, he married Sarah, only daughter and heiress of Alexander Maitland, Esq. of Stoke Newington, in the county of Middlesex; by whom he had two daughters; Hannah, since dead, who wrote the letters "On the Principles of the Christian Faith," and Janet, the widow of the late Sir James Colquhoun, of Luss, Bart.

In 1780, he was elected member of parliament for the county of Caithness, where his estates were situated; and he had also the same honour conferred on him at the elections in 1790, 1802, and 1807; but as the county of Caithness was only alternately represented in the British parliament, he was, during the intervals, chosen for the boroughs of Lostwithiel in Cornwall, and Petersfield in Hampshire. He thus continued, with the intervention of a very short period, a member of the House of Commons, till July, 1811, being a space of more than thirty years. His attendance on his parliamentary duties was most assiduous; and, in 1782, he published a tract, entitled, "Lucubrations during a short Recess; with some Thoughts on the Means of Improving the Representation of the People." This he followed up by another, in the same year, under the title of "Thoughts on the Naval Strength of the British Empire, in answer to the late Lord Mulgrave, one of the Lords of the Admiralty." After pressing on the attention of the Ministry the propriety of establishing a militia force, he published his "Considerations on Militias and Standing Armies;" and the suggestions which he threw out on that occasion were afterwards adopted. His only other connexion with the press about this period, was in the publication of an anonymous tract, "The propriety of Retaining Gibraltar, impartially considered."

In 1785 Mr Sinclair engaged seriously in inquiries on political subjects in general, and collected a great mass of materials from different sources. The first published form which part of these assumed, was in an essay "On the Public Revenue of the British Empire."

In 1786, he made an extensive tour through the northern countries of Europe, with a view of contemplating their political and commercial phases. In the course of this journey, he travelled above 7500 miles, and made many valuable observations on the political, commercial, agricultural, moral and religious state of the Netherlands, Holland, Denmark, Sweden, Russia, Poland, Austria, and Prussia. It was not till the year 1830, when Sir John published two large volumes of his correspondence, that a digest of the remarks made during these travels was submitted to the public.

In 1788, Sir John Sinclair was created a Doctor of Laws by the university of Glasgow, and, in the same year, was married, for the second time, to Diana, daughter of Alexander Lord Macdonald, by whom he had thirteen children, seven of whom were sons, and six daughters. His oldest son, the present Sir George Sinclair, is member for the shire of Caithness.

In 1790, the idea of that great national undertaking, the Statistical Account of Scotland, had suggested itself to the mind of Sir John Sinclair; and being a lay member of the Assembly of the Church, it occurred to him that he might be able to prevail on a great proportion of the clergy to furnish such general information regarding the state of Scotland, as should afford data for an estimate of the political situation of that portion of the United Kingdom. His original plan was to draw up a general statistical view of North Britain, without reference to parochial districts; but such a mass of useful facts and observations was presented in the communications sent him by the clergy, that this more abridged idea was set aside, and the work prepared for press in the more extended form in which it was given to the world. After unwearied exertions, Sir John succeeded in bringing the first volume of this great work before the public on the 25th May 1791, just a year after its suggestion to the members of the church. It proved so far superior to any thing of the kind which had ever before appeared, that it could not do otherwise than give great satisfaction; and all who were interested in the improvement of the country or the welfare of its inhabitants, came at once forward for its patronage and support. Much difficulty was, however, found in the furtherance of the undertaking. Many circumstances occurred to prevent unanimity among such a large body as the clergy of the Church of Scotland. From the commencement some had thought the scheme chimerical, and others had openly professed their dislike to it, nor did they now care about retracting opinions rashly given. Old age and infirmity prevented others; and not a few were unable to overcome the jealous fears of their parishioners, who set down the whole as a deep laid scheme of government to accomplish some new plan of taxation. Nor did the tenants in country parishes relish inquiries about their farm produce, and the value of their stock, lest landlords might avail themselves of the information, by increasing their rents. After waiting another twelvemonth, during which he had written many thousand letters, Sir John found, on the first of June, 1792, that there was still a deficiency of not less than 413 parochial accounts. In this dilemma various plans were suggested for accomplishing the completion of this great national work. A recommendation from the General Assembly was one of the measures resorted to; and several of the leading ornaments of the church, made personal application to their clerical friends, to exert themselves within the bounds of their several presbyteries. Added to these, the Duke of Argyle, the Earl of Leven, then commissioner to the assembly, the Earl of Fife, and other extensive landed proprietors and church patrons, exerted themselves in the cause; yet Sir John was still destined to find, that some, from unwillingness to engage in the undertaking, would do nothing; and that others, from a spirit of procrastination, promised with little intention of

performing. Notwithstanding all these multiplied and mortifying difficulties, Sir John was determined not to be baffled in the accomplishment of the Herculean task which he had set himself. He engaged five statistical missionaries, to whom he appropriated different divisions of the country; and, by their means, the accounts of no less than twenty-five parishes, which must otherwise have been totally awanting, were ably and accurately drawn up. On the 1st of January, 1798, seven years and a half after its commencement, the work was brought to its completion. It was comprised in twenty thick octavo volumes; and to these another was subsequently annexed. A New Statistical Account of Scotland is at present (1838) in the course of publication.

In May, 1793, Sir John printed and circulated a plan for establishing a Board of Agricultural and Internal Improvement; in which he pointed out the nature of its plan, and the beneficial results which might be expected from it. On the 15th of the same month he moved, in his place in Parliament, an address to the Crown, in favour of the proposed establishment. An animated and interesting debate took place on the occasion, which was adjourned till the 17th, when, on a division, it was carried by a majority of 75; 101 voting in its favour, and only 26 being opposed to it. The Board, soon after, was not only appointed, but received a charter from the crown, in which Sir John was nominated its first president

Having accomplished the establishment of the Board of Agriculture, Sir John's next favourite project was to secure the passing of "A General Bill of Enclosure;" but he found the subject hedged in by obstacles on all sides, which could not be got over. At a subsequent period, however, under the administration of Lord Sidmouth, Sir John succeeded in carrying through a bill of great importance to the object in view.

So early as 1783, Sir John had acquired considerable reputation as a writer on finance, by a pamphlet which he then published, in opposition to the gloomy views promulgated by others. This subject he afterwards followed out in his "Review of the Financial Administration of the Right Honourable William Pitt;" to which an Appendix was added in 1789, and a third part in 1790. In 1803, the whole of Sir John's lucubrations on these and collateral subjects were collected into an elaborate work, in three octavo volumes, under the title of a "History of the Public Revenue of the British Empire, containing an account of the Public Income and Expenditure, from the remotest periods recorded in history to Michaelmas, 1802."

About the year 1797, Sir John began to suffer from the effects of his over-exertion, which, although they did not show themselves in any specific form, yet had induced a weak and enervated state of the body; and to his enthusiastic temperament, it was a misery to find that he was almost unequal to the task of managing his private affairs—pursuing useful inquiries—or following out those political investigations, which the contemporary aspect of civil society seemed to demand. From the decay of his own health, he was led to the consideration of the subject in general, and was much struck in pursuing his statistical observations, by the fact, that so few of the numbers of mankind born attain any extent of years, even in the healthiest climates, and that even when life is prolonged, it is to so many little less than a burden, from the embitterments of disease. This led him into a course of reading on the subject, and the result was a pamphlet in 4to, published in 1803, entitled "Hints on Longevity." In the same year, Sir John collected his Essays on Miscellaneous Subjects, and published them together in an 8vo volume.

From the attention excited, both at home and abroad, by his pamphlet on Longevity, as well as from his bias towards codification, Sir John now began seriously to turn his mind to an extensive work on the general subject of health, in which he proposed to condense into a manageable form, all the widely scattered materials to be found in ancient and modern authors. This was published as a Code of Health and Longevity in four vols. 8vo., but afterwards abridged to one vol. It was followed in 1819 by his Code of Agriculture, a work which has gone through several editions and translations, and which is very generally esteemed.

In 1810, Sir John Sinclair was made a privy councillor; and in 1811, under the administration of Mr Percival, he was appointed cashier of excise for Scotland, a situation which he for a time continued to hold.

Early in 1815, he was induced to take an excursion to the Netherlands, principally with the purpose of examining into the agricultural state of that country, and of ascertaining the relative prices of grain in Great Britain and the continental corn countries, more especially Flanders and France, the causes of such difference, and the most effectual means of preventing for the future any material variations. After his return, he threw his observations together in a printed form, in a pamphlet entitled, "Hints on the Agricultural State of the Netherlands compared with that of Great Britain."

Besides the works which we have specified, Sir John published a great variety of smaller pamphlets and tracts, all bearing on points of agriculture or political economy. He died in George street, Edinburgh, where he had resided for the last twenty years of his life, on the 21st December, 1835. See his Memoirs in the Quarterly Journal of Agriculture, and also those published by his son.

SINDH. See *Indus*.

SINDON. See *Byssus*.

SINE, in mathematics; a line drawn perpendicularly from one end of an arc upon the radius, drawn to the other end. The sine of the arc is also the sine of the angle subtended by the arc. Trigonometry teaches that, in plain triangles, the sides are to each other as the sines of the opposite angles; in spherical triangles, however, the sines of the sides are to each other as the sines of the angles opposite to these sides. Hence it appears how important the sine is for finding certain parts of triangles, from certain given parts. To render these calculations (which occur so often) more easy, tables have been drawn up, in which the logarithms of the sines are given.—By *cosine* is understood the sine of the complement of the arc (such an arc as, if added, would make it ninety degrees).—*Versed sine* is that portion of the radius which is intercepted between the sine and the arc. (For the other important lines in trigonometry, as the *secant*, *tangent*, &c., see the respective articles.) Among the many tables, we mention only those of Vega, and the *Tables Portatives, par François Callet*, published by Didot. See *Logarithm*.

SINECURE (Latin, *sine cura*, without a cure); properly, an ecclesiastical term signifying a benefice without cure of souls. (See *Abbés Commenda-*

taires.) It has hence come to be applied to any charge or post without duties attached to it. The gross abuses which exist in this country in regard to sinecures, have arisen mostly from changes in the state of society, alterations in the management of the revenue, or the administration of justice, and from the union of the three kingdoms. The offices, with their emoluments, have thus been kept up when the duties had ceased. Besides the absolute sinecures, there are offices of which the duties are discharged, for a small salary, by a deputy, while the placeman pockets the principal profits. In the departments of the army, navy, revenue, administration, &c., are many such cases. The total amount of money thus paid, in great part, to noblemen, or their relations and dependants, is little short of half a million pounds sterling a year.

SINGING. In the article *Music* we have touched upon the origin of vocal, as well as instrumental music. Singing unites, in its perfection, music with lyric poetry: we say lyric poetry, because the poetry must accord with the music, and music is, in itself, a language of feeling. The chief elements of a good singer are, 1. a voice distinguished for melody and compass; 2. skill to read notes correctly and readily, and accurate intonation; 3. a distinct utterance; and 4. adaptation of the delivery to the meaning of the words, in which the singer shows his taste and feeling. There are three chief methods, or schools of singing—the Italian, German, and French. (See *Music*, and *Italian Music.*) Formerly, the Italians only had a proper school of singing, because, with them, singing was early made a subject of scientific instruction. The Italian method is distinguished by peculiar attention to the cultivation of the vocal organs, in order to give the voice the greatest clearness and flexibility; secondly, by the soft swelling and blending of the tones, which is called *portamento di voce*, and gives to the whole a charm and keeping similar to the effect of a perfect picture; thirdly, by a distinct utterance of the words, though in this the Italian singers are greatly aided by their melodious language. Another advantage of this school is its skill in *recitativo*—a musical discourse, between singing and speaking (though, even among the Italians, this latter excellence has become comparatively rare of late). The defects of this school are, that it often runs into an excess of art and ornament, which, among many other causes, is partly owing to the circumstance that, formerly, composers wrote only the fundamental notes for the singers, and left them to supply the rest. But Rossini has introduced the fashion of writing all the ornaments in full. The Italian style of singing appears to the greatest advantage in the concert, and the buffo style of the opera. The German school, or style, is more unbending, and better adapted for church music. The fugue is its triumph; firmness and steadiness its excellences. The German aims at simplicity, character, and deep meaning, and wishes to make the music a perfect expression of the feeling. Hence the German singer often neglects to make the words distinctly intelligible. Yet the Germans have adopted much from the Italians, in regard to the cultivation of the vocal organs, as well as the execution, and have treated singing most scientifically. There is a surprising similarity of character in the schools of singing and painting, in each of these two nations. The French method borders closely on declamation, and shows the proneness of the nation to conversation. The language is very unfavourable for singing, on account of its want of verbal accent, and the swallowing of the final syllables. Though the German idiom can by no means be said to be well adapted for singing, on account of its many consonants, yet the French is still less so, particularly from its many nasal sounds. The French singing is, however, truly fine in the simple national songs: these recall the time of the troubadours, and have something uncommonly charming. With the *chansons*, *vaudevilles*, and *rondelays*, the case is different: in these, the French aim chiefly at wit and point, and the song is made subservient to the words, not the words to the song. All three nations have many works for giving instruction in singing, but none so many as the Germans.

Singing Schools.—The study of singing, as an art, has been hallowed by its devotion to the service of religion, both in ancient and modern times, and it has been considered an effectual instrument in the civilization of mankind. It was a law of the Egyptians, that children should be instructed in particular branches of music and singing: we may therefore justly infer that singing schools existed in Egypt. Among the Jews, singing was connected with all their religious ceremonies. Samuel established, during the peaceful years of his rule, the celebrated schools of the prophets, in which singing, music, and poetry were taught. Under David, the chief of the Levites gave instruction in singing, and had the direction, with twenty-four assistants, of a choir of 4000 singers and musicians. Among the Chinese, also, singing schools have been established from the most remote times; two of the principal mandarins are directors of the singing schools at Pekin; eight head teachers, and sixteen under teachers, with eight subordinate mandarins, eight musicographers, and eighty scholars, compose the institution. Among the Jews, splendour, and the love of the fine arts, reached their height under Solomon, and no exhibition of modern times can be compared with the musical festival at the dedication of Solomon's temple, at which, according to tradition, were united 200,000 singers, 40,000 harps, 40,000 sistrums, and 200,000 silver trumpets. Among the Greeks, the oracles were always delivered in song. The scholars of Pythagoras were obliged, on waking in the morning, and before going to sleep in the evening, to chant songs, in order to overcome the disturbing influences of the world. The greatest variety of hymns were sung in the worship of Apollo. The singing schools of the Greeks are celebrated: at their great public games, musical contests took place, and the four most sacred festivals, the Olympic, Pythion, Nemæan, and Isthmian games, as well as the Panathenæa, thus became schools of music. Through the Etruscans and Greeks, singing was introduced among the Romans. Under the Roman emperors, the passion for music and singing reached its height; many of the emperors gave themselves up to it with ardour. But proper singing schools were not known in ancient Rome, as the most distinguished musicians were foreigners. Among the Gauls, music was taught and practised by the Druids, and Bards. With the religion of the Druids, these singing schools were also introduced into Britain. From the earliest times, the singers of Britain were celebrated; after the extinction of Druidism, they were called *minstrels*, and resided chiefly in Wales. What has been said of the Tuiscon of the Germans, is very uncertain; however, the Germans had singers, and national

songs, particularly martial songs, which were transmitted from mouth to mouth. With the introduction of Christianity, the singing schools acquired a higher and nobler character. The first Christians, particularly the Therapeutæ, in Palestine and Egypt, sang hymns in alternate choirs, during their religious ceremonies. Clemens Romanus, a companion of the apostle Paul, was the first to establish the head singer, to begin the psalm, and lead the assembly; the elders of the church were also the directors of the singing. Ambrose and Chrysostom warmly promoted it. As early as the first centuries, particular singing schools were established. Cyril relates that St Theodosius was head singer at the church, in his native place, from his earliest childhood, and St Nicetius, archbishop of Treves, in the first half of the sixth century, resolved to have all the boys, born in his diocese, instructed in singing as soon as they could talk. Proper seminaries for spreading the knowledge of singing were first established in Rome by pope Sylvester, between 314 and 335. A singing school, belonging jointly to all the churches in the city, was instituted, and was obliged to furnish choirs for all the sacred masses and religious ceremonies conducted by the pope or presbyter. The director of this singing school, called *Primicerius*, instructed select youths in singing, reading of the Holy Scriptures, and in good manners; these scholars were called *ministrales* and *clerici*. Pope Gregory the Great (590—604) greatly extended and improved the singing schools. In the school of the Lateran, the couch was still to be seen, in the ninth century, on which Gregory reposed while he instructed the singers, as also the rod with which he threatened the boys, and his *Antiphonarium*. (See *Antiphony.*) The boys who sang well were maintained by the school, and afterwards made chamberlains to the pope. Most of the scholars were taken from the Roman orphan asylum, whence the singing school was also called *orphanotrophium*. The same pope sent Augustin or Austin as a missionary to England, accompanied by many assistants and singers. Augustus and king Alfred, at the end of the ninth century, spread the art of singing in Great Britain. Charlemagne introduced it into France and Germany. He sent singers to Rome, who were there instructed, and, on their return, founded singing schools, first at Metz and Soissons, afterwards in many other towns. Charlemagne often presided in his principal school, and directed the instruction; his daughters practised music three hours daily. All the music masters were taken from the clergy. From the time of Pepin, a royal chapel was always connected with the royal palace, under the inspection of a music master, called *menestrel*. The so called *gay science* of the Provençals embraced music as well as poetry. The troubadours diffused it from the eleventh to the fourteenth century: the schools of the minnesingers originated from them; the most flourishing period of the German minnesingers was in the thirteenth century; among them were emperors, kings, princes, and counts; but when, at a later period, the use of court fools prevailed, these noble singers became extinct at court, and the art fell into the hands of common mastersingers. In the middle of the fifteenth century, figurate music was already taught in the singing schools at Augsburg. French and German compositions were principally sung. The principal singing choirs of the north of Germany, sprung from the religious zeal of Luther, who advised the study of music, and the cultivation of it, as a part of the religious service. In those early times, when the custom prevailed of performing mysteries, and celebrating many other religious festivals, singing choirs often assisted in these performances. Another kind of singing school, which existed in the twelfth and thirteenth centuries, must also be mentioned. In Italy, princes and states, in the middle ages, had in their service whole companies of singers and players, who appeared in numbers at all the chief festivals. Guido of Arezzo, at the beginning of the thirteenth century, did much for the improvement of singing, and founded new schools. In the sixteenth century, a higher and purer taste for music was awakened, chiefly by Palestrina (q. v.), the famous master, of the old Roman school. The same powerful influence which he exercised over the ancient Italian school of singing, Francesco Durante had over the modern. At the end of the seventeenth century, the singing school of Francesco Antonio Pistochi, in Bologna, was distinguished, which was continued by his famous scholars, Ant. Bernachi and Ant. Pasi. In the eighteenth century, the following schools were celebrated: that of Brivio, in Milan; Franc. Peli, in Modena; Redi, in Florence; Amadori, in Rome; but, particularly, those of Nic. Porpora, Leonardo Leo, and Franc. Feo, in Naples. (See *Italian Music.*) These conservatorios, or public singing and music schools, had the greatest influence, both in Italy and France, in perfecting music.

SINIGAGLIA, in the papal delegation of Urbino, between Rimini and Ancona: a small fortified place with 6200 inhabitants, celebrated for its annual fair, which lasts from July 20 to August 10. During this time, *loggie* or booths are erected along the canal, which are crowded with foreign and native traders, and the place, thronged with jugglers, dancers, &c., exhibits a panorama of Italy in miniature.

SINKING FUND. The term *sinking fund* is applied to a fund appropriated by a government to the purchase or extinguishment of its own debts. Where a government merely directs its treasurer to apply monies, accruing from permanent sources of revenue, to the payment of the public debt, the term *sinking fund* can only signify the excess of the current revenues over the current expenditures. But the term is not ordinarily applied in such a case. In England, as early as 1716, Sir Robert Walpole projected the sinking fund system, which was partially applied at that time, but brought into operation more fully in 1786, by Mr Pitt. New taxes were imposed to such an amount as, upon estimation, would leave a surplus revenue of £900,000 beyond the current annual expenditure, and the payment of interest on the public debt. Assuming that, for a given number of years, the expenditure of the government would not exceed the estimated amount, and that the resources would yield this surplus, it followed, of course, that the public debt would eventually be extinguished by the application of this surplus to this purpose. And if the revenues, and expenditures for other purposes than the payment of the interest and principal of the public debt were kept at the same amount, it would follow that a greater amount could annually be applied to the payment of the principal of the debt, since a smaller amount would be requisite for the payment of the interest, in consequence of the constant reduction of the debt. All this is quite plain, and it would be equally true whether the payments were the extinguishment of a certain portion of the debt, or the purchase of it by the com-

missioners, or by trustees, who should hold the amount redeemed, and receive interest upon it, like any other creditors of the government, applying the interest so received to the further purchase of stock. This latter system was adopted in Great Britain, so that, in 1813, when this system of the sinking fund had been in operation twenty-seven years, a little more than £210,000,000 sterling had been redeemed, leaving the net amount of the public debt about £575,000,000, though the nominal amount was then above £812,000,000. In 1786, the debt was about £238,000,000. When this system was adopted, it was represented that, by some mysterious operation, it would infallibly result in the extinguishment of the debt; and the system was celebrated as a grand economical discovery. But after infinite arguments and calculations, and some ridicule on the part of unbelievers, it was found that there was no advantage obtained by buying up a part of the debt, and at the same time contracting an equal or greater amount at an equivalent rate of interest. A sinking fund, in the plain and intelligible sense of being a system of provisions and guaranties for the payment of the interest and redemption of the principal of the public debt, is undoubtedly of great importance, and necessary to sustain the public credit. When no part of the debt is made redeemable, such a system can be carried into operation only by buying up the public securities. But the still continuing to call the part so bought up a portion of the public debt, and receiving interest upon it, and keeping accounts respecting it, are a mere idle ceremony. See *Hamilton, Robert.*

A sinking fund was early established under the government of the United States. From 1803 down to 1817, the sum of 8,000,000 dollars annually was appropriated to that fund, and the stock bought up or paid off by the commissioners, was registered in the treasury office, to the credit of the commissioners of that fund; and the interest accruing on such stock constituted a part of the fund for the payment of the interest and redemption of the principal of the unredeemed part of the debt; and in 1814, a little more than 33,000,000 dollars was entered in the books of the treasury to the credit of those commissioners. Certain revenues were appropriated to this fund, it being intended, like any other similar one, as a sort of pledge of the public faith and resources to the public creditors. But before the close of that war, the fund had, from time to time, been charged with the payment of amounts to which it was inadequate, so that it no longer held out sufficient security to the public creditors. Accordingly, in 1817, a larger amount of appropriations was made to the fund, and by the act of congress of the third of March of that year, it was provided that the certificates of the stock redeemed should be cancelled; that is, the commissioners of this fund did not any longer appear as the creditors of the government on the treasury books. The ordinary and plain mode of proceeding was adopted: when any part of the debt was paid, the securities were cancelled, and did not afterwards appear in the public accounts.

SION; one of the hills on which the city of Jerusalem was built. The part of the city on mount Sion was also called the "city of David," and the lower city, on mount Acra, was called the "daughter of Sion." See *Jerusalem.*

SIOUX, or DAHCOTAH INDIANS; a family of Indian tribes dwelling to the west of the Mississippi. See *Indians, American.*

SIPHON; a bent tube with one leg shorter than the other, used for transferring a liquid from one vessel to another. This is effected by exhausting the siphon of the air which it contains, or at least so rarefying it that the pressure of the atmosphere on the surface of the water will force up the liquid beyond the highest point of the curve of the siphon, when it will descend by the opposite leg. The power of the siphon is limited merely to decanting, and cannot be applied to raise the liquid above its level in the original vessel; nor will it continue to act after the level of the vessel into which it is decanted becomes equal to that from which it is drawn off. Instead of exhausting the siphon of air, it may be inverted and filled with water; if both ends are then stopped, and the shorter leg immersed in the water to be drawn off, on removing the plugs, the water will flow. If the siphon is large, as is the case where it is used for carrying water over a hill, it may be filled by an orifice in the upper point of the curve, which may then be plugged; and, on removing the plugs of the ends, the water will flow, as in the case last mentioned. A Würtemberg siphon is one in which the extremities of the legs are turned upwards, and which can be kept constantly filled. See *Hydrostatics*, and *Air.*

SIR; a term of courtesy, now applied, without distinction of rank, to all persons, formerly confined to gentlemen (probably derived from *sieur, seigneur*, lord). It is also the title of honour of knights and baronets, and as such is always prefixed to the Christian name.—*Sire*, in France, is a term of respect, by which the king is addressed.

SIRACH. Jesus, son of Sirach, was a Jew of Palestine, who, about B. C. 140, after his arrival in Egypt, translated into Greek, for the use of the Alexandrian Jews, the book of Proverbs, which his grandfather, of the same name, had originally composed in Hebrew. The Catholic church admits this book (Wisdom of Jesus, son of Sirach, or Ecclesiasticus) into the canon; by the Protestants it is ranked among the apocryphal books. It is written in a deep religious tone, and abounds in excellent practical rules of life.

SIREN. See *Salamander.*

SIRENS; inferior goddesses, who, by their singing, fascinated those that sailed by their island, and then destroyed them. Homer mentions but two, and represents them as young women, without informing us of their origin. Later poets, who give a different account of their persons, number, names, and places of residence, usually describe them as daughters of the Ætolian river god Achelous, by Sterope, daughter of Amythaon, or by the muse Melpomene, or Terpsichore, sometimes as having sprung from the blood which flowed to the earth from the horn of Achelous, broken in his struggle with Hercules. Euripides, in reference to the latter account, calls them the daughters of the Earth. Sophocles calls them daughters of Phorcus; and this is, perhaps, the oldest account. The author of the Orphic Argonautics places them on a projecting rock on the shore near Ætna, alluring the Argonauts by their fatal singing. But Orpheus sang a heroic song to his lute, and the Sirens flung away their flutes and lyres, and threw themselves into the sea, where they became formidable rocks. These Sirens, thus converted to stone, could not be dangerous to Ulysses, and the poet assumes others in the Tyrrhenean sea, whom he encountered. Plato feigns eight Sirens, who are borne round on the eight heavenly circles, and who make the music of the spheres,

which others attribute to the nine Muses. There is likewise a story of their trial of skill in singing, with the Muses. The latter were victorious, and, plucking the feathers from the wings of the Sirens, made garlands of them. According to Hyginus, the Sirens received these wings from Ceres, after the rape of Proserpine, because, although in her train, they had not rendered her assistance.

SIRIUS (dogstar); the most brilliant of the fixed stars, and the largest in the constellation of the Great Dog. See *Constellations*, and *Dogdays*.

SIROCCO; a hot, relaxing and oppressive south-east wind, which blows in Sicily and Italy. Some have supposed it to be the same as the simoom, tempered by its passage across the water.

SISTINE CHAPEL (*Cappella Sistina*); a chapel in the Vatican, so called from pope Sixtus IV., who erected it, and destined it for the religious services performed during Passion Week, for which it is still chiefly used. Its dimensions are very large. The whole wall behind the altar is covered by Michael Angelo's picture of the last judgment —a great poem in itself. On the vaulted ceiling, the same master has painted the creation of the world, and around it prophets and sibyls. The other walls contain, in twelve compartments, the productions of Signorelli, Filippi, Perugino, Roselli, &c., which relieve the mind, tasked by the gigantic and overpowering conceptions of the immortal Angelo. Words are inadequate to describe the effect of the celebration of the passion of the Saviour by the pope and cardinals in this chapel during Passion Week, when grand and appropriate ceremonies, aided by incomparable music, combine with the noblest productions of the pencil, to produce the highest effect of Catholic worship.

SISTRA. See *Indian Literature*.

SISTRUM; a musical instrument of the ancients. The Egyptians used it in the worship of Isis, and it is still found in Egypt and Abyssinia. It consists of an oval hoop of metal with a handle. Through this hoop are bored holes, in which are metal bars, which, on agitating or beating the instrument, produce the sound. The finer the metal, and the more perfect the proportion of the holes, the more agreeable is the tone of the instrument. The German guitar has also been called *sistrum*.

SISYPHUS; king of Corinth (which, according to some, he built), and son of Æolus and Enarete. He married Merope, the daughter of Atlas. The Attic poets relate many instances of his art. Theseus, whose dominions he disturbed, slew him. Some impute his death to Jupiter, in revenge for his having informed Æsopus of the rape of his daughter. He is said to have put Death in fetters, so that, for some time no one died. He afterwards overreached Pluto, by getting leave to visit the upper regions, whence he did not return till he had lived out the natural term of his life. In consequence of this, he was obliged to roll a heavy stone to the top of a hill in the infernal regions. The stone no sooner reached the summit than it fell back, thus rendering his punishment eternal.

SIWAH; one of the oases in the desert of Libya, to the west of Egypt, interesting from the ruins which it contains. It lies in lat. 29° 12′ N.; lon. 26° 6′ E.; 120 miles W. from the Nile, and is about six miles long by four or five wide. It is supposed to contain 8000 inhabitants, of whom 2500 are in the town of Siwah. The soil is fertile, yielding dates, pomegranates, figs, olives and grapes. Tepid springs, holding salt in solution, are numerous. This oasis is supposed to be the site of the celebrated temple of Jupiter Ammon, the ruins of which travellers think they have discovered at the distance of a league and a half from the town, covering an area of 360 feet by 300. The ruins are in the Egyptian style of architecture, and covered with a profusion of hieroglyphical and other sculptures in relief and painted. Nearly a mile from these ruins, in a grove of date palms, is the celebrated Fountain of the Sun, dedicated to Ammon. It is ninety feet in length by sixty, and appears to be warmer by night than by day. Close by this spring are traces of a temple supposed to be the relics of a sanctuary mentioned by Diodorus Siculus. A mountain in the neighbourhood has been converted into catacombs, some of the tombs of which are on a magnificent scale, resembling the celebrated sepulchral chambers of Thebes in decoration, sculpture and painting. A succession of lakes and temples stretches into the desert towards the west, and tombs, catacombs and churches, are scattered over the waste. At a short distance from the sacred lake there is a temple of Roman or Greek construction, the architecture of which is of the Doric order —a singular circumstance in a country surrounded by immense deserts, and 400 miles distant from the ancient seats of civilization. See Browne's *Travels in Africa and Syria*.

SIX NATIONS. See *Iroquois*.

SIXTUS V., the greatest ruler and statesman among the popes of the three last centuries, was born in 1521, at Grotta a Mare, not far from the little town of Montalto, in the mark of Ancona. His proper name was Felix Peretti. He gave early indications of an aspiring spirit, and was delivered by his uncle, a Franciscan, at Montalto, from the humble labours by which his indigent parents procured their bread. In the schools of this order at Montalto, Pesaro, Fermo, Bologna, &c., Peretti, having joined the Franciscans in 1534, received the usual strict education and instruction of the monasteries. His active spirit soon made him conversant with the scholastic philosophy and theology and Roman literature. In 1544, he gave instruction in the canon law at Rimini, and, in 1546, at Sienna. In 1548, he was made priest, doctor of divinity, and superintendent of the monastic school of Sienna. He made himself famous in Rome, likewise, as an acute logician and preacher, where, in 1551, the favour of some cardinals procured him a permanent residence. Here he gained much reputation, not only by his pulpit performances, but also by his pious works, as the founding of a brotherhood for solemnly carrying the host to the sick, under the name of the society of the holy sacrament, and an asylum for indigent young girls, according to the rule of St Clara. His work on mystical divinity, and his Golden Register, extracted from the writings of Aristotle and his commentator Averroes, were also fruits of this residence at Rome, which, however, was embittered by the vexatious controversies in which his unquiet spirit, and his aversion to the monastic life, involved him. Cardinal Capri, the protector of his order, defended him from the violence of his associates; but he was continually plunged into new difficulties by his own intolerance, and the jealousy of the monks, arising from the reputation which he had acquired as a preacher on his visits to the principal cities of Italy. His situation was not improved by his removal to Venice, where, in 1556, he was appointed superin-

trality, and enjoined silence on the Jesuits, whom he never loved, when they contended with the university of Louvain. But in the political events of his time, he took a more active share. The project of restoring Germany to its former dependence on the papal see failed; but Sixtus excited the emperor Rodolph II. to a violent persecution of heretics. Two Protestant sovereigns, Henry of Navarre, and Elizabeth, queen of England, he excommunicated, though it would seem only for the sake of appearances, since he sincerely esteemed them both for their intellectual vigour, and would never seriously support Spain against Henry, because he deemed the views of Philip II. dangerous. He, however, aided this monarch with funds to equip the armada against England, but at the same time gave the British envoys an opportunity to see that he would not disapprove of a more energetic participation in the war for the independence of the Netherlands, in order to curtail the Spanish power. After the assassination of the Guises, he excommunicated Henry III., yet without giving direct support to the league. But while Sixtus V. conducted with moderation towards all the princes of his time, he weakened one by means of another, and made them all dependent on himself. His mind was occupied with extensive plans for the enlargement of his temporal and spiritual power. He always called Naples his kingdom, and made the Spanish viceroy feel his importance on all occasions. It was his design to subject Russia to his dominion through Stephen Bathori, king of Poland, and Egypt through the grand-duke of Tuscany; but the death of these two princes frustrated his bold projects. By his numerous spies, not only his special informers, who were royally paid, but also the father confessors of the Roman Catholic church, he gained a knowledge of every thing that was passing. Hence he was always prepared for emergencies, and consulted with the cardinals only for the sake of appearance. His thorough knowledge of business, and the superiority of his bold, able and lofty mind, filled every one that approached him with respect and admiration. He was famous for humorous remarks and pithy repartees, by which he often overcame opposition and effected his objects. Plain in his exterior, and free from anxiety about a nice etiquette, he maintained his princely dignity by a majestic demeanour and strict consistency. The sternness of his deportment was rarely interrupted by displays of good nature, though this sometimes happened, as in his marks of favour to his old acquaintances of the time of his humble condition. He was reserved towards those around him, and firm even to obstinacy in all that he undertook. Though politics occupied the greatest share of his attention, yet he was wanting in nothing which became the head of the church. In no case did he abuse his power to gratify personal feelings of revenge. Though never beloved, he was universally feared. After his death, which happened August 24, 1590, the populace, irritated by the pressure of taxes, overturned the statues which the senate had erected to him in the capitol. The conjecture that his death was hastened by poison, at the instigation of the Spanish court, which he had offended by his coldness towards the league, and by the manifestation of favour towards Henry IV., is not supported by sufficient evidence. All that could be effected in so few years, by commanding talents and force of character, with the feeble means which were left to the papal see by the reformation, Sixtus accomplished: and he was the last head of the Roman Catholic church whom kings have had reason to fear.

SKALDS. See *Scalds.*

SKATING; one of the finest gymnastic exercises, by which man, as Klopstock says, "like the Homeric gods, strides with winged feet over the sea, transmuted into solid ground." It is one of the healthiest exercises, bringing the body into action by a great variety of motions. The best skaters are found in Holland (where both men and women often skate to market, and not unfrequently ladies practise the exercise), Germany, and Russia. Skating is mentioned in the Edda, written 800 years ago, in which the god Uller is represented as distinguished by his beauty, arrows, and skates. Klopstock has sung its praises in several odes. Göthe, Herder, and other German poets, have celebrated it. See Salzmann's *Gymnastics*, and Garcin's *Le vrai Patineur*; &c.

SKELETON (from σκελλω, I dry) is the assemblage and combination of all the bones in the animal body, with a few exceptions, as the bone of the tongue *(os hyoides)*, and certain other bones in certain animals. Red-blooded animals only possess a true skeleton, to which their muscles are attached, and on which the general form, as well as the greater or less flexibility of the body, depends. The skeleton is of the greatest importance, both in comparative anatomy and in the animal mechanism.—See the five first chapters of Blumenbach's *Comparative Anatomy, with Notes by Lawrence* (2d ed., by W. Coulson, London, 1827), and the numbers on *Animal Mechanism* in the *Library of Useful Knowledge;* also Arnott's *Elements of Physics.* See, also, Cuvier's *Lecons d'Anatomie Comparée.*

SKELTON, JOHN; an English poet, born towards the latter part of the fifteenth century, at Oxford, where, about 1489, he received the laureateship as a degree. (See *Poet Laureate.*) He took orders in 1498, and was remarkable for his buffooneries in the pulpit. There were three objects at which he delighted to aim his satire—the mendicant friars, Lily, the grammarian, and cardinal Wolsey. His attacks on Wolsey at length roused the resentment of that prelate, and an order being issued for his apprehension, he took refuge in the sanctuary at Westminster, where the abbot afforded him protection until his death, June 21, 1529, not long before the fall of Wolsey. His works, consisting of comedies, satires, short poems, were published in 1512, and are contained in Chalmers's edition of the English poets, with the exception of a few, omitted on account of their coarseness. The whole are enumerated by Ritson.

SKETCHES. See *Drawing.*

SKIDDAW; one of the highest mountains of England, in Cumberland, distinguished for its grand and romantic scenery, as well as for the lakes in its different hollows and near its base; height 3022 feet. It is three miles north of Keswick.

SKIFF. See *Boat.*

SKIN; the porous organ which forms the external covering of the body, and which, besides its use as a covering, performs the functions of perspiration and absorption. It consists of two separate organs—the *epidermis* or scarf-skin, and the *cutis* or proper skin; between lies the *rete mucosum.* The epidermis may be separated from the cutis by soaking in water. It is raised by the applic blisters, and, in some diseases of the skin of itself. The complexion of negroes i

the black colour of the rete mucosum. The fat keeps the epidermis soft, and is diminished in quantity in those diseases in which the skin becomes rough. The epidermis protects the terminations of the nerves, whose sensibilities would otherwise soon become blunted. The surface of the skin is marked with very regular furrows, running parallel with each other, in which are the pores, which exhale an attenuated vapour. The proper skin forms a compact and thick membrane, which envelopes the muscles and fat. On being boiled in water, it yields a quantity of gelatinous matter, which is used for making glue.

SKORODITE is a rare mineral, found in Saxony, Carinthia and Cornwall. It presents itself in small crystals, derived from a right rhombic prism of 120°, but which are terminated at each extremity by foursided pyramids. It is also found massive, and in botryoidal masses, composed of crystals, diverging from a common centre. Its colours are various shades of green; lustre vitreous; streak white; rather brittle; hardness about that of fluor. Before the blow-pipe, it emits an arsenical odour, and melts into a reddish-brown scoria, which acts upon the magnetic needle. It consists of

Arsenious acid,	31·40
Sulphuric acid,	1·54
Water,	18·00
Protoxide of iron, with magnesia, lime, and manganese,	47·80

SKULL (*cranium*); the bony box which contains the brain. It forms the forehead, and every part of the head, except the face. It consists of eight bones.—See the treatise on *Animal Mechanism* in the *Library of Useful Knowledge*, and Blumenbach's *Manual of Comparative Anatomy* (translated into English, 2d ed., by W. Coulson, London, 1827). See, also, the article *Phrenology*.

SKULL-CAP (*scutellaria*); a genus of labiate plants. They are herbaceous, with opposite leaves; and the flowers, also, opposite, and placed in the axils of the superior leaves, sometimes forming terminal spikes, from the diminished size of these leaves. The calyx is entire; the upper lip vaulted, closing like a lid after the flowering is over. When inverted, the calyx presents the figure of a helmet with the visor raised. The flowers are much longer than the calyx, and usually of a blue colour. The *S. lateriflora* has been much celebrated as a remedy for hydrophobia; but its pretensions seem to be destitute of the slightest foundation. The stem divides from the base into numerous opposite weak branches, provided with oval acute petiolate and toothed leaves; the flowers are small and blue, situated at the summits of the branches, and usually turned to one side, by which character it is readily distinguished from the other species.

SKUNK (*mephitis putorius*); a carnivorous quadruped, allied to the weasel and badger, inhabiting most parts of North America, and celebrated for the intolerable stifling stench which it discharges when threatened with danger, and which is its defence against its enemies. At other times, the animal is not at all unpleasant, and, if killed while unsuspicious of danger, the offending glands being carefully removed, the flesh may be eaten, and is said to be well flavoured; in fact, it is frequently made use of, and is much relished by the Indians and hunters. The skunk is about as large as a cat. The dentition differs but slightly from that of the weasels. The upper lip is furnished with long whiskers; the fur is long and thick, composed of silky and woolly hairs intermixed; the colour is white and blackish-brown, in large masses, but the respective distribution of these tints varies so greatly that no two individuals are to be found precisely alike. A second species inhabits South America, and perhaps there are others. The genus is exclusively American. The skunk is a nocturnal animal, and leaves its burrow in the twilight in search of small quadrupeds, and the young and eggs of birds, on which it feeds. When it gains access to the poultry yard, it often does much mischief. The skunk seems to be perfectly aware of its powers of defence, and takes no pains to avoid man or other animals; it seems so unsuspicious of danger as to invite attack, and strangers often pay the price of experience. Should a dog attempt to seize him, he is utterly discomfited, and runs away howling, and endeavouring to thrust his nose in the ground. The offensive fluid is ejected to a considerable distance, and is very acrimonious; the smallest drop is sufficient to render clothes detestable to the wearer and his companions for a great length of time, and without any perceptible diminution in intensity. Washing, smoking, baking, burying, in short, every process seems to be ineffectual for its removal.

SKUNK-CABBAGE (*symplocarpus fœtida*). Among the earliest of the American spring flowers, often, indeed, before them all, appear the large, thick, purplish and spotted spathes of this plant. The leaves are later in making their appearance, are very large, and bear no inconsiderable resemblance to those of the cabbage. The whole plant has a very strong odour, singularly like that of the skunk, but not comparable to it in intensity. The skunk-cabbage is unknown in the Southern States. It belongs to the natural family *aroideæ*.

SKYE. See *Hebrides*.

SLANDER. See *Libel*.

SLATE. *Clay slate* (*Thon Schiefer* of the Germans) and *argillite*. By the early English geologists, this rock was called *argillaceous schistus*, and it is denominated *phyllade* by the modern French writers. The structure of slate is eminently foliated or schistose, separating, in some of its varieties (as in the roofing slate, for example), into lamina as thin as pasteboard. Prevailing colour gray of various shades: it is also bluish, reddish, and greenish; opaque and dull; yields to the knife, but varies considerably, as respects hardness, in its different varieties; fissile; specific gravity 2·7. When moistened, it emits an argillaceous odour. The common roofing slate appears to consist very nearly of the following ingredients:—

Silex,	48·00
Alumine,	25 50
Oxide of iron,	11·30
Potash,	4·70
Magnesia,	1·60
Carbon,	·20
Water,	7·60

But slate varies exceedingly in its chemical constitution, as might very naturally be expected, since it is a mixed rock, consisting of very minute individuals of quartz, feldspar, and mica, to which are occasionally added scales of talc, and particles of carbonaceous matter. Those slates which contain a large proportion of quarts, are called *whet-slate*. In these, the mechanical composition is impalpable, and the fracture splintery *in the small*, though slaty *in the large*. They are translucent, and of a greenish-white colour. When magnesia enters largely

into the composition of slate rocks, they are distinguished by their green colour, and by their unctuous feel. These are the slates which, for the most part, have talc as an ingredient, and are often called *talc*, or *chlorite* slates. When carbonaceous matter prevails to the proportion of eight or ten per cent., the slate soils more or less, and even writes. It is then called *drawing slate*, or *black chalk*. This variety is softer than the preceding kinds, and sometimes possesses the property of adhering to the tongue. Its specific gravity is only 2·18. A variety of slate called *adhesive* slate, from its property of adhering to the tongue, deserves to be mentioned, although it is very remote in its properties from the roofing slate, which may be considered as the type of the present rock. Fracture in the large slaty; in the fine earthy; colour light gray; specific gravity 2·08; easily broken; absorbs water with a hissing noise. It consists of

Silex,	62·50
Magnesia,	8·00
Oxide of iron,	4·00
Alumine,	0·25
Carbon,	0·75
Water,	22·00

Still another argillaceous aggregate, which has been treated of along with the slates, is the *polishing* slate. It differs from adhesive slate in not adhering forcibly to the tongue, in being very soft, and in having a low specific gravity, namely, 0·50 to 0·60.

Slate, in varieties approaching roofing slate, occurs in vast strata in primitive countries, and is often observed graduating into mica slate. Wherever its strata are contiguous to granite, gneiss, or mica slate, it is noticeable that it has a more shining lustre: as it recedes, however, from the primary rocks, its texture is more earthy. It is commonly divided into beds of various degrees of thickness, which are generally much elevated; and, from the natural divisions of the rock, they often form peaked and serrated mountains. The cleavage of these beds is in a transverse direction, making with the slope of the bed an angle of about 60°. The finest variety which is used for roof slate seldom forms entire mountains, but is generally imbedded in slate rocks of a coarser kind. Those kinds are selected for the covering of buildings which have the smoothest surface, and split into the thinnest plates. Quarries of slate of this description are worked extensively in Westmoreland, Yorkshire, Leicestershire, North Wales, Cornwall, and Devonshire. *Whet* slate is found in beds between strata of common slate in transition formations. The use of this variety for hones and whet-stones is well known. The most valuable kinds come from Sonnenberg, in Meiningen, and from Saalfeld. They are likewise brought from the Levant. The drawing slate, which is used as a drawing material, comes from Italy, Spain, and Bayreuth in Thuringia. Adhesive slate occurs only at Menil, Montant, and Montmartre, near Paris. Polishing slate, which is believed to have been formed from the ashes of burnt coal, occurs at Planitz, near Zwickau, and near Bilin, in Bohemia. It is used as a polisher of metals.

SLATE CLAY. See *Clay*.

SLAVE LAKE, or ATHAPESCO; in North America; lat. 61° 20′ N.; lon. 115° W. It is about 200 miles in length, and fifty in breadth.

SLAVERY. The history of mankind shows that the empire of force gives way but slowly to the empire of reason. It is one of the most interesting and useful labours of the historian, though not the most flattering to human pride, to trace the steps by which this change takes place, as exemplified, for instance, in the history of political institutions, the relation of the wife to the husband,* and of the servant to the master. At present, we shall confine ourselves to the institution of domestic slavery. This originates in the power of the strong over the weak. Man, in the infancy of society, uses his physical power according to his own pleasure. In the case of his wife and children, natural affection restrains him, in a great measure, from the abuse of his power. But there is another class of dependents, his conduct towards whom is not restrained by such feelings—his slaves. Slaves were probably at first captives. It being considered that the victor had a right over the life of the vanquished, the latter was looked upon as altogether at the disposal of the former, who, if he chose to spare him, might subject him to any restraint that he saw fit. The principle on which slavery was thus made to rest, was only adapted to the rudest condition of society, and is wholly inconsistent with the present state of morals and religion. We carry on wars, indeed, for the attainment of specific objects, and, as far as the destruction of human life is required for the attainment of those objects, we regard it as a necessary evil; but we do not consider that either individuals or governments have any right to dispose of the lives of the vanquished; nor are even criminals allowed to be made slaves in the full sense of the word. Philosophy allows of no obligation from one man to another without an equivalent; and the idea of making a man a slave, that is, of subjecting all that he has and is to the disposal of a master, who is not bound, on his part, to render any thing in return, is at war with the first principles of bodies politic. Slavery can never be a legal relation. It rests entirely on force. The slave, being treated as property, and not allowed legal rights, cannot be under legal obligations. Slavery is, also, inconsistent with the moral nature of man. Each man has an individual worth, significance, and responsibility, is bound to the work of self-improvement, and to labour in a sphere for which his capacity is adapted. To give up his individual liberty, is to disqualify himself for fulfilling the great objects of his being. Hence political societies, which have made a considerable degree of advancement, do not allow any one to resign his liberty, any more than his life, to the pleasure of another. In fact, the great object of political institutions in civilized nations, is to enable man to fulfil, most perfectly, the ends of his *individual* being. Christianity, moreover, which enjoins us, while we remain in this world, to regulate our conduct with reference to a better, lays down the doctrine of brotherhood and mutual love, of "doing as we would be done by," as one of its fundamental maxims, which is wholly opposed to the idea of one man's becoming the property of another. These two principles of mutual obligation, and the worth of the individual, were beyond the comprehension of the states of antiquity, but are now at the basis of morals, politics, and religion. In the most cultivated states of antiquity, the individual, as such, was little regarded. He was considered only as a

* In the article *Marriage*, it is stated that, in almost all original marriage ceremonies, the symbolic expression of buying and selling is to be found.

citizen of a body politic. In fact, whilst we found the whole idea of the state on the prior idea of the individual, the state with them was the primitive idea, from which the individual received his significance and worth, for they did not consider the individual as a being placed on earth for the purpose of self-improvement, to promote which political societies are formed. To foreigners they gave the names of *barbarians, enemies, slaves.* Aristotle, one of the most powerful minds of antiquity, says, in his politics, "With barbarians, the family consists of male and female slaves; but to the Greeks belongs dominion over the barbarians, because the former have the understanding requisite to rule, the latter the body only to obey." He calls the slave a living instrument, as the instrument is an inanimate slave. Yet he adds, "For the slave, considered simply as such, no friendship can be entertained; but it may be felt for him, as he is a man." We perceive here the nobleness of his nature struggling with the limited ideas of his age. We find several traces of a similar feeling among men of elevated character. Plutarch, for instance (in his life of Numa), expresses his belief in an early golden age, when there were neither masters nor slaves. Notwithstanding the injustice of the state of slavery, yet, when we come to the question of its abolition, the subject is often attended with numerous difficulties, of which the dangers that may accrue from the removal of restraint from men wholly unaccustomed to self-control, are among the chief; but, on the other hand, cupidity and prejudice often unnecessarily magnify the real difficulties. The abolition of slavery, and its kindred institution, villenage, and the improvement in the condition of women, are among the most important services which Western Europe has rendered to the world. The abolition of slavery in Europe was the consequence, and, in its turn, the cause of its civilization; for slavery is the greatest bar to the progress of society. Look at Asia, so far, at one time, in advance of Europe, and now so far behind it, struggling under the burden of slavery. It is a melancholy reflection that Europe re-established in her colonies the hateful institution which she had overthrown at home, thereby furnishing another proof that man is capable of committing the most appalling inconsistencies, provided he finds his interest in so doing, and is at a distance from the voice of reproof. We should add, that the villenage which still exists in some parts of Europe, is still more absurd than slavery, because it attempts to treat the human individual as a person and as a thing at the same time, a contradiction which appears, indeed, to some extent in all laws respecting slaves, because the rights of man cannot be altogether overlooked.

Slavery having once originated, many circumstances favoured its continuance. From the heads of families who, in the infancy of society in Asia, regarded their domestic dependents in the light of property, as much as they did their flocks, originated the chiefs of the nomadic tribes, who became conquerors or priests; and from these two classes all the political institutions in Asia seem to have sprung. The conquerors established absolute despotisms, in which the persons and property of the subjects were completely at the disposal of the ruler. This is political slavery, i. e. the total absence of legal relations (i. e. mutual obligation) between sovereign and subject. Rules may, indeed, sometimes be laid down by the sovereign for the regulation of these relations; but the continuance of them depends entirely on his pleasure.* This state of political slavery furnished a great support to domestic slavery by the analogy between the rule of a king and that of a head of a family. The priests secured their power by the establishment of castes, by which society was made to form a sort of pyramid, at the top of which the priests strove to place themselves. The Greeks and Romans, by freeing themselves from the debasing institution of castes, made a great advance in civilization; but they could not elevate themselves to the idea of liberty in the domestic connexions, which lies at the basis of the political institutions of all modern civilized nations, so that the social institutions of our times are founded upon principles essentially differing from those of the ancients—a circumstance which is often overlooked. The circumscribed views of the ancients, respecting the rights and relations of men, was the reason why, in spite of their progress in civilization, they continued to treat the prisoner of war as a slave. Had they considered their enemies as equals, and not as mere barbarians, this custom would probably have been sooner abolished. If Christian nations, at later periods, also reduced prisoners of war, in some cases, to slavery,—as the Spaniards did with the Indians in America,—it was owing to the contempt which they felt for them as heathens. This made the Spaniards look upon the Indians much in the same light as the Romans did upon barbarians. Fanaticism varnished over this measure, and the disciples of the religion of love and truth pretended that the savages could be more easily converted to Christianity in slavery than in freedom.† It was this idea, also, which, as Montesquieu states, induced his most Christian majesty, Louis XIII., to sign a law, declaring the negroes in his colonies slaves. The true motive, however, in both cases, undoubtedly was cupidity; and this motive, in other instances, is proclaimed without disguise.‡ The Europeans and their descendants, in fact, have been pre-eminent for cupidity. Whether their greater civilization has made them more sensible of the value of money, or their superior intellectual cultivation has furnished them with more means of satisfying the universal thirst for acquisition, or whether they are naturally more prone than other races to avarice and the vices which flow from it, they are notorious for the violation of every moral and religious principle, and the commission of the most enormous

* Here we may be allowed a remark respecting the difference of absolute governments in Europe and Asia. Even the supporters of the divine right of kings in Europe, who maintain that a monarch is answerable to none but God, nevertheless admit that he is bound to rule conscientiously, and to administer justice; whilst the despotism of Asia rests simply on the idea of power, without the supposition of a higher origin. Hence the vizier, who murders the reigning monarch and his family, and usurps the government, is looked upon as the lawful master of the lives of his subjects, as much as his predecessor was, while he possesses power to enforce his will.

† Arguments readily accommodate themselves to circumstances. At that time, men were to be enslaved for the good of their souls; and now, the security of the masters, as well as the happiness of the slaves themselves, require that they should be kept from all means of moral and intellectual improvement.

‡ By an act passed in Virginia in the year 1679, it was, for the better encouragement of soldiers, declared, that what Indian prisoners should be taken in a war in which the colony was then engaged, should be free purchase to the soldiers taking them. In 1682, it was declared, that all servants brought into this country (Virginia), by sea or land, not being Christians, whether negroes, Moors, Mulattoes or Indians (except Turks and Moors in amity with Great Britain), and all Indians which should thereafter be sold by neighbouring Indians, or any other trafficking with us, as slaves, should be slaves to all intents and purposes. Per judge Tucker, in the case of Hudgins v. Wright. (*Henning and Munsford's Reports*, 139.)

inconsistencies and cruelties in the gratification of this passion. History can show no instances of such prolonged and cold-blooded cruelty as is presented in the nefarious slave-trade of the Europeans and their descendants. A historical account of the various forms of slavery in different nations, and particularly a sketch of the laws respecting slavery that have existed, and still exist, among the more civilized nations, would be highly interesting, but would far exceed our limits.

The effects of slavery have always been most injurious to the nations which have permitted it. It is so directly opposed to the nature of man (which can as little endure absolute power as absolute subjection, without greatly degenerating), that it has always had a palsying influence on the industry and morality both of the masters and the slaves. The human mind cannot thrive without freedom. Among the evils which have originated from slavery are, the use of eunuchs, the shows of gladiators, the encouragement of the grossest sensuality and indolence, and an unparalleled disregard of human life, the corrupt character of the freedmen, and the outrages of the slave when he breaks his chains—from the horrible war in Italy, 70 B. C. (see *Spartacus*), down to the atrocities of the Haytian revolution, and the bloody insurrections on the island of Barbadoes in 1816, and several more recent ones. These are a few of the consequences of slavery, more or less conspicuous wherever it has existed, but particularly so in ancient Rome, of whose ruin slavery was the chief and most direct cause. In Athens, slaves were treated with considerable mildness; in Sparta and Rome, with harshness. By the Roman law, if a master was killed, all the slaves who were under the same roof, or near enough to be able to hear his cry, were to be put to death. The right of the master over the life of the slave was not abolished till the time of the Antonines, in the second century A. D. If slaves were ill treated by a third person, the Aquilian law only allowed the owner of the slave to demand indemnification for the damage. In Athens, however, the perpetrator was punished sometimes even with death. Modern legislation has, in many cases, sought to protect slaves against abuses on the part of their masters, and to afford them facilities for manumission, but, as yet, with very imperfect success; nor can legislation ever protect effectually a being who is the property of another. Many legal investigations, of late years, respecting the treatment of slaves, have brought to light atrocities which most persons would have thought impossible in this age, and which would make many believe that the superiority of our race consists less in moral advancement than in refinement of manners. Examine, for instance, the facts disclosed in the proceedings instituted against Picton, the British governor of Trinidad. The laws of the Mohammedans respecting slaves, in their general spirit, and compared to the laws respecting free persons, are more humane than those enacted by Christians; one cause of which may be, that a part of their slaves are of the same colour with themselves, whilst the slaves of Christian nations are all of a different colour from their masters; and the colour itself, from association, has become an object of disgust, peculiarly to the descendants of the English race in the United States of America. The laws respecting slaves are, generally speaking, among Christians, milder in monarchical governments than in the slave-holding republics of the United States. Thus manumission, under the Spanish and English laws, is much easier than under those of that Union. Some of the former governments allow the slave to accumulate property, by which he may eventually purchase his freedom. This is the case in the Spanish colonies; but no such right is recognised by law in the United States. One reason of this difference undoubtedly is, that in monarchical states the government is distinct both from the master and the slave, whilst in republics, the masters (the interested party) are themselves the legislators, and, of course, are guided principally by their interest in the enactment of laws: another reason is, that republics in which the executive department is intrusted with comparatively little power, must be more attentive to provide for their safety, by severe laws, than monarchical states, in which the executive has a strong military force at its disposal. Thus, whilst several English laws encourage the instruction of slaves in reading, arithmetic, and the elementary truths of religion, several slave-holding states of America prohibit the teaching them reading and writing, under severe penalties. The evil of slavery was entailed on the United States by the measures of the mother country, during the period of colonial dependence. The colonies made repeated efforts to prevent the importation of slaves, but could not obtain the consent of the English government.—See Walsh's *Appeal from the Judgments of Great Britain* (Philadelphia, 1819). In the ninth section of that work the subject is fully discussed. The constitution of the United States acknowledges slavery, by the provision that "Representatives and direct taxes shall be apportioned among the several states which may be included within this Union, according to their respective numbers, which shall be determined by adding to the whole number of free persons—including those bound to service for a term of years, and excluding Indians not taxed—three fifths of all other persons." Previous to the admission of Missouri into the Union, in 1820, a warm contest took place in congress, respecting the permission of slavery in the new state. It was finally admitted without any restriction in regard to this point.

A traffic in negroes was carried on from the beginning of the sixteenth century, by the Portuguese, and, after them, by all the Christian colonial powers, and has been continued to the latest times, in consequence of the colonial system of the European powers, and the idea that the colonial produce cannot be raised without slaves, with an atrocity at which nature revolts, and which could never have reached the height that it did, if the colour of the slave had not given rise to the idea of his being by nature a degraded being. In the year 1503, slaves were carried from the Portuguese possessions in Africa to the Spanish colonies in America.* It has been generally stated, that Bartolomeo de las Casas proposed to cardinal Ximenes the regular importation of negroes, from charity towards the feeble aborigines of South America, who were treated by the Spaniards as mere beasts of burthen. But this story has been contradicted by the abbé Grégoire, in his *Apologie de B. de las Casas*, in the *Mémoires* of the French institute; also by the writer of the article *Casas*, in the *Biographie Uni-*

* It is stated that, in 1434, a Portuguese captain, named Alonzo Gonzales, landed in Guinea, and carried away some coloured lads, whom he sold advantageously to Moorish families settled in the south of Spain. Six years after, he committed a similar robbery, and many merchants imitated the practice, and built a fort to protect the traffic.

verselle, after an examination of all the Spanish and Portuguese historians of that period. This charge, he says, rests solely on the authority of Herrera, an elegant but inaccurate author. The Spanish government, the French under Louis XIII., and the English under queen Elizabeth, formally permitted this traffic, because the negroes were represented as delivered by it from misery or death. Yet Elizabeth declared herself against the violences used. In Spain, the slave-trade was first regularly established in 1517. Charles V. granted to Lebresa, his favourite, the exclusive privilege of importing annually 4000 slaves, which the latter sold to the Genoese. These received the black slaves from the Portuguese, in whose hands, properly speaking, the traffic was. Slaves soon came to be introduced much more extensively into the plantation colonies than into the mining colonies. And thus the slavery of the negroes became, unhappily, a part of a political system. It also became a great source of profit to the petty African despots, and gave rise to interminable wars and outrages, which struck at the root of all social ties. The powerful became chiefly occupied with forcing their brethren to the market of Christian Europeans, to barter them for rum and toys. When therefore, in consequence of the French revolution, the demand for this human merchandise had lessened, the king of Dahomy, on the Slave Coast, sent, in 1786, an embassy, consisting of his brother and son, to Lisbon, for the purpose of reviving this traffic, and concluding a treaty with Portugal against the other European powers. The most important markets for slaves in Africa were Bonny and Calabar, on the coast of Guinea; and they still remain among the principal. Here the slaves who came from the interior were and are exchanged for rum, brandy, toys, iron, salt, &c.; and the number of these beings who have been thus torn from their country during the last three centuries, is calculated to amount to above forty millions. It is estimated that at least from fifteen to twenty per cent. die on the passage. The sufferings of the slaves during the passage are horrible; and the only restraint, generally speaking, on the cruelty of the traders, is such as arises from motives of interest; so that, when it interferes with humanity (for instance, if the slave labours under an infectious disease), the latter is entirely overlooked, and murder is not unfrequently committed. Since the prohibition of the slave-trade by so many nations, and the great efforts which have been made for the capture of the slave-ships, though the extent of the trade may be diminished, yet the cruelty with which it is carried on is often increased, because the slave-trader, being obliged to guard against capture by the men-of-war who are watching his movements, and, altogether, to carry on his traffic by stealth, subjects the slaves to many restraints for the purposes of concealment, which he did not find necessary while the slave-trade was legal. Notwithstanding all that has been done for its abolition, a contraband trade in slaves is still carried on to a frightful extent, and they are still imported into Cuba and many other West India islands, frequently, as is asserted, by the connivance of the public authorities. As a specimen of the cruelties committed in this nefarious trade, we will give the account of a recent traveller, whose statements are corroborated by many other authorities.*

The first persons who liberated their slaves, and laboured to effect the abolition of the slave-trade, were some Quakers in England and North America, particularly since 1727. In 1751, the Quakers entirely abolished it among themselves. Granville Sharp, in 1772, effected the acknowledgment, by

* Mr R. Walsh, in his Notices of Brazil in 1823 and 1829 (London, 1830), says, in describing a slave-ship, examined by the British man-of-war, in which he returned from Brazil, in May, 1829, "She had taken in, on the coast of Africa, 336 males and 226 females, making in all 562, and had been out seventeen days during which she had thrown overboard fifty-five. The slaves were all enclosed under grated hatchways, between decks. The space was so low, that they sat between each other's legs, and stowed so close together, that there was no possibility of their lying down, or at all changing their position, by night or day. As they belonged to, and were shipped on account of, different individuals, they were all branded, like sheep with the owners' marks, of different forms. These were impressed under their breasts, or on their arms, and, as the mate informed me, with perfect indifference, "*queimados pelo ferro quente*—burnt with red-hot iron." Over the hatchway stood a ferocious looking fellow, with a scourge of many twisted thongs in his hand, who was the slave-driver of the ship; and whenever he heard the slightest noise below, he shook it over them, and seemed eager to exercise it. As soon as the poor creatures saw us looking down at them, their dark and melancholy visages brightened up. They perceived something of sympathy and kindness in our looks, which they had not been accustomed to, and feeling instinctively, that we were friends, they immediately began to shout and clap their hands. One or two had picked up a few Portuguese words, and cried out, "*Viva! viva!*" The women were particularly excited. They all held up their arms; and when we bent down and shook hands with them, they could not contain their delight; they endeavoured to scramble upon their knees, stretching up to kiss our hands; and we understood that they knew we were come to liberate them. Some, however, hung down their heads in apparently hopeless dejection; some were greatly emaciated, and some, particularly children, seemed dying. But the circumstance which struck us most forcibly, was, how it was possible for such a number of human beings to exist, packed up and wedged together as tight as they could cram, in low cells, three feet high, the greater part of which, except that immediately under the grated hatchways, was shut out from light or air, and this when the thermometer, exposed to the open sky, was standing in the shade, on our deck, at 89°. The space between decks was divided into two compartments, three feet three inches high; the size of one was sixteen feet by eighteen, and of the other forty by twenty-one: into the first were crammed the women and girls; into the second, the men and boys: 226 fellow creatures were thus thrust into one space 288 feet square, and 336 into another space 800 feet square, giving to the whole an average of twenty-three inches, and to each of the women not more than thirteen inches, though many of them were pregnant. We also found manacles and fetters of different kinds; but it appears that they had all been taken off before we boarded. The heat of these horrid places was so great, and the odour so offensive, that it was quite impossible to enter them, even had there been room. They were measured, as above, when the slaves had left them. The officers insisted that the poor suffering creatures should be admitted on deck, to get air and water. This was opposed by the mate of the slaver, who, from a feeling that they deserved it, declared they would murder them all. The officers, however, persisted, and the poor beings were all turned up together. It is impossible to conceive the effect of this eruption—our fellow creatures, of all ages and sexes, some children, some adults, some old men and women, all in a state of total nudity, scrambling out together to taste the luxury of a little fresh air and water. They came swarming up, like bees from the aperture of a hive, till the whole deck was crowded to suffocation, from stem to stern; so that it was impossible to imagine where they could all have come from, or how they could all have been stowed away. On looking into the place where they had been crammed, there were found some children next the sides of the ship, in the places most remote for light or air; they were lying nearly in a torpid state, after the rest had turned out. The little creatures seemed indifferent as to life or death; and when they were carried on deck, many of them could not stand. After enjoying, for a short time, the unusual luxury of air some water was brought; it was then that the extent of their sufferings was exposed in a fearful manner. They all rushed like maniacs towards it. No entreaties, or threats, or blows could restrain them; they shrieked and struggled, and fought with one another, for a drop of this precious liquid, as if they grew rabid at the sight of it. There is nothing which slaves in the mid-passage, suffer from so much as want of water. It is sometimes usual to take out casks filled with sea-water as ballast, and when the slaves are received on board, to start the casks and refill them with fresh. On one occasion, a ship from Bahia neglected to change the contents of the casks, and on the mid-passage found, to their horror, that they were filled with nothing but salt water. All the slaves on board perished! We could judge of the extent of their sufferings from the affecting sight we now saw. When the poor creatures were ordered down again, several of them came, and pressed their heads against our knees, with looks of the greatest anguish, at the prospect of returning to the horrid place of suffering below."

The English ship, however, was obliged, though with great reluctance, to release the slaver, as it could not be proved after a strict examination, that he had exceeded the privilege allowed to Brazilian ships, of procuring slaves south of the line.

the English courts, of the principle that the slave who lands in England becomes free. The principle had been earlier adopted in France. In 1783, a petition was addressed to parliament for the abolition of the trade, which Wilberforce eloquently supported. He laboured, at the same time, to aid the cause by his pen. But the soul of all the efforts for the abolition of the slave-trade, was Thomas Clarkson. From early youth, he devoted his whole time and fortune to this object; exposed himself to hatred and outrage, even at the hazard of his life, in Liverpool and Paris; made numerous journeys, and was deterred by no obstacles. He principally contributed to gain over Wilberforce, Pitt and Fox. The subject of the abolition of the slave-trade was introduced into the house of commons in 1788, when Pitt presented a petition against the trade. Many petitions followed, upon which the merchants immediately took the alarm. They calculated that the number of slaves in the West Indies amounted to 410,000, and that, to keep up that number, the annual importation of 10,000 was required; that the English bought in Africa 30,000 annually, and, therefore, could sell 20,000 to other nations; that in the prosecution of this trade, English manufactures to the amount of above £800,000 sterling were exported, and above £1,400,000 in value obtained in return; and that government received £256,000 annually by the slave-tax.* Liverpool and Bristol, which carried on the slave-trade most extensively, resisted its abolition so violently that Wilberforce, Fox, Pitt, and their friends, could effect nothing more than the institution of an inquiry into the trade, and the passage of some provisions for diminishing the hardships of the confinement on ship-board. At length, the house of commons was induced, in 1792, to pass a bill for the abolition of the slave-trade in 1795, by a majority of nineteen; the lords rejected this as well as the bill proposed by Wilberforce, in 1794, for prohibiting the British from selling slaves to other nations. In the meantime, the French national convention, February 4, 1794, had declared all the slaves in the French colonies free. Wilberforce brought in another bill, in 1796, providing that the slave-trade should be abolished for ever after March 1, 1797, and that all persons carrying on the trade after that time, should be transported to Botany bay for fourteen years. Fox and Pitt voted for the immediate abolition; but the bill did not pass. The African society, established by Wilberforce and Clarkson, now redoubled its efforts to convince the public of the horrors of this traffic. The colony at Sierra Leone was founded in consequence of the exertion of this society, whose object was to teach the negroes agriculture and the mechanical arts; and, from 1809, young Africans were instructed in various branches of knowledge in that colony. At length the cause of humanity triumphed. June 10, 1806, Fox moved that the house of commons should declare the slave-trade inconsistent with justice, humanity, and sound policy, and immediately take effective measures for its abolition. Generals Tarleton and Gascoyne opposed the motion in vain. It passed by 114 votes against fifteen. The abolition was resolved upon, and a petition was presented to the king, requesting him to take measures to induce the other powers of Europe and the American states to coöperate with Great Britain in the suppression of this traffic. The famous Abolition Act, as finally settled, passed February 5 and 6, 1807, when Roscoe spoke in favour of it, though he represented Liverpool, which owed a great part of its wealth to this trade. January 1, 1808, was fixed as the time when this trade, on the part of the British, should cease. On this occasion, the British papers contained, almost unanimously, the remark, that it was a melancholy, yet undeniable fact, that king George III., the prince of Wales, and the whole royal family, with the exception of the duke of Gloucester, were opposed to the abolition. Another act, May 4, 1811, provided that all who knowingly participated in the slave-trade should be punished with fourteen years' transportation and hard labour. In 1824, a law for declaring the slave-trade piracy, which had been already done by the United States of America, was proposed by Canning, passed the two houses, and, on March 31, received the royal assent. In Denmark, king Christian VII. in 1794, declared the slave-trade unlawful after January 1, 1804; and Frederic VI promised, at the peace of Tilsit, to prohibit his subjects from taking part in the foreign slave-trade. In France, Napoleon, when first consul, promised the continuance of their liberty to the inhabitants of St Domingo, whilst he praised the inhabitants of Isle de France for not having freed their slaves, and promised that France would never again decree the slavery of the whites by the liberation of the negroes. After the successes of the French on St Domingo, the slave-trade was once more established; and the counsellor of state, Bruix, said, on this occasion, *La liberté de Rome s'entourait d'esclaves. Plus douce parmi nous elle les relègue au loin!* In 1814, lord Castlereagh obtained from Louis XVIII. a promise that France would abolish the slave-trade; but, by the influence of the chamber of commerce at Nantes, this traffic was permitted for five years more. Public opinion obliged lord Castlereagh to press upon the congress of Vienna the adoption of general measures for the abolition of the slave-trade; but all that he could effect was that Spain and Portugal promised to give up the slave-trade north of the line.—See the treaty between England and Portugal, Vienna, January 22, 1815. But a paper was drawn up, and signed by Castlereagh, Wellington, Nesselrode, Löwenhielm, Gomez Labrador, Palmella, Saldanha, Lobo, Humboldt, Metternich and Talleyrand (Vienna, February 8, 1815), stating that the great powers would make arrangements to fix a term for the general abolition of the slave-trade, since public opinion condemned it as a stain on European civilization. February 6, 1815, Portugal provided for the total abolition of the slave-trade on January 21, 1823, and England promised to pay £300,000 as an indemnification to Portuguese subjects. Louis XVIII., by the treaty of Paris, November 20, 1815, consented to its immediate abolition, for which Napoleon had declared himself prepared, in April, 1815. Spain promised, by the treaty of September 30, 1817, to abolish the slave-trade entirely, October 31, 1820, in all the Spanish territories, even south of the line; and Britain, February 9, 1818, paid £400,000 as an indemnification to Spanish subjects. The king of the Netherlands prohibited his subjects from taking part in the slave-trade, after the provisions of the treaty of August 13,

* Such calculations, in which the extremest human suffering is coolly weighed against pecuniary profit, excite horror; but we should not overlook the influence of habit and circumstances, in accustoming men whose dispositions are, in general, good, to what they would otherwise abhor. The frauds practised in Prussia and some other countries, before 1806, in enlisting of soldiers, were abominable: and violence was not unfrequently used to oblige men to take the oath. See *Soldier*.

1814, had been rendered more precise and extensive by the treaty concluded with Britain, at the Hague, May 4, 1818. Sweden had already done the same, according to the treaty of March 3, 1813.* The United States of America engaged, in the treaty of Ghent, December 24, 1814, to do all in their power for the entire suppression of the slave-trade. November 23, 1826, a treaty was concluded, with Brazil, for the abolition of the slave-trade; and it was accordingly prohibited after March, 1830. In spite of these treaties, the illicit slave-trade continued, and, as we have already stated, more cruelly than before. Spanish and French vessels were, and probably are still, the ones chiefly engaged in it. The latter were considered to out-number, much, all the others put together. The British therefore, sent ships of war to Sierra Leone, in 1816, to capture the slave-ships; but they were unable to put a stop to the trade, for the slave-markets in Brazil and Cuba offered powerful temptations to unprincipled men, and some individuals in the United States were willing to provide them with swift vessels, calculated for their disgraceful and worse than piratical traffic.† In 1832, France and Britain concluded a treaty, by which the two governments allow each the right of searching the other's ships, under certain circumstances, in the region of the slave-trade; and if the United States should consent to the same arrangements, important consequences might be expected. Still more advantageous, perhaps, would it be if the United States and Spain would conclude such a treaty, so that the vessels of the former power could search the Spanish slave-vessels in the vicinity of Cuba, which at present can be done only by the British.

The evils of slavery we have already touched on in the previous part of this article. The productiveness of slave-labour, as compared with free labour, we cannot speak of at present. It is generally considered far inferior. Some, indeed, have maintained that certain kinds of work—for instance, that required on the rice and sugar plantations—could not be performed without slaves; but this is denied by others, as Bryan Edwards.‡ The numerous insurrections on the West India islands and in the United States have shown that the abolition of slavery is highly desirable; but the difficulty is, how to bring it about. In the United States, a colonization society has been formed, with the view of exporting as many coloured persons as possible to the colony of Liberia. Virginia has lately made an appropriation, with a provision for its increase, in aid of the colonization society. (See the articles *Colonization Society*, and *Liberia*; also the *Letters on the Colonization Society*, &c., by M. Carey, 1832.) In England, Wilberforce proposed, June 10, 1816, in parliament, that slaves should be treated as British subjects, and that the children born in future should be educated as free persons. These were the views of Burke, Fox, Pitt, Lansdowne, Howick (the present earl Grey), &c.

On the 14th of May, 1833, the whig administration of Earl Grey brought forward a plan for entirely abolishing slavery in the British colonies. The first proposition was, that the slaves, after a probationship or apprenticeship of ten years, in order to prepare them for their liberation, should be emancipated, and that the slave-holders should in compensation, be accommodated with a *loan* of £15,000,000 sterling, to be repaid in such manner and at such rate of interest as should be prescribed by parliament. The term of apprenticeship was afterwards changed from ten to seven years, and the sum of £15,000,000 was raised to £20,000,000, to be distributed, not as a loan, but as a *gift*, among the slave-holders, in order to compensate them for any loss which they might be supposed to suffer by the arrangement. A nobler sacrifice of money to humanity and justice was never before made by any nation. In the supplement to this work we hope to record the final liberation of the slave.

In South America, with the exception of Brazil, slavery has either been abolished or is drawing to a close. In Colombia, slave children born since the revolution, are to be free on reaching their eighteenth year. Bolivar early set free all his slaves. In Mexico, president Guerrero declared all slaves free on September 15, 1829.

For the number of slaves in the various foreign countries where slavery is permitted, we must refer the reader to the articles on these countries. There are at present eleven slave-holding states in the Union, viz. Maryland, Virginia, North and South Carolina, Georgia, Alabama, Mississippi, Louisiana, Tennessee, Kentucky, Missouri. The district of Columbia, and Missouri, Arkansas and Florida territories also contain slaves. The sum total of the slaves in the United States is 2,010,436. Of these, however, 3305 are in the state of Delaware, 2246 in New Jersey, 386 in Pennsylvania, and a few survivors of former times in New York, Connecticut and Rhode Island. The progress of the slave population in the U. States is as follows:

Census of	Slaves.	Total pop.
1790	697,697	3 929,827
1800	896,849	5 305,925
1810	1,191,364	7,239,814
1820	1,538,064	9,638,181
1830	2,010,436	12,866,407

For information on the slavery of the blacks, see Clarkson's *History of the Abolition of the Slave-Trade*; Gregoire *On the Literature of Negroes*; Wadstrom's *Observations on the Slave-Trade; during a voyage in* 1787 *and* 1788 (London, 1789); Falconbridge's *Account of the Slave-Trade on the Coast of Africa* (London, 1788), &c. Some account of slavery among the Greeks and Romans may be found in the works of Reitemeier (History of Slavery in Greece), Walch, Œlrichs and Hunter (On the Roman Slaves), in German. (See also Comte, *Sur la Législation.*)

Slavery of the Whites, in the Barbary states; a stain on the history of the European governments, as the negro slave-trade was and is on that of the nations. It never was taken into serious consideration by the monarchs of Europe collectively (though

* Sweden seems altogether liberally disposed towards the negroes. In 1831, the government conferred on all the free negroes on the island of St Bartholomew the same rights with the whites; so that, in official papers, no distinction of colour is to be mentioned.

† "It should appear, then," says Mr Walsh, in his Notices of Brazil, "that, notwithstanding the benevolent and persevering exertions of Britain, this horrid traffic in human flesh is nearly as extensively carried on as ever, and under circumstances, perhaps, of a more revolting character. The restriction of slavery to the south of the line, was, in fact, nugatory and evaded on all occasions. The whole number of slaves captured by our cruisers, and afterwards emancipated, for nine years, from June, 1819, to July, 1828, was 13,281, being about 1400 on an average each year. During that period, it is supposed that nearly 100,000 human beings were annually transported as slaves from different parts of the coast, of whom more than 43,000 were legally imported into one city alone. It is to be regretted, therefore, that the proportion of the good to the evil is so small."

‡ The creation of free labourers, by which the mechanic arts have come to honour, is one of the greatest revolutions which have taken place in society. It is due to the cities of the middle ages (see *Cities*); and great as the effects have been, still greater remain to be produced by the cultivation and intelligence which, in consequence of it, have spread, and are spreading through all classes of society.

it would have been easy for them to have destroyed those nests of piracy at once), until they met at the congress of Vienna and Aix-la-Chapelle. Piracy on the Mediterranean is as old as history; but, after the Mohammedans settled on its shores, they considered the practice of it against Christians legal. The Christian slave, in the Barbary states, was entirely at the mercy of his master. In 1815, the whole number of white slaves was computed at 49,000; in Algiers, there were 1000. As early as 1270, England and France concluded a "holy alliance" for the chastisement of the people of Barbary. Philip the Bold attacked Tunis, then their chief place, and liberated all the Christian slaves. In 1389, the English, with the French, Genoese and Venetians, forming a united force under the earl of Derby (subsequently king Henry IV.), made a second attack upon Tunis with the same success. When the great Algerine state, after the downfall of the Almoravides, had fallen to pieces, Oran, Algiers, Tunis and Tripoli became petty independent republics, which, partly to revenge the expulsion of the Moors and Jews from Spain, devoted themselves, from 1494, principally to piracy. Ferdinand Charles V., Philip V., and others, attacked them in vain. (See *Barbary States.*) Little more success attended the attempt of the English. Blake, in Cromwell's time, destroyed the greater part of the united fleets of Tunis and Algiers in 1655, and liberated many prisoners; but, in 1669 and 1670, the fleet of Charles II., in connection with that of the Netherlands, bombarded Algiers without success. The French did the same in 1682, 1683, and 1688, with a like result. In 1683, the French admiral threw 1200 bombs into the city, and burned part of it; but the dey, Mezzo Morto, ordered the French consul Vacher to be put into a mortar and thrown towards the French. From the insufficiency of the means employed, the mutual jealousy of the European powers, the fanaticism of the Moors and Turks, and the fear inspired by the Barbary States, the humiliations which Algiers received were but momentary. In Algiers, as well as in Tunis and Tripoli, a Turkish militia, eager for pillage, were in possession of the government; and all the European governments have submitted to the degradation of purchasing peace from these barbarians by regular or extraordinary presents. France alone stood on a better footing with them; and England concluded with Algiers, Tunis, and Tripoli in 1662, and with Morocco in 1721, treaties which provided that no British subject should ever be made a slave, even if he should be found as a passenger on board a hostile vessel. All English vessels furnished with passes by the admiralty were to be allowed to navigate the Mediterranean unsearched; the cargoes of wrecked vessels were not to be seized, nor their crews to be made slaves; and the English men of war were to be permitted to enter the various Barbary ports to obtain provisions, without paying any duty. But the Barbary states kept these treaties only as long as they found it convenient. Austria not many years since, obtained letters of protection from the Porte, without tribute, for her own ships and those of Tuscany. Russia and Prussia obtained similar firmans from the Porte. Sweden and Denmark purchased peace by the payment of tribute. Portugal, from 1795, required a contribution from the Hanse towns for protecting their vessels on her coasts. Lübeck and Bremen, as late as 1806, concluded treaties with Morocco; but they were nevertheless, obliged at length to abandon almost entirely, the navigation of the Mediterranean. The United States protected their national honour by sending a squadron to Algiers in 1815, under the command of Decatur, who bombarded the city, and obliged her to declare that the flag of the republic should in future be respected. (See Lyman's *Diplomacy*, and our article *Barbary States.*) Sir Sidney Smith, in 1814, soon after the general peace, founded a society at Paris, called the *Institution Anti-pirate*, but it was dissolved in 1818. The attempt of Joseph Bonaparte to unite Britain and France against those pirates at the peace of Amiens, was defeated by the breaking out of war soon after the conclusion of that peace. Lord Exmouth (formerly Sir Edward Pellew) concluded, April 17, 1816, a treaty with the dey of Tunis, Mahmoud Pacha, which provided that prisoners should not be treated as slaves, and should be restored at the conclusion of peace. Britain, at the same time, undertook to protect her allies, Naples and Sardinia, against the Barbary powers. Lord Exmouth had already appeared, March 31, 1815, before Algiers, and forced the dey to conclude a treaty with Naples and Sardinia. But the king of Naples had to pay for every captured subject 1000 piasters, and 24,000 piasters annually, besides the usual presents; and Sardinia, for every captured subject, 500 piasters. Hanover was included in the treaty with Britain. Tunis gave up the Sardinian prisoners without ransom, but the Neapolitans had to pay 300 piasters each. Tripoli also declared, like Algiers, that she would abolish the slavery of Christians, and introduce the common laws of Europe respecting prisoners of war. May 15, 1816, lord Exmouth appeared a second time before Algiers, to force the dey to acknowledge the European law of nations respecting prisoners of war. The dey declared that the permission of the sultan was necessary, and captain Dundas carried the Algerine minister to Constantinople, while Exmouth returned to England. In the meantime, the dey had sent orders to Oran and Bona, that all the British, and their property, on shore and on shipboard, should be seized. This order was executed most cruelly. May 23, Turkish and Moorish soldiers surprised 359 Italian vessels, which had purchased permission to fish for coral, and were lying peaceably under the British flag in the port of Bona. The British consul was ill treated, and many Christians killed; and the cruelties did not cease until a messenger arrived, whom the dey of Algiers had despatched immediately after the conclusion of the treaty with Exmouth. The news of this barbarity roused the indignation of this country. July 28, lord Exmouth sailed with six ships of the line, two frigates, two brigs, and four bomb vessels, from Plymouth, and was joined by some more vessels at Gibraltar. The Dutch admiral Van der Capellen joined him also with six frigates. The fleet had on board 6500 men, and 702 guns, and appeared, August 27, off Algiers, where the dey had made preparation for an obstinate defence. 50,000 Moors and Arabians were assembled at Algiers. Lord Exmouth immediately sent the dey a written demand, stating that, as he had violated all his obligations by the cruelties at Bona, the Prince Regent required, 1. an immediate liberation of all Christian slaves without ransom; 2. restoration of the money which had been paid for the Sardinian and Neapolitan captives, amounting to 382,500 piasters; 3. a solemn assurance that he would in future respect the rights of humanity, like Tunis and Tripoli, and in all future wars, treat

prisoners according to the usages of European nations; 4. that he should conclude peace with the king of the Netherlands on the same terms. As no answer followed, the fleet sailed up the bay, and, at two o'clock, the admiral's vessel lay within pistol shot of the battery. The firing continued from two o'clock till nine, at which time the European cannons, 702 in number, had silenced the Algerine, amounting to about 1000; and, as the city had suffered terribly, a peace was concluded next day. An additional clause abolished all consular presents, with the exception of the personal presents; and these were never to amount to more than £500 sterling. The dey, moreover, was obliged to liberate the imprisoned consul, and pay him 3000 piasters. Respecting piracy nothing was settled, and no guaranteee asked. The result, therefore, was, that the government of Algiers had declared the slavery of white captives abolished, but retained the right to make war upon any European power. This peace was concluded between Omar Pacha, and Britain and the Netherlands, August 28, 1816 (on the 6th of the month of Schawal, in the year 1231 of the Hegira). The dey returned 382,500 piasters, which he had already received from Naples and Sardinia, and gave up 1211 Christian slaves to lord Exmouth. (On his first expedition to Algiers, Tunis, and Tripoli, lord Exmouth had procured liberty for 1792 slaves.) The British loss in the battle amounted to 128 killed and 691 wounded; that of the Dutch to thirteen killed and fifty-two wounded. On the other hand, 5000 janizaries and 6000 Moors were killed, besides many women and children. Of the Algerine navy, only one brig and one schooner, with some smaller vessels of war, escaped. See the *Narrative of the Expedition to Algiers in the Year* 1816, *under the Command of Lord Exmouth* (London, 1819), by Salame, his lordship's interpreter.

The final extirpation of the band of robbers at Algiers, so long desired, was occasioned by the wish of the Polignac ministry to divert the attention of the public from the internal administration of France. (See our article *France*.) The immediate cause of the war against that state was quite trifling. Algiers had claims upon France for supplies furnished to the armies of the republic in Italy and Egypt—claims for which the dey could not obtain satisfaction. He at last wrote to the king of France himself, through the consul of a common friend. But no answer was returned; and when, at a public audience, in April, 1827, he asked the French consul the reason of this, the latter is said to have made an insolent reply; upon which the incensed dey struck him in the face with his fan. War was declared soon after against Algiers, but was carried on with no energy until the Polignac ministry sent an expedition thither in 1830, splendidly fitted out, and commanded by marshal Bourmont and admiral Duperré. It consisted of nine ships of the line, twenty-five frigates, six corvettes, twenty-five brigs, and eight steam-boats, besides bomb-vessels, 400 transports, and an army, admirably equipped, and comprising 37,331 men. May 25, the ships sailed from Toulon, reunited at Palma, in Majorca, after having been separated by a storm, and reached the coast of Africa on June 13. The forces landed at Torre Chica, or Sidi Ferruch, five leagues west of Algiers. No troops were stationed to defend the coast, and, on the 14th, early, the landing began. A single circumstance will show how complete had been the equipment of the expedition. The packages, sacks, barrels, &c., had been covered with a double water-proof envelope, so that, if occasion required, they might be thrown into the sea, and washed on shore by the waves uninjured. The plan was put in operation at the time when a heavy gale rendered all ordinary communication with the shore utterly impossible, and enabled the army already landed to receive supplies from the fleet. On the 29th, the field-pieces of the French arrived before Algiers, which was taken on the 4th of July. The dey was allowed to retire with his family to any place out of Africa, and the country was occupied in the name of the French. Since the revolution of the same month in France, the office of governor of the conquered country has been held by several different persons.

SLEEP; one of the most mysterious phenomena in the animal world. Similar appearances may also be observed in the vegetable kingdom. In sleep, the organs of sense, the power of voluntary motion, and the active powers of the soul, suspend their operation, in order to collect new strength. The vital activity, however, is in full vigour; the functions of the heart and the lungs (breathing, and the circulation of the blood) continue, but are more calm and equable than during the waking season; the nutrition of the system, the secretion and absorption of the juices, &c., are carried on more undisturbedly and perfectly. Hence sleep is not really a state of inactivity, but very partially to be compared to death. Man requires most sleep during infancy, and least during the period of active manhood. During this period, two hours before midnight and five after it seem to be sufficient; superabundance or deficiency of sleep soon produces evil effects. It is well not to have the sleeping room occupied during the day time. It should be well ventilated, cool, quiet, without flowers or any strong odour. The bed should be hard rather than soft, and the body should be relieved from ligatures. A short slumber after dinner (*siesta*) seems to be necessary to the inhabitants of warm climates: in colder climates it is unnecessary, and frequently injurious. The dormant state of some animals presents an interesting phenomenon. See *Dormant State*.

SLEIDANUS, John (properly Philipson), born at Sleida, not far from Cologne, in 1506, was one of the most distinguished publicists of his age. He studied law at Liege, Cologne, Louvain, Paris, and Orleans; was for some time in the service of king Francis I. of France, and went, in 1542, to Strasburg. The princes of the Smalcaldic league (q.v.) made him its historiographer. The corporation of Strasburg employed him on important missions, and appointed him, in 1542, professor of law. The Protestants sent him, in 1545, to the king of England, and, at a later period to the council of Trent, where he was much esteemed. He corresponded with the most distinguished and learned men of his time, and died at Strasburg in 1556. He acquired much reputation by his work *De Statu Religionis et Reipublicæ Imper. Caroli V.* (Strasburg, 1555, folio), of which professor Ranke says, in his *Zur Kritik neuerer Geschichtschreiber* (Berlin and Leipsic, 1824), "it is, throughout, documentary;" but he shows that it is necessary to weigh these documents, and the sources of the writer's statements. The best edition was published by Am Ende (Frankfort on the Maine, 1785, 3 vols.), with

critical and explanatory notes; the last volume contains the life of Sleidanus, his letters, &c. Sleidanus is distinguished for knowledge of the subjects which he treats, for his smooth and elegant style, and for great impartiality, considering that he lived in the midst of the events which he describes, and was deeply interested in them. The work has been translated into several languages (into French, by P. F. le Courayer, Hague, 1767, 3 vols.) Sleidanus also wrote *De quatuor summis Imperiis Lib. iii.* (Strasburg, 1556), which has been fifty-five times republished, and continued to 1676, by Schurzfloish; also *Summa Doctrinæ Platonis de Republica et de Legibus* (Strasburg, 1548); *Opuscula*, ed. Helias Putschius (Hanover, 1608). He also translated the *Mémoires de Comines* into Latin (Paris, 1545).

SLESWIC (in German, *Schleswig*); a Danish duchy in the southern part of Jutland, separated from Holstein on the south by the Eyder, and having the German ocean on the west, and the Little Belt on the east. The surface is low and level, the climate mild and healthy, and the soil productive, yielding great abundance of grain, and supporting numerous cattle and horses, which, with butter and cheese, grain and fish, are exported. Population, 323,000, on 3434 square miles. The inhabitants are Lutherans of German and Frisian descent, and, for the most part, speak Low German. Sleswic has always belonged to Denmark, and has usually been an apanage of the younger princes of the royal house. The capital, Sleswic, on the Schley or Sley, has 9000 inhabitants. Lat. 54° 32′ N.; lon. 9° 35′ E. It has some manufactures, and its commerce has been increased by a navigable canal. Near the town is the castle of Gottorp, the residence of the royal governor.

SLIDE is the name given to an inclined plane for facilitating the descent of heavy bodies by the force of gravity. In general, they have been objects of no great importance; but one erected, some years since, at Alpnach, in Switzerland, excited great interest throughout Europe. For many ages, the craggy sides and the deep ravines of Pilatus, a lofty mountain near Lucerne, were thickly clothed with vast and impenetrable forests of spruce fir, of the largest size and the finest quality, surrounded on every side by the most terrific precipices, inaccessible to all but a few daring hunters, who, at the risk of their lives, scaled these precipitous rocks and crags, in pursuit of the chamois. It was from these bold adventurers that the first intelligence was derived concerning the size of the trees, and the extent of the forests, until a foreigner, who had visited their sequestered glades and gloomy recesses, in pursuit of the chamois, was struck with amazement at the sight, and pointed out to the attention of several Swiss gentlemen the vast extent and superior quality of the timber. The project of making use of these rich natural stores was, however, rejected as chimerical, by persons whose experience and skill made them competent to judge; and it was, consequently, abandoned. This attempt having failed, these immense and valuable forests would, in all probability, have been suffered to flourish and decay, without ever being applied to the use of man, if it had not been for the enterprising genius and the unwearied exertion of M. Rupp, a native of Wirtemberg, who, owing to some political changes which had taken place in his own country, had settled near the lake of Lucerne. His curiosity being strongly excited by the accounts he had heard of the forest, he was induced to visit it. He was so much struck by its wonderful appearance, that he entertained the idea of being able to convey the trees into the lake of Lucerne, solely by their own gravity. During his long residence in Switzerland, his character and talents were so much appreciated, that, with the assistance of three Swiss gentlemen, he soon formed a company from among the proprietors, with a joint stock, to enable them to purchase the forest, and to construct a road or slide, down which it was intended the trees should be precipitated in the lake of Lucerne, an arm of which washed the bottom of the mountain, from which they could be easily conveyed by the Rhine to any part of the German ocean. This stupendous undertaking was finished in 1816. The slide of Alpnach was composed of between 25,000 and 30,000 large pine trees, squared by the axe, and formed into a sort of trough, about six feet broad, and from three to six feet deep. In the bottom of the trough there was a groove for the reception of a small stream of water, let in over the side of the trough every now and then, in order to keep the whole structure moist, and thereby to diminish the excessive friction occasioned by the rapidity of the descent of the tree. The side was sustained by cross timbers; and these cross timbers were themselves supported by uprights fixed into the ground. It was sometimes carried along the faces of the most rocky eminences; sometimes it went under ground; and again it crossed the deepest ravines, where it was supported by scaffoldings 220 feet high. The skill and ingenuity which were displayed, and the difficulties which were surmounted, in this vast undertaking, gained a just tribute of admiration to the enterprising individual who projected and carried it through. Before the work could even be begun, it was necessary to cut down many thousand trees, to obtain a passage for the labourers through the impassable thickets; and M. Rupp was himself frequently obliged to descend the steepest precipices, suspended by ropes, at the imminent hazard of his life; and though he was attacked by a violent fever, yet his ardour was so great that he had himself conveyed every day, on a barrow, to the mountain, in order to superintend the operations of his workmen. The expense attending this undertaking was, according to one account, £9000 or £10,000; but according to another, only £4250. Before the trees were launched into the slide, some previous preparation was necessary, which consisted in lopping off the branches, and stripping them of the bark, that they might descend with the greater ease. Every thing being prepared, the tree was introduced into the trough, with the root foremost; and it descended with such velocity as to reach the lake in six minutes, a distance of about three leagues, or nine miles; but the largest trees performed the same distance in about three minutes. In order to prevent the accidents which might take place if the tree was let off before every thing was ready at the lower end, a regular telegraphic communication was established between the two extremities of the slide; and workmen were posted at regular distances of about a mile from each other, and so arranged that every station should be visible from the ones both above and below it. When the tree was launched, the workmen at the upper end hoisted their telegraph (which consisted of a board

turning at its middle on a horizontal axle; the board, when placed upright, was visible from the two stations above and below it, but when it was turned horizontally, it was not perceptible from either); the same signal was repeated by all the rest in succession, so that the workmen at the lower end of the trough received intimation of the approach of the tree almost instantaneously. In a few minutes, the tree came thundering past the men, and plunged into the lake. The lowest board was then turned down, which was followed immediately by all the rest; and thus the workmen at the top were informed of the safe descent of the tree. The same operation was repeated during the rest of the day; and it was so arranged that a tree should descend every five or six minutes. When the progress of the tree was impeded by any obstacle, or when it started out of the trough, the board was only half depressed; and as the workmen knew by this signal that something was wrong, those who occupied the stations above and below the place where the tree had struck, came and assisted in removing the obstruction, which was generally occasioned by the springing of a beam in the trough. In order to prove the enormous force which the trees acquired by the rapidity of their descent, M. Rupp caused some of them to spring from the trough. The result was, that they penetrated the earth by their thickest ends to the depth of eighteen and sometimes twenty-four feet; and one of them having accidentally come in contact with another, cleft it from top to bottom, with the violence and rapidity of lightning. In order that none of the small wood might be lost, M. Rupp constructed several extensive manufactories in different parts of the forest, for the purpose of reducing it to charcoal. He also built magazines for preserving it when made. The trees, after having reached the lake, were made up into rafts, and floated down the Reuss, by the Aar, into the Rhine. By this rapid conveyance, they generally arrived at Basle a few days after they had left Lucerne. At Basle they passed out of the hands of the company. They were still floated down the Rhine in rafts to Holland; and thus performed a journey of about 4000 miles, in less than a month from the time they left Pilatus, until they arrived at the German ocean. We are sorry to add, that this stupendous work of art is now totally destroyed, and that almost every trace of it is obliterated on mount Pilatus. The great demand which formerly existed for the timber having entirely ceased, owing to political causes, the cutting and transporting of the timber was necessarily discontinued, and the slide was suffered to go to ruin. See Playfair's *Works*, vol. i, Appendix, No. 2, p. 89.

SLIGO; one of the five counties of the province of Connaught, Ireland. It extends about forty miles from north to south, and about thirty-eight from east to west. The character of the county is mountainous, and it comprises a great variety of soil. The most fertile and beautiful part is to the south of the town of Sligo; the waste land lies principally in the north and west. The principal streams are the Sligo, Bonnet, Owenmore, Arva, Cooloney, Esky, and Moy. The chief fresh water lakes are lough Gill, Arva, Talt, and Gara. Sligo is one of the limestone districts of Ireland. Lead ore, rich in silver, has been found at Ballysadare, and other places; copper ore, at the foot of Benbulben; and coal, on the eastern borders of the county, which forms part of the Connaught coal district. The six baronies into which Sligo is separated, are called Carbury, Corran, Coolavin, Leney, Tyreragh, and Tyraghrill. Sligo is a borough, and the chief town of the county; Ardnaru, Ballymote, and Colooney, are but small places; but the character of this district, though unsuited to the establishment of large towns, seems congenial to the growth of villages, of which it contains upwards of twenty. There are iron-works and collieries adjacent to the borders, and the manufacture of linen is pursued with great perseverance. The agricultural exports shipped at the port of Sligo are also considerable. The population of Sligo, which is chiefly Roman Catholic, in 1821, was 127,879; in 1831, 171,508.

SLIGO; a sea-port town of Ireland, capital of the county of the same name, is situated upon the river Gara, which emanates from lough Gill, and falls into Sligo bay, below the town. Sligo is one of the best towns in Connaught, and is daily advancing towards commercial importance. The custom-house and queen's stores are on an extensive scale. The origin of the place may be dated from the erection of a castle and abbey here, by Maurice Fitzgerald, lord justice of Ireland, in the year 1252. Sligo is a port of considerable trade; about 300 vessels of various classes belong to it, estimated to carry 20,000 tons. The harbour has been improved by the erection of a pier. Here are found rock cod, turbot, ling, and oysters. The chief exports consist of linen, yarn, butter, and oats; and the imports are coal, from Scotland principally, hardware, and pottery. Sligo is distant from Dublin 133 miles north-west. The population in 1831 is not recorded, but it is above 10,000.

SLING. The sling was a very general instrument of war among the nations of antiquity. The Baleareans, or people of the islands now called Majorca and Minorca, excelled at the sling, and were

much employed in the armies of the Romans and Carthaginians. Livy mentions some tribes still more dexterous than the Baleareans, who discharged stones with so much force that neither buckler nor head-piece could resist them, and who hit their mark to a hair-breadth. The story of David and Goliath proves the efficiency of the sling.

SLOANE, Sir Hans, a distinguished naturalist, and founder of the British museum, was born in the north of Ireland, in 1660, and studied medicine in London, where he settled in the practice of his profession. In 1727, he became president of the

royal society, of which he had previously been secretary. His Natural History of Jamaica (1707—1725) was the result of his observations in that island. George I. created him a baronet in 1716, and, on the accession of George II., he was named physician in ordinary to his majesty. His death took place in 1752. See *British Museum*.

SLOE. See *Plum*.

SLOOP, in naval affairs; a small vessel furnished with one mast. Sloops of war are vessels commanded by officers of a middle rank between a lieutenant and post-captain: these are styled *masters* and *commanders*. They carry from ten to eighteen guns, and are variously rigged, as ships, brigs, schooners, and sometimes cutters.

SLOPS; a name given to clothes for seamen.

SLOTH (*bradypus*). This name is given to two singularly constructed South American quadrupeds, remarkable for the extreme slowness of their motions, the accounts of which, however, have been somewhat exaggerated. The teeth are all cylindrical, the canines being longer and sharper than the rest. The toes are all united and enclosed under the common skin, the nails only appearing externally. These last are enormously large, compressed and curved, and when the animal is in a state of repose, are bent under along the soles of the feet. The feet are articulated obliquely upon the bones of the leg, and the outer margin only rests upon the earth; the bones of the toes are closely articulated, admitting of but little motion, and, for want of use, unite at a certain age, and form a solid piece. The fore feet or arms are much longer than the hinder; and when the sloth is upon the ground, it is obliged to draw itself along upon its elbows. The thighs are directed laterally, and the pelvis is so large, that the animal cannot bring together its knees. The internal structure is not less remarkable. The sloths are exceedingly helpless when on the ground, and seem at home only when upon trees, and, as is well observed by Waterton, when resting or moving, suspended beneath their branches. They feed on leaves. The three-toed sloth has its arms twice as long as the feet, and the body is covered with coarse hair, resembling withered grass; the colour is gray, often marked on the back with brown and white. It is the only quadruped which has nine vertebræ to the neck.—The two-toed sloth differs somewhat in its anatomical characters from the preceding, and, to our eyes, seems less unfortunately constituted. The fossil bones, and sometimes the entire skeleton of a gigantic animal nearly related to the sloths, have been found in various parts of the American continent, from Buenos Ayres to the southern parts of the United States. They show an extinct quadruped about twelve feet long and six or seven in height. It has received the name of *megatherium* (q. v.). The bones of another extinct quadruped, less than the former, but closely related to it, have been found in the limestone caves of the western country. It has received the name of *megalonyx* (q. v.), from the large size of the nails.

SLOUGH; a village of England, in Buckinghamshire, twenty-one miles west of London, where the celebrated doctor Herschel had his residence and observatory.

SMALKALDIC LEAGUE; the union, concluded in March, 1531, by nine Protestant princes and counts, and eleven free cities, for the mutual defence of their faith and political independence against Charles V. and the Catholic states, at Smalkalden, in Henneberg, at first for six years. It was confirmed by the conventions at Frankfort, in July and December of the same year. It was greatly strengthened by a third convention at Smalkalden, in 1535, by the admission of new members, the extension of the term of the league to ten years, and the resolution to keep on foot an army of 12,000 men. In 1537, it received a new bond of union in the articles drawn up by Luther, and signed by the theologians present at Smalkalden. These were called the *Smalkaldic articles*. Their original object was to serve as a representation of the Protestant faith at the council of Mantua, announced by the pope. The council was never held, but the articles, which were entirely in conformity with the Augsburg confession, were received among the symbolical books of the Lutheran church. Their violence proves the embittered feelings of Luther and his party. See *Reformation*.

SMALL POX; an eruptive fever, which, in its pustules, engenders an infectious matter, by means of which the disease may be communicated to other persons, who have not been before attacked by it. After the infection has taken place, about seven days pass before the virus operates and produces the disease. Then a feverish shivering pervades the body, which regularly lasts about three days; after which a number of red spots appear, first in the face, then over the breast, hands, and the whole body, sometimes very numerous, sometimes in a small number. This eruption also lasts about three days. From the spots rise pustules, which become inflamed and suppurate. The fever, in the meantime, continues without intermission. After the suppuration, the pustules begin to dry up, and to form a crust—a change which generally commences about the eleventh day. Commonly, the small-pox virus infects but once. A person who has had the small-pox will not have it again; nor does this virus infect at all times; on the contrary, it seems that a person must have a certain susceptibility for it; for numerous instances have occurred in small-pox epidemics of persons being spared who became infected at a later period, and even of some who have escaped during their whole life. According to some Arabic writers, this disease, as well as the measles, came first from Ethiopia to Arabia, about A. D. 572. In the first half of the seventh century, it passed to Egypt. The wars which were carried on in the East, and particularly the crusades in the thirteenth century, introduced it into Europe, first into Spain and France, and then into the other countries. When Maximilian I. made an expedition to the Netherlands, upon the termination of which the men at arms returned to Germany through the French provinces, the small-pox was carried by them from France, for the first time, into Germany, in 1495. From Europe it was transplanted to America and Africa; from Denmark it found its way, in 1733, even to Greenland. Whenever it appears in a country for the first time, it is more fatal, and makes greater ravages, than after having prevailed for some time. As this disease is propagated only by infection, it has been thought possible to extirpate it by the strict separation of the infected from the healthy. The obstacles, however, arising from the present situation of nations and the general diffusion of the disease in all countries and climates, seem to render such a plan impracticable. The violence of the disorder, however, is lessened when it is produced artificially by inoculation with the small-pox virus. Inoculation

had long been practised in Turkey, especially among females, for the preservation of the beauty of young girls, when the celebrated lady Montague introduced it into Western Europe. In Constantinople, whither she had accompanied her husband, she caused her son, six years old, to be inoculated, and after her return to England, in 1722, her daughter also. From that time inoculation became common in England, notwithstanding the opposition of many physicians, and afterwards in other countries; but never became universal, because many prejudices were entertained against it, and because the disease, although mitigated, is yet not quite without danger. More recently, inoculation has been entirely superseded by vaccination, which is far more safe. See *Vaccination*.

SMALT. See *Cobalt*.

SMART, CHRISTOPHER, born in 1722, at Shipbourne, in Kent, was placed at the grammar school in Durham, where his precocious talent obtained him the patronage of the duchess of Cleveland, who educated him at Pembroke college, Cambridge. A fellowship was conferred on him by his college in 1745. His marriage, in 1753, having vacated his fellowship, he settled in London, and commenced author by profession; in which capacity he became a principal contributor to the Old Woman's Magazine, and the Universal Visitor, besides publishing a volume of original poems, the Hiliad, &c. Poverty, however, overtook him; and his distresses, aided by intemperance, unsettled his intellects, and compelled his relations to place him for a while under personal restraint. His Song to David, written in a madhouse, and partly with charcoal, on the walls of his cell, bears a melancholy attestation to the strength of his mental powers, even in their derangement. A temporary recovery restored him to liberty for a few years, which was terminated by a new confinement. During the interval, he gave to the world his translations of Horace's works, in prose and verse, and of those of Phædrus, in verse. He died of a liver complaint, within the rules of the king's bench prison, May 12, 1771.

SME; an Egyptian goddess. See *Hieroglyphics*.

SMEATON, JOHN, an eminent civil engineer, was born May 28, 1724, at Austhorpe, near Leeds. The strength of his understanding and the originality of his genius appeared at an early age. His father was an attorney; and being desirous to bring up his son to the same profession, he carried him to London in 1742, where he attended the courts in Westminster hall; but, after some time, finding that the law was not suited to his disposition, he wrote a strong memorial to his father on the subject, who immediately desired the young man to follow the bent of his inclination. In 1751, he began a course of experiments to try a machine of his own invention, to measure a ship's way at sea, and made two voyages, in company with doctor Knight, to try the effect of it, and also for the purpose of making experiments on a compass of his own construction, which was rendered magnetical by doctor Knight's artificial magnet. In 1753, he was elected a fellow of the royal society; and a number of papers which he published in their Transactions, show how highly he deserved the honour. In 1755, the Eddystone light-house was burnt down, and Mr Smeaton being recommended to the proprietors of that building as an engineer every way calculated to rebuild it, he undertook the work, which was completed in 1759, much to the satisfaction of the parties concerned. (See *Light-House*.) After this, Mr Smeaton was employed on many works of great public utility. He made the river Calder navigable—a work that required talents of the very first order, owing to the impetuous floods in that river; and planned and attended to the execution of the great canal in Scotland, for conveying the trade of the country either to the Atlantic or German ocean. Mr Smeaton was appointed engineer to Ramsgate harbour, and brought it into a state of great utility by various operations, of which he published an account in 1791. He constructed a variety of mills, built a steam-engine at Austhorpe, and made a vast number of experiments with it to ascertain the power of Newcommen's engine (see *Steam-Engine*), which he improved and brought to a far greater degree of perfection, both in its construction and powers, than it had before. During many years of his life, he was a frequent attendant upon parliament, his opinion on various works, begun or projected, being continually called for. He died in 1792. He was fond of science for its own sake, and spent much of his leisure in the study of astronomy; for which purpose, he fitted up an observatory, in his house, furnished with curious contrivances of his own invention. He was a friend and encourager of merit wherever he discerned it; and many persons were indebted to him for important assistance on entrance into life. Mr Smeaton was the institutor, in 1771, of a society of civil engineers, which was dissolved at his death, but afterwards renewed. They published, in 1797, a volume of his Reports. (For his labours in constructing bridges, mills, harbours, engines, &c., see his *Reports*, in 3 vols., 4to.) Of his inventions and improvements of philosophical instruments, an idea may be formed from the list of his writings, which is inserted in Hutton's Dictionary.

SMELL. The sense of smell is that by means of which we perceive the effluvia which arise from bodies. The delicate mucous membrane, which lines the internal parts of the nose, and through which the olfactory nerve, descending from the brain, is distributed, is the sole organ of this sense. The air, passing through the nose, brings the effluvia, or odoriferous parts of bodies, into contact with the nerve; the nerve transmits the impression to the brain, by means of which it is perceived by the mind. The moisture of the membrane above named is essential to the perfection of the smell. This sense is intimately connected with the respiration, and the whole life of the animal, and is most nearly related to the sense of taste; and many of the objects of the two senses are the same. The fine odoriferous effluvia of bodies are of incredible tenuity. Suppose, for instance, what daily experience teaches us is possible, that, with a portion of oil of lavender only one line square, we perfume a chamber eighteen feet long, as many broad, and ten feet high, and containing 3240 cubic feet, or 466,560 cubic lines, and suppose, moreover, that in each cubic line there are floating but four of the odoriferous particles, we shall then find that one cubic line of oil may be divided into 1,866,240 odoriferous particles. If a piece of ambergris, weighing 100 grains, is left upon a balance which is sensible to the smallest part of a grain, in an open chamber, notwithstanding there is free draught of air from without, the chamber is filled with the odoriferous particles;

and yet, at the end of five and a half days, not the smallest diminution of the ambergris is perceptible; from which the extreme fineness of the effluvia may be inferred. See *Sense*.

SMELT (*osmerus*); a small but delicious fish, allied to the salmon, inhabiting the salt water about the mouths of rivers. Like the trouts, all parts of the mouth are armed with long and pointed teeth, and there are four or five upon the tongue. The body is long, and somewhat compressed; the eyes large and round, and the under jaw longest. The European smelt is from three to six inches long; the head and body are semitransparent, with the most brilliant tints of green, and silvery. It has a strong odour, by many compared to that of violets. It inhabits the sea as well as the depths of those lakes which have a sandy bottom, and in the spring ascends the rivers in great multitudes, for the purpose of depositing its spawn. In certain districts, it is extremely abundant. The American smelt (*osmerus viridescens*, Les.) is considered a different species. It grows to the length of ten inches. The body is long, somewhat compressed, green on the back, and silvery-white on the sides. It inhabits the coasts of New England, and as far as the Hudson, but is unknown farther south. It is taken with the line. The flesh is highly esteemed.

SMELTING. See *Ores*, *Mine*, *Iron*, *Silver*.

SMITH, Adam, a distinguished writer on morals and politics, was the only son of Adam Smith, controller of the customs at Kirkaldy, where he was born June 5, 1723, a few months after the death of his father. He received his early education at the school of Kirkaldy, whence he was removed, at the age of fourteen, to the university of Glasgow, where he remained until 1740, when he repaired to Baliol college, Oxford, as an exhibitioner on Snell's foundation. Quitting Oxford, and all views to the church, which had led him there, in 1748, he took up his abode at Edinburgh, and read some courses on rhetoric and polite literature, under the patronage of lord Kames. In 1751, he obtained a more permanent provision by being elected professor of logic at Glasgow, and, the year following, of moral philosophy at the same university. He was now in a situation which perfectly agreed with his talents and inclination, and both in matter and manner his lectures were of the highest merit. Those on moral philosophy contained the rudiments of two of his most celebrated publications, of which the first, entitled the Theory of Moral Sentiments, appeared in 1795, and was most favourably received. His moral theory is founded upon sympathy, which he makes the source of all our sentiments on the propriety or impropriety of actions. To this work he afterwards added an Essay on the Origin of Languages; and the elegance and acuteness displayed in these treatises introduced him to several eminent persons, and, among others, to Mr Charles Townsend, who engaged him, in 1763, to attend the duke of Buccleugh in his travels. A long residence in France with this nobleman introduced him to the acquaintance of Turgot, Quesnay, Necker, D'Alembert, Helvétius, and Marmontel, to several of whom he was recommended by David Hume. He returned to Scotland in 1766, and immediately retired, with his mother, to Kirkaldy, where he led a life of strict study and retirement for ten years, the fruit of which was his celebrated Inquiry into the Nature and Causes of the Wealth of Nations (2 vols. 4to., 1776.) It is unnecessary to say that this work has become a standard classic, and that it may be deemed the formal precursor of the modern science of political economy. (See *Political Economy*.) About two years after the publication of this able production, he obtained, through the patronage of the duke of Buccleugh, the lucrative place of commissioner of the customs in Scotland, in consequence of which he removed, with his mother, who attained a great age, to Edinburgh. In 1787, he was chosen rector of the university of Glasgow; and soon after his health began to decline, and he sunk under a chronic disease, in July, 1790, at the age of sixty-seven. A short time before his death, he ordered all his manuscripts to be burnt, except a few detached essays. Doctor Smith was a man of much simplicity of character, subject to absence of mind in society, and better fitted for speculation than action. He was, at the same time, much beloved by his friends for his kind and benignant disposition, and died generally admired and highly respected. (See his *Life* by Dugald Stewart, and Mackintosh's *Progress of Ethical Science*.)

SMITH, Charlotte, an ingenious but unfortunate English poetess and novel-writer, was born in 1749, and married, at a very early age, a West India merchant, whose imprudence, aggravated (if we are to believe the allusions of his wife in her fictitious narratives) by legal chicanery, ultimately dissipated the whole of a once handsome property, and consigned its former possessor to a prison. In this melancholy situation, his wife dedicated her talents to the support of her husband and family. Her principal novels are her Romance of Real Life; Emeline; Desmond; Marchmont; Ethelinda; Old Manor House; Celestina, &c. Much of the latter part of her life was passed in Normandy. She died in England in 1806. Besides the works already mentioned, Mrs Smith wrote several pleasing volumes for young persons, and two volumes of sonnets.

SMITHFIELD; a square in London, in which the greatest cattle-market in England is held, as is also Bartholomew fair. The spot is still shown where heretics were formerly burnt.

SMOKING TOBACCO. See *Tobacco*.

SMOLENSK, Battle of. Smolensk, one of the oldest cities in the Russian empire, formerly belonging to Poland, the key to the interior of the empire, situated on the left bank of the Dnieper, contains about 1500 houses and 12,000 inhabitants. Under the walls of this city, August 8, 1812, the two main divisions of the Russian forces, under Barclay de Tolly and Bagration, united, after tiresome marches and great loss, and formed a plan to attack the French troops, whom they had hitherto avoided. But on the 16th, Napoleon appeared before Smolensk, and occupied the heights. Junot was directed to march to the right with the fifth division (the Westphalian), to cut off the Russians from the route to Moscow. Ney commanded the left wing; Poniatowski the right, and Davoust the centre. In the beginning of the year, Smolensk had been strengthened as much as possible. But Barclay de Tolly, on account of the superior force of Napoleon, was unwilling to venture a general engagement, as the French had succeeded in completely surrounding his left wing. He stationed himself, therefore, in the rear of the city, and, to make it an effectual means for covering his retreat, occupied it with two divisions, so

that its capture, on the 17th, was delayed till midnight, particularly as a large body of cavalry were in possession of the passages to the plains, and numerous foot soldiers of those to the Dnieper. On account of the strength of the walls (4000 feet in circumference, 15 feet thick, and 25 feet high), with towers at regular intervals, supporting heavy cannon, and the numbers of the garrison, 30,000 strong, the assailants suffered greatly; and when the Russians marched out, at midnight, after an eight hours' engagement, to follow the main body under Barclay, the whole city was in flames. The conflagration raged for thirty-six hours. The plan of Napoleon to take the Russian army prisoners in Smolensk, or to cut off their passage to Moscow, was frustrated. More than two thirds of the city lay in ruins. The Russians, according to their own reports, lost 4,000 men; the French more than double that number; the Poles more than 5000; and owing to the devastation of the surrounding country, the scarcity in the captured city was so great, that most of the wounded and the numerous sick died in the lazarettos, and a dreadful epidemic was created. The Russians could not forgive Barclay for having sacrificed this holy city, as they used to call it, this bulwark of Moscow, without risking a general engagement. He, therefore, soon after, laid down his commission, under the pretence of ill health, and was succeeded by Kutusoff. But he had saved the army. The flames of Smolensk, and the outrages of the French soldiers, roused the Russians to revenge, and to the most obstinate resistance.

SMOLLETT, TOBIAS, a celebrated novelist and miscellaneous writer, was born at Dalquhurn, near Renton, in the parish of Cardross, Dumbartonshire, in 1721. He was first taught at the parish school of Dumbarton, and he afterwards prosecuted his studies at the college of Glasgow with diligence and success. Here he contracted a fondness for the medical profession, and was apprenticed to Mr John Gordon of that city. In this capacity he studied medicine and the belles lettres. He occasionally indulged in satirical effusions, not only against those who merited it, but against the more decent and respectable persons whom he knew, and his conversation has been described as a "string of epigrammatic sarcasms against one or other of the company." In the seventeenth year of his age he wrote a tragedy, called the *Regicide*, the subject of which was the assassination of James I. of Scotland.

In 1740, when his apprenticeship was finished, he set out for London to solicit employment in the army or navy, and to bring his tragedy upon the stage. Although the exertions of his friends could not recommend his play to the favour of the theatres, they procured for him the situation of surgeon's mate to one of the ships of the line that went out in the unfortunate expedition to Carthagena in 1741, under Admiral Vernon.* Disgusted with the navy, our author quitted the service in the West Indies, and resided for some time in Jamaica, where he became acquainted with Miss Lascelles, a beautiful woman, whom he afterwards married.

In 1746 he returned to London, and though a whig in politics, yet the love of his country predominated, and he expressed his feelings respecting the cruelties of the English troops during the rebellion, in a poem, entitled, the *Tears of Scotland*, —a poem written with elegance and spirit. In the same year he published his *Advice*, a Satire, an acrimonious attack upon several individuals of rank and fortune. In the same year he wrote an *Opera*, entitled *Alceste*, for Mr Rich, manager of Covent Garden; but in consequence of a dispute, which exposed the manager to the shafts of his wit, it was neither acted nor printed. In 1747 he published his *Reproof*, a Satire, being the second part of the *Advice*, continuing the same system of inveterate attack upon all the leading personages of the times. In the same year he married Miss Lascelles, who expected a portion of £3000 in West India property. Trusting to this expectation, he lived elegantly and hospitably; but being able to recover only a small part of the above sum, and that by means of expensive litigation, he got into serious pecuniary difficulties, which compelled him to have recourse to his pen. He accordingly devoted his time to literature, and brought out in 1748 his *Adventures of Roderick Random*, in 2 vols. 12mo., a work which both bettered his pecuniary circumstances, and widely extended his reputation. The tragedy of the *Regicide*, already mentioned, was published by subscription in 1749, and he derived from it considerable emolument. He went to Paris in 1750, and about this time he composed his *Adventures of Peregrine Pickle, with the Memoirs of a Lady of Quality*, which appeared in 1751 in 4 vols. This work is marked with broad humour, and great knowledge of the world. Real personages and real incidents are often described, as in Roderick Random, but the adventures, and frequently the language, were stained with an indelicacy and immorality that were highly reprehensible. The edition was quickly sold; another was bought up in Ireland; and the work was translated into French. Our author received, too, a very handsome sum for inserting in this novel the *Memoirs of Lady Vane*, which were furnished by herself, and which gave additional popularity to the work.

Notwithstanding the great success of Roderick Random and Peregrine Pickle, Smollett seems to have been anxious to quit the profession of an author. He obtained about this time the degree of M. D. probably from some foreign university, and announced his intention to practise medicine, by a work entitled, *An Essay on the External Use of Water*, 1752, 4to. In the practice of physic, however, he was not successful, and was compelled again to have recourse to his pen. In 1753 he published his *Adventures of Count Fathom*, in 2 vols. 12mo., but it was neither so ably written nor so popular as its predecessors. Encouraged by a liberal subscription, Smollett published, in 1755, a new translation of *the History of the renowned Don Quixote, from the Spanish, &c. illustrated with 28 new copperplates*, in 2 vols. 4to. When this work was printed, he made a visit to Scotland, to visit his mother, who then resided at Scotston in Peebleshire; and he took an opportunity of visiting various parts of his native country, particularly the vicinity of Glasgow, the scene of his early affections, where he spent two days with Dr Moore, then an eminent surgeon in that city.

When he returned to London, he was induced to take the chief management of the *Critical Review*, a new literary Journal, which began in 1756 under the patronage of the tories, and in opposition to the *Monthly Review*, which had commenced in 1749. His next work was, *A Compendium of Authentic and Entertaining Voyages*, digested in a *Chronolog-*

* Smollett afterwards gave an account of this expedition in *Roderick Random*, and one more circumstantial in the *Compendium of Voyages*, in 7 vols. 12mo, 1756.

Series, in 7 vols. 12mo. In 1757, when a stain had been left on the courage of England, our author wrote the *Reprisal, or the Tars of Old England*, an after-piece in two acts, intended to excite the national spirit. It was favourably received at Drury Lane, and is still a favourite on the stage. Early in 1758, Smollett gave to the world his *Complete History of England, deduced from the descent of Julius Cæsar to the treaty of Aix la Chapelle* in 1748, in 4 vols. 4to. This work is said to have been composed and printed in fourteen months, a mental effort almost unrivalled. It was reprinted in the following year in 11 vols. 8vo. and the weekly sale was above 10,000.

When Sir John Mordaunt was tried for his unsuccessful expedition against Rochefort in 1757, some blame was cast upon Admiral Knowles, who defended himself in a pamphlet bearing his name. This pamphlet was reviewed in the Critical Review with such improper acrimony, that the Admiral prosecuted the printer for a libel. When sentence was about to be pronounced against the printer, Smollett avowed himself the author, and was sentenced to a fine of £100 and three months' imprisonment. This spirited conduct on the part of our author was highly applauded, and he was visited in the King's Bench prison by many of the most distinguished characters of the day. During his confinement he composed his *Adventures of Sir Lancelot Greaves*, which first appeared in detached portions in the monthly numbers of the *British Magazine* for 1760 and 1761, but it was afterwards published separately in 2 vols. in 1762. About this time he wrote the histories of *France*, *Italy* and *Germany*, for the modern part of the *Universal History*; and in 1761, 1762 and 1765, he published, in five volumes, his *Continuation of the History of England* down to 1765. The unpopular administration of Lord Bute was naturally defended by Smollett, when he perceived that its unpopularity was in some measure owing to the premier being a Scotsman. For this purpose he established a weekly paper called the *Briton*, which gave rise to the *North Briton*, under the management of the celebrated Wilkes.

In 1763, he had the misfortune to lose his only daughter, who died in the fifteenth year of her age, and left him in a state of hopeless despondency. The state of his own health, which too assiduous study had impaired, combined with this domestic calamity, induced him to quit England for a milder climate. He accordingly spent about two years in France and Italy, and on his return in 1766, he published his *Travels through France and Italy, containing Observations on Character, Customs, Religion, Government*, &c. with an account of the *Climate of Nice*, and a *Register of the Weather*, in 2 vols. 8vo. In 1766, he again visited Scotland; and in 1767 he published his *History and Adventures of an Atom*, in 2 vols. 12mo., a political romance, supposed to be written in 1768, and displaying under *Japanese* names the different party men in Great Britain from 1756 to 1761.

A recurrence of his ill health induced him again to visit Italy in 1770. After a short residence at Leghorn he retired to Monte Nuovo, a romantic situation in its vicinity. Here he composed his *Expedition of Humphry Clinker*, in 3 vols. 12mo., a work which met with high approbation, and is regarded as one of the best of all his works. This was the last effort of his pen. His bodily strength gradually declined, and he died at his house near Leghorn on the 21st October 1771, in the 51st year of his age. His widow erected a plain monument to his memory, with an inscription by Dr Armstrong. In 1774 a Tuscan column was erected to his memory on the banks of the Leven by his cousin, James Smollett, Esq. of Bonhill, with an inscription partly written by Dr Johnson, Professor G. Stuart, and Mr Ramsay of Ochtertyre.

An edition of Smollett's works, in 8 vols. 8vo., was published in 1797, with Memoirs of his Life; to which is prefixed a *View of the Commencement and Progress of Romance*, by Dr Moore. Dr Anderson had previously collected the poetical works of Smollett, which appeared with an excellent Memoir of his Life, in the works of the British Poets. The same learned editor published a new edition of his *Miscellaneous Works*, in 1796, and in 1803, he published in a separate volume, *The Life of Tobias Smollett, M. D. with Critical Observations on his works*, which went through several editions. The following is Dr Moore's estimate of Smollett's character:—"The person of Dr Smollett was stout and well-proportioned, his countenance engaging, his manner reserved, with a certain air of dignity that seemed to indicate that he was not unconscious of his own powers. He was of a disposition so humane and generous that he was ever ready to serve the unfortunate, and, on some occasions, to assist them beyond what his circumstances would justify. Though few could penetrate with more acuteness into character, yet none was more apt to overlook misconduct when attended with misfortune. He lived in a hospitable manner, but he despised that hospitality which is founded on ostentation. He invited to his plain but plentiful table, the persons whose characters he esteemed, in whose conversation he delighted, and many for no other reason than because they stood in need of his countenance and protection. Free from vanity, Smollett had a considerable share of pride, and great sensibility; his passions were easily moved, and too impetuous when raised; he could not conceal his contempt of folly, his detestation of fraud, nor refrain from proclaiming his indignation against every instance of oppression. He was of an intrepid, independent, imprudent disposition, equally incapable of deceit and adulation, and more disposed to cultivate the acquaintance of those he could serve, than of those who could serve him. What wonder that a man of his character was not what is called successful in life." For a masterly estimate of the comparative merits of Smollett and Fielding, see Sir Walter Scott's Life of Smollett, in his Lives of the Novelists.

SMUGGLING; the offence of importing goods without paying the duties imposed thereon. See *Contraband*, and *Taxes*.

SMYRNA (Turkish, *Ismir*); a city on the western coast of Natolia, situated at the bottom of a deep gulf, about fifty miles from the sea, in a delightful country; lat. 38° 28′ N.; lon. 27° 8′ E. Smyrna was probably an Ephesian colony, and was successively in the possession of the Æolians, Ionians, Lydians, and Macedonians. It was destroyed by the Lydians, and was afterwards rebuilt by Alexander. Having been received into the Ionian confederacy, it soon became the mart of Asia Minor, the seat of art, and the resort of strangers. In the thirteenth century, only the ruins of its former splendour were left; but after the Turks became masters of the country, it revived. The town rises from the shore to a hill on which is an old castle, and not

far from this lies a smaller castle. The quarter inhabited by Europeans, called the Frank quarter, is the pleasantest part of the city, and lies entirely on the sea. Carriages are rare, and the streets extremely narrow; and the bustle in this great mart of the Levant is remarkable. The population is estimated at about 120,000, among which are 65,000 Turks, 25 to 30,000 Greeks, 7000 Armenians, 12,000 Jews, and some Europeans and Americans. There are Armenian, Greek, Roman Catholic, and Protestant churches, several monasteries, and three synagogues here. The bay is capacious, the anchorage excellent, and the water so deep that large ships come close to the wharfs. Smyrna has been several times destroyed by earthquakes, and frequently ravaged by the plague. In 1814, from 50,000 to 60,000 persons are said to have perished by this scourge. In the year 1831, Smyrna suffered very severely from the cholera. The principal articles of import consist of grain, furs, &c., from Odessa and Taganrog; cotton stuffs, silk and woolen goods, coffee, cochineal and dye woods, glass, &c., from Great Britain, France, Italy, the United States, &c. The principal exports are raw silk and cotton, fruits, opium, rhubarb, drugs, oil, madder, Turkey carpets, wool, wax, &c. Smyrna is one of the places which laid claim to the honour of having given birth to Homer. On the banks of the Meles was shown the spot where he was brought into the world; and, in a cavern by its source, the place was pointed out where he was said to have written his poems; the coins of Smyrna bore his image, and the citizens held their assemblies under the columns of his tomb. A short distance from this place, near the baths of Diana (several fountains, which unite to form a lake), are some ruins, supposed to be the remains of a temple of Diana. The *Spectateur Oriental*, formerly published in Smyrna, was succeeded, in 1827, by the *Observateur Impartial*, which has since given place to the *Courrier de Smyrne*.

SNAKE. See *Serpent*.

SNAKE-ROOT (*aristolochia serpentaria*). This plant is widely diffused through the United States; but, as it grows solitarily in woods, and has nothing conspicuous in its flowers or foliage, and, besides, does not put forth its shoots till late in the season, it is detected with difficulty, and the root bears a high price. This last is used in *materia medica*, and is exported to Europe. The odour is aromatic; the taste warm, bitter and pungent, resembling, in some degree, that of camphor; medicinally it is stimulating, diaphoretic and tonic. The stem is eight or ten inches high, flexuous, bearing oblong, cordate, very acute leaves. The flowers are situated on radical foot-stalks, and consist of a swelling, curved tube, expanding at the orifice.—The *A. sipho*, or *Dutchman's pipe*, so named from the form of the flower, is a climbing vine, with very large heart-shaped leaves, which grows wild on the more southern parts of the Alleghanies. It is cultivated for ornament in gardens.

SNEEZING is a violent convulsive motion of the muscles of respiration, which is preceded by a deep inspiration, that fills the lungs, then forces the air violently through the nose, while the lower jaw is at the same time closed, and shakes the head and whole body. It is always excited by some irritation affecting the inner membrane of the nose, which, however, may be produced by very different causes. Any extraneous body brought into contact with the pituitary membrane, will excite sneezing. As a direct communication exists between the eyes and the nostrils, into which the tears are constantly passing through the lachrymal ducts, a reverse sympathy is excited in many people by irritations of the eye, so that the membrane of the nose is at the same time titillated; whence, in such persons, sneezing is immediately excited by sudden exposure to a strong light, as by passing from a shade into a bright sunshine. Irritations of the lungs, stomach and bowels, &c., have been mentioned as causes of sneezing. Sneezing, if very often repeated, may become dangerous, by an accumulation of blood in the head. If it originates only from too great irritability of the membrane of the nose, injections of tepid milk or water into the nostrils may cure it; otherwise, opiates, camphor, and other anti-spasmodics, may be necessary. Few animals, perhaps only the dog, sneeze precisely like man. The custom of blessing persons, when they sneeze, is very ancient. Aristotle professes ignorance of the origin of it. This custom is mentioned by various ancient writers. Sneezing at sacrifices was considered a good omen.

SNIPE. The snipe has many of the external characters of the woodcock, but differs in having the lower part of the tibia bare of feathers, and in its habits. It keeps in marshy places, and does not frequent woods; and its flight is high, rapid, and very irregular.

SNORRO STURLASON. See *Sturlason*.

SNOW is formed in the air, when the temperature of the atmosphere sinks below the freezing point of water. The particles of moisture thus frozen from flakes, having great diversities of density, and displaying innumerable varieties of the most beautiful forms. Snow-flakes, examined by a microscope, appear to be regular crystals; and Scoresby, who has figured ninety-six varieties in his Arctic Regions, arranges them under five forms, lamellar, spicular, pyramidal, &c. Like ice, and other crystallized bodies, snow would be transparent were it not that the air which it contains renders it opaque. The regular crystals are found only when the air is calm, and the cold intense, and do not often occur, therefore, in temperate regions. Snow has been seen in the polar regions of red, orange and salmon colour. This occurs, both on the fixed and floating ice, and appears, in some cases, to result from vegetable, and in others from animal matter, suspended in the sea, and deposited upon the ice around. Snow storms sometimes present a luminous appearance, covering all objects with a sheet of fire. The electricity of snow is generally positive. Snow-water has been found, by chemical analysis, to contain more oxygen than rain or river water—a fact which accounts for its superior activity in causing iron to rust, &c. Snow answers many valuable purposes in the economy of nature. Accumulated upon high regions, it serves to feed, by its gradual melting, streams of running water, which a sudden increase of water in the form of rain would convert into destructive torrents or standing pools, and, in many countries, tempers the burning heats of summer, by cooling the breezes which pass over it. In severer climates, on the contrary, it serves as a defence against the rigours of winter, by the protection which it affords to vegetation against the frost, and the shelter which it gives to animals, who bury themselves under the snow. Even in more temperate climates, vegetation suffers from an open winter; and it has been found that Alpine plants perished in the mild winter of England, from

want of their usual snowy covering. (See *Glaciers*, and *Ice*.)

The *snow-line*, or plane of perpetual snow, is the elevation at which mountains are covered with perpetual snow. The progressive diminution of temperature, as we ascend through the air, must finally conduct us to a region of perpetual snow, the elevation of which is, of course, very different in different latitudes. On the northern side of the Himalaya mountains, it is about 17,000 feet; on Chimborazo, 15,802 feet. Humboldt fixes the altitude of perpetual snows, under the equator, at 15,748 feet. Towards the pole, it is much lower. On the Alps, under 46° north latitude, it is about 8860 feet. On the Pyrenees, it is stated by Humboldt at 1400 toises, or about 8850 feet. As we recede from the equator towards the north or south, it sinks more rapidly, and, at the North cape, in latitude 71°, it is estimated at only 366 toises (about 2440 feet). In Mexico, Humboldt, from the whole of his observations made in 19° north latitude, places the elevation of the snow-line at 15,028 feet, or, at the lowest estimate, 14,708 feet. From the latitude of 19° to about 30°, we are not acquainted with the altitude of a single snowy peak. Too little is known of the range of rocky mountains to enable us to state with accuracy their lowest plane of perpetual snow. In fact, besides the constant data of the latitude and elevation, the position of the snow-line depends so much upon variable causes, such as the form of the summits, the comparative altitude and other physical features of the surrounding country, the particular exposure of the mountains, &c., that no general rule can be given for determining the limits of perpetual snow in any given latitude, at least, with our present very imperfect information. (See *Mountains*, *Climate*, and *Temperature*.) Even the few facts which have yet been collected on this subject may stand in need of the corrections of more accurate measurements of heights, and, in addition to this, the plane of perpetual snow does not by any means maintain a constant elevation in the same latitude; but it varies with the vicissitudes of the seasons, rising during the heats of summer, and sinking by the cold of winter; changing also from one summer to another, according to the prevailing temperature of the year. See Alcenius *De Termino Atmosphæræ terrestris nivali* (Abo, 1823, 4to.)

SNOW; a vessel equipped with two masts, resembling the main and fore-masts of a ship, and a third small mast, just abaft the main-mast, carrying a sail nearly similar to a ship's mizzen. The foot of this mast is fixed in a block of wood, or kind of step, upon the deck, and the head is attached to the after part of the main-top.

SNOWBALL TREE, OR GUELDER ROSE (*viburnum opulus*). In the wild state, the flowers of this shrub are disposed in terminal corymbs, and the outer ones are much larger than the others. They are succeeded by small red globular berries, of a disagreeable flavour. A variety which is cultivated in the gardens has all the flowers large, which gives to the corymbs the appearance of large white balls, and is a highly ornamental plant. These flowers are mostly barren. The Guelder rose is found wild in most parts of Europe; and the variety above mentioned is of easy culture, and common in gardens.

SNOW-BIRD (*fringilla nivalis*, Lin., *F. Hudsonia*, Wilson; *F. hiemalis*, Audubon); specific character bluish black, inclining to gray; belly and lateral tail-feathers white; length about six and a half or seven inches. This hardy and numerous species, common to both continents, pours in flocks from the northern regions into the United States about the middle of October. At this season they migrate into the Southern States in great numbers. They collect a scanty pittance from the frozen and exposed ground, and, at length, driven by hunger, are seen about barns and out-houses and the steps of doors in towns. Before the severity of the season commences, they find their food in thickets and among fallen leaves. In the latter end of March, or the beginning of April, they reappear in flocks from the south, frequenting the orchards or the woods. Soon after, they retire mostly to the northern or remote arctic regions, to breed; many however, according to Wilson, remain in the high ranges of the Alleghany mountains. In Europe, these birds dwell almost wholly among the Alps, the Pyrenees, and the high northern chains on the limits of the region of perpetual ice, and rarely descend in winter into the plains.

SNOWDON, OR PLINLIMMON; the highest mountain in Wales, 3571 feet high. See *Wales*.

SNOW-LINE. See *Snow*.

SNUFF. See *Tobacco*.

SNYDERS, SNEYDERS, OR SNYERS, FRANCIS, an eminent painter of the Flemish school, born at Antwerp, in 1579, studied the rudiments of his art under his celebrated countryman Van Bahlen, after which he is said to have travelled through a great part of Italy; but this is denied by some writers. On his return to Flanders, he became attached to the household of the archduke Albert, and finally took up his abode at Brussels. Snyders, who is considered never to have been surpassed in his delineation of beasts, fish, hunting-parties, &c., was accustomed to work in concert with Rubens and Jordaens: and some of the most valuable paintings of that school are their joint production. Many of his choice pieces are to be found in the collections at Munich, and Dresden, and in the Escurial. His death took place in 1657.

SOANE, JOHN; an English architect, born in 1756. His genius was fostered by Mr Dance, and he was admitted a student of the royal academy. He obtained the prize for the best design of an original building, and in 1777, was sent to reside in Italy at the expense of the king. While in Italy, he was elected a member of the imperial academy of Florence, and of the academy of arts at Parma. After his return to England, he speedily acquired reputation, and was employed in many important works; among others, on the bank of England. His first appearance as an architectural author, was in 1789, when he published a volume describing and delineating the works which he had executed in various parts of England. About this time, he was chosen an associate of the royal academy. In 1803, he became a royal academician, and, on the resignation of Mr Dance, was placed in the chair of professor of architecture. The lectures which he delivered in his capacity of professor, were admired for their style and the information which they conveyed. In 1794, he was selected by a committee of the house of lords, to propose designs for the improvement of the buildings adjacent to Westminster-hall. His museum of antiquities is much resorted to. He died on the 20th January, 1837.

SOAP; a compound, in definite proportions, of some oil, fat or resin, with a salifiable base. When this base is potash, or soda, the soap is employed

as a detergent in washing clothes; when an alkaline earth, or oxide of a common metal, as litharge, is the salifiable base, the compound is insoluble in water. Fats are composed of a solid substance, called *stearine*, and a liquid substance, called *elaïne*. When they are treated with a hot ley of potash or soda, their constituents react on one another, so as to generate the solid, pearly matter, *margaric acid*, and the fluid matter oleic acid, both of which enter into a species of saline combination with the alkali, while a third matter, the *sweet principle*, remains free. Common soap is therefore a mixture of an alkaline margarate and oleate, in proportions determined by the relative proportions of the two acids producible from the peculiar species of fat. Soap formed from vegetable oil is chiefly an *oleate*. All oils or fats do not possess, in an equal degree, the property of saponification. Those which saponify the best are the following: 1. oil of olives and of sweet almonds; 2. animal oils, as hog's lard, tallow, butter, and horse oil; 3. oil of colza, or rape-seed-oil; 4. oil of beech-mast and poppy-seed, when mixed with olive-oil or tallow; 5. the several fish-oils; 6. hempseed-oil; 7. nut-oil and linseed-oil; 8. palm-oil; 9. rosin. In general, the only soaps in commerce are those of olive-oil, tallow, lard, palm-oil and rosin. A species of soap can also be formed by the union of bees-wax with alkali; but this has no detergent application, being used only for painting in encaustic. The specific gravity of soap is in general greater than that of water. Its taste is faintly alkaline. When subjected to heat, it speedily fuses, swells up, and is then decomposed. Exposed to the air, in thin slices, it soon becomes dry; but the whole combined water does not leave it, even by careful desiccation on a sand-bath. Soap is much more soluble in hot that in cold water. This solution is instantly disturbed by the greater number of acids, which, seizing the alkali, either separate the fatty principles, or unite with them in a soapy, acidulous emulsion. The solution is likewise decomposed by almost all the earthy and metallic salts, which give rise to insoluble compounds of the oleic and margaric acids, with the salifiable bases. Soap is soluble in alcohol, and in larger quantity by the aid of heat. When boiling alcohol is saturated with soap, the liquid, on cooling, forms a consistent transparent mass, of a yellow colour. When it is dried, it still retains its transparency, provided the soap be a compound of tallow and soda. Marseilles white soap is composed of

Soda,	6·
Oil,	60·
Water,	34·

Castile soap of

Soda,	9·
Well-dried oily matter,	76·5
Water, with a little colouring matter,	14·5

The art of soap-making consists principally in knowing how to determine, from the appearance of the paste, and other circumstances, what kind of lixivium should be employed during each step of the operation. This is done, ordinarily, by observation and experience. The form and size of the bubbles, the colour of the paste, the volume of that which is thrown out on the side of the vessel, the consistence of the matter, and its disposition to swell, as well as the appearance of the steam—all furnish criteria by which to regulate the process. It sometimes happens that the paste, though apparently very firm, yet, when set in the cold air to harden, throws out much water, and is resolved into small grains, possessing little consistency. In this case, it is evident that the ley is in excess, and must be separated by means of common salt. Frequently, also, the paste becomes greasy, and the oil appears to separate from the soda. As this, in general, proceeds from the paste not being imbued with sufficient water to keep it in combination, it is necessary to add to it a portion of water, or very weak lixivium, to remedy this defect. Potash is employed as follows, in the manufacture of hard soap: A ley of this alkali, rendered caustic by quicklime, is used in the saponification, and to the soft soap which results is added common salt, or a kelp ley, which supplies abundance of muriate of soda. The muriatic acid goes to the potash, to form muriate of potash, which dissolves in the water, and is drawn off in the spent ley, while the soda enters into combination with the fat, and forms a soap, which, on cooling, becomes solid. Two tons of tallow, properly saponified, should yield three tons of marketable white soap. The adulterations most commonly practised on soap are the following: When the soap is made, much water is added, which renders it white. Frequently, pulverized lime, gypsum, or pipe-clay, are incorporated with it. The former of these frauds is readily discovered by the rapid loss of weight which the soap suffers on exposure to a dry air. The second is as easily detected by solution in alcohol, when the earthy matters fall down.

Soft Soaps. The compounds of fats or oils with potash remain soft, or at least pasty. Three kinds of these are known in commerce—the soaps from rape-seed, and other oleaginous seeds, called *green soaps*, *toilet soaps*, made with hog's lard, and *common soft soap*, made with animal fat. In the manufacture of the common and green soaps, the art consists in effecting the combination of the oil with the potash, without the soap ceasing to be dissolved in the ley; while, on the contrary, in the fabrication of hard soap, it is necessary to separate the soap from the ley, even before the saturation of the oil is accomplished. It contains more alkali than is absolutely necessary for the saturation of the oil. It is, in fact, a perfect soap, dissolved in an alkaline ley. It may readily be converted into hard soap by the addition of common salt. Toilet soaps, made with hog's lard and potash, should have as small an alkaline excess as possible. The finer soaps for the toilet are made with oil of almonds, with nut-oil, palm-oil, suet or butter. They are either potash or soda soaps, as they may be preferred in the solid or pasty states.

SOAP-BERRY *(sapindus)*. These trees somewhat resemble the hickories or walnuts in their foliage, but are widely different in their fruit and botanical characters. The fruit is globular, as large as a cherry, enclosing a nut of a shining black colour when ripe. The pulp serves as a substitute for soap in washing linen, but is very apt to burn and destroy it, if used too frequently. The nuts are very hard, black, and finely polished, and are used for beads. Formerly, they were imported into Europe for waistcoat buttons, and were sometimes tipped with silver or other metals. They were very durable, as they do not wear, and seldom break. The whole plant, especially the seed-vessel, being pounded and steeped in ponds, rivulets or creeks, is observed to intoxicate and kill the fish. The wood is white, and full of a gum, in odour and taste resembling copal. The flowers are disposed

in terminal and branching panicles, and the berries are pendulous.

SOAP-STONE; a species of steatite. The name is derived from its colour, and from the peculiar unctuous sensation which it imparts to the feeling. See *Steatite*.

SOBIESKI, JOHN. See *John Sobieski*.

SOCAGE, OR SOCCAGE, in its most extensive signification, seems to denote a tenure by any certain and determinate service. And thus old writers constantly put it in opposition to tenure by knight-service, which was uncertain. It is of two sorts; free socage, where the services are not only certain but honourable, and villein socage, where the services, though certain, are of a baser nature.

SOCCATOO; the present capital of the Fellatah (q. v.) dominions; lat. 13° 4′ 52″ N.; lon. 6° 12′ E. Captain Clapperton says it appeared to him the most populous town which he visited in the interior of Africa. The inhabitants are mostly Fellatahs. See Clapperton's *Travels*.

SOCIAL CONTRACT. See *Rousseau, Jean Jacques*.

SOCIETIES, LEARNED. See *Academies*.

SOCIETY ISLANDS; a cluster of islands in the South Pacific ocean, discovered by captain Cook, in 1769, and lying between lat. 16° and 18° S. and lon. 149° and 152° W. Some authorities limit the name to a group composed of the six small islands of Huahine, Raiatea, Tahaa (Otaha), Boraborn, Tubai (Tooboosi) and Maurua, giving the name of Georgian islands to the group comprising Tahiti (Otaheite) and Eimeo, about fifty leagues to the south-east of the former. Tahiti, the largest island of the cluster, is about 100 miles in circumference, being upwards of thirty miles long, and twenty, where widest, broad. The population, estimated by Cook at 200,000, is said by Ellis not to exceed, at present, 10,000 souls, which is nearly half of that of the whole cluster. This great decrease of the population is probably in part owing to the practice of infanticide which formerly prevailed, and in part to the diseases introduced among the islanders by the licentiousness of their European visitors. The general reception of Christianity has been attended by the improvement of the moral and physical condition of the people, and the abolition of the cruel rites and debaucheries which were previously practised. The soil of these islands is generally fertile, yielding bread-fruit, cocoa-nuts, bananas, plantains, yams, jambo, arum or taro, sugar-cane, &c. The animals are swine, dogs, poultry, rats, ducks, pigeons, parroquets, and a few other birds. The inhabitants are described as tall and well made, affable and kind in disposition, and fond of music. The complexion of the islanders is olive, or reddish brown; the hair black, or dark brown, and rather coarse. The language of Tahiti was the first Polynesian language reduced to writing. This was done by the missionaries: and there are now, besides translations of the Scriptures, numerous other works, printed in the native language, which very nearly resembles that of the Sandwich islands. A singular institution prevailing in the Society islands, previous to the prevalence of Christianity, was the *areoi* society, many of the regulations and practices of which were of the most licentious and shocking description. The members of the society were not prohibited from marrying, but, in case they had offspring, they were required to put them to death. In 1797, eighteen missionaries from England were settled upon this island. During fifteen years, they laboured with very little success. In 1814, the number of those who, in Tahiti, had voluntarily renounced idolatry, and embraced Christianity, amounted to about fifty. Since that time, the efforts of the missionaries have been attended with great success, almost the whole of the inhabitants of this and the neighbouring islands having renounced idolatry and embraced Christianity.—See Ellis's *Polynesian Researches* (2 vols., 1829); Barrow's *Otaheite and Pitcairne's Island*; Stewart's *Visit to the South Seas*.

SOCINIANS. See *Socinus*, and *Unitarians*.

SOCINUS, LÆLIUS, of the respectable family of the Sozzini, in Sienna, was born in 1525, and abandoned the science of jurisprudence, in which his ancestors had been distinguished, and to which he had himself devoted his youth, for the study of the Holy Scriptures and theology. Doubts concerning some of the dogmas of the Roman Catholic church induced him to visit Germany and Switzerland, where he became acquainted with the leading reformers. He passed nearly three years at Wittenberg, and studied the Oriental languages. He likewise visited France, England and Poland, and in the latter country formed connexions with other individuals of similar sentiments, but taught his doctrines in secret. Having become obnoxious to suspicion, he averted the danger which threatened him only by disguising his real sentiments. His unquiet life was terminated at Zurich, in 1562; but his opinions were adopted and promulgated by his nephew *Faustus*, born in 1539. The latter had been obliged to leave Sienna, from supicions of his entertaining heretical notions, as early as in his twentieth year, and had retired to Lyons. On the death of his uncle, he came into possession of the manuscripts of the latter, by the study of which he found his former opinions confirmed. He began to publish his views at Florence (where he lived several years at the court of the grand-duke), in anonymous writings; and he afterwards retired to Basle to avoid the persecutions of the Italian inquisition. His opinions were still more fully developed during a residence in Transylvania, and in Poland he had numerous adherents. The Unitarian societies in that country, although they agreed with him in some points of doctrine, yet differed so far on others, that they would not receive him into their communion. He formed, however, some small societies of followers there, but suffered persecution in that country, and the confiscation of his property in Italy. His death took place in Poland, in 1604. See *Unitarians*.

SOCK (*soccus*); a sort of low shoe worn by the Greeks, and also by the Roman women, who had them highly ornamented. They were likewise worn by comic actors, the buskin, or cothurnus, being used in tragedy. *Sock* is hence often used for *comedy*.

SOCRATES. In the instance of this great man, posterity has shown, in a striking manner, that true merit does not appeal to its decisions in vain. He who perished in the conflict with his own age, is now venerated as a noble model of wisdom and worth in thought and action, and as the true source of the most valuable results in philosophy attained by the noblest spirits of Greece. Socrates claims our highest respect alike for the powers of his highly cultivated mind, the purity of his sentiments, the excellence of his instructions, the extent of his influence, and the end of his godlike life. He was born B. C. 470. His father, Sophroniscus, was a

statuary of little reputation, and his mother, Phænarete, a midwife. As his parents were in humble circumstances, it is not improbable that his father put him in the shortest way to gain a living by teaching him his own art, although there may be no truth in the story that the three Graces, at the entrance of the Acropolis of Athens, pointed out even in the age of Pausanias, were his work. Our accounts of his youth are very imperfect: but it may be confidently asserted that, notwithstanding the poverty of his father, he received a good education, according to the notions of his age and nation, and therefore learned music and gymnastics as they were then taught, and that his divine genius early impelled him to use all the means which his age and country afforded for acquiring information on the most important subjects of human knowledge. At that time the Sophists were perverting the heads and corrupting the hearts of the Grecian youth, and Socrates placed himself under the instruction of the most celebrated of these blind guides; but he soon abandoned the halls of these self-styled wise men, and resolved to obtain by his own reflection what others were unable to give him, and to penetrate by patient thought to true knowledge. He was deeply impressed by the inscription on the temple of Apollo, at Delphi: Γνωθι σεαυτον, Know thyself. Agreeably to this command, he began to study himself, to reflect upon the phenomena of his own mind, and to meditate on the destiny of mankind, and determined to devote his life to instructing his fellow citizens in their highest good, and making them wise, honest and pious. Like other great men, kindled by these divine thoughts, he believed himself commissioned by the Deity, and, to the close of life, cherished the idea that he was an ambassador of God. He was about thirty years old when he formed the resolution to devote himself entirely to the pursuit of divine and human knowledge, and withstand the perverters of science and morality. He now began to manifest a character entirely opposite to that of the Sophists. While they were distinguished by display and wealth, Socrates appeared in a poor cloak, which he wore at all seasons of the year, and was better dressed only at entertainments or public festivals. He even disdained the use of shoes. He was, indeed, destitute of pecuniary means for procuring the conveniences of life; but it would have been easy for him to obtain them from his friends and disciples, if he had not aimed at the completest independence; and it is certain that he refused all the offers of his rich friends, so that his most virulent enemies never ventured to impeach his disinterestedness. Socrates was first an instructor of the people. He believed himself the ambassador of God to the citizens of Athens, as he himself declares in Plato's Apology. Hence he was occupied from the dawn of day in seeking persons whom he might instruct in all that is important to mankind in general, and to the private circumstances of each. He went to the public assemblies, and the most crowded streets; or entered the work-shops of mechanics and artists, and conversed with them on religious duties, on their social and political relations, on all subjects relating to morals, and even on agriculture, war, and the arts. He endeavoured to remove prevailing prejudices and errors, and to substitute right principles; to awaken the better genius in the minds of his hearers: to encourage and console them; to enlighten and improve men, and to make them really happy. It is manifest that such a course must have been attended with great difficulties. But the serenity of Socrates was undisturbed; he was always perfectly cheerful in appearance and in conversation. In the market place and at home, among the people, and in the society of those whom love of truth and virtue connected more closely with him, he was always the same. It cannot be doubted that a happy physical and mental temperament contributed to produce this equanimity. But it was, likewise, a fruit of self-discipline. He treated his body as a servant, and inured it to every privation, so that moderation was to him an easy virtue; and he retained in old age his youthful vigour, physical and mental. He was kind as a husband and a father, though his wife, Xanthippe, was a noted shrew. He viewed her as an excellent instrument of discipline; and we can only regret that we know nothing more of the manner in which he educated his three sons than what Xenophon, in his *Memorabilia*, has preserved of his conversation with Lamprocles, the eldest. He not only instructed his fellow citizens in their duties, but likewise set before them a perfect example. He was a zealous worshipper of the Supreme Being; and, from his care not to offend his weaker brethren, observed, with punctilious exactness, all the religious usages which antiquity and custom had consecrated. As a citizen, he discharged, with exemplary faithfulness, all his public duties. Three times he served in the army of his country; the first time when he was thirty-nine years of age, at the siege of Potidæa. Here he excelled his fellow soldiers in the ease with which he endured the hardships of a winter campaign, distinguished himself by his valour, saved the life of his friend Alcibiades, and resigned to that youth the prize of honour which was awarded to his own bravery. Seven years after this, he bore arms a second time, at Delium, and was the last to fly. 420 B. C., he marched, under Cleon, against Amphipolis. Thus, in aiming to perform all the duties of a good citizen, he did not refuse to engage in the humblest service of his country. His conduct was admirable, when, at the age of sixty-five years, he became a member of the council of five hundred. He rose also to the dignity of president, who, on the day of his holding office (no man was president but once, and that only for a single day), managed the popular assemblies, and kept the key of the citadel and of the treasury. Ten naval officers had been accused of misconduct, because, after the battle of Arginusæ, they had omitted the sacred duty of burying the slain, in consequence of a violent storm. Their enemies, finding the people disposed to acquit them, procured, by intrigue, the prorogation of several assemblies. A new assembly was held on the day when Socrates was president; and the citizens, instigated by bad men, violently demanded that sentence of death should be pronounced on all of the accused at once, contrary to law. But the menaces of violence were unable to bend the inflexible justice of Socrates; and he was able to declare, on his own trial, that ten innocent men had been saved by his influence. Socrates exerted himself particularly in leading inquisitive young men to the pursuit of truth and the formation of habits of thought. He was constantly attended by a circle of disciples, who caught from him the spirit of free inquiry, and were inspired with his zeal for the highest good, for religion, truth, and virtue. The succeeding schools of philosophy in Greece are, therefore, justly traced

back to him; and he is to be regarded as the master who gave philosophical investigation, among the Greeks, its highest direction. Among his most distinguished disciples were Alcibiades, Crito, Xenophon, Antisthenes, Aristippus, Phædon, Æschines, Cebes, Euclid, and Plato. From the detached accounts given us by Xenophon and Plato, it appears that he instructed them in politics, rhetoric, logic, ethics, arithmetic, and geometry, though not in a systematic manner; he read with them the principal poets, and pointed out their beauties; he laboured to enlighten and correct their opinions on all subjects of practical prudence, and to excite them to the study of whatever is important to man. The circumstances of his being fettered by no school, and of his merely leading men to reflect for themselves, must have been of the best influence. Plato and Aristotle were more systematic; but to Socrates belongs the honour of having awakened the genius of Plato, and given philosophy its practical direction. Hence the ancients recognised a Socratic school; and the name of Socrates was esteemed, by subsequent philosophers, as one of their most venerable authorities. But his philosophy, both in form and matter, was peculiarly the fruit of his own researches. To make his instructions attractive, they were delivered, not in long lectures, but in free conversation, rendered interesting by question and answer. He did not reason before, but with his disciples, and thus exercised an irresistible power over their minds. He obliged them to think for themselves, and if there was any capacity in a man, it could not fail to be excited by his conversation. This method of question and answer is called the *Socratic method*. The fragments of his conversations, preserved by Xenophon, often leave us unsatisfied. Plato alone has transmitted to us the genuine spirit of this method; and he was, therefore, viewed by the ancients as the only fountain of the Socratic philosophy—a fact which has been too much disregarded by modern writers. The versatile genius of Socrates enabled him to adapt his instructions to the character of his hearers. If they were puffed up with their imaginary wisdom, he resorted to ingenious irony, and showed them, by their own contradictory answers, that they were destitute of true knowledge. When he entered into conversation with such men, his object often was, merely to show them their own deficiencies. Hence many of these conversations have little interest to a reader seeking after positive truth, particularly as Socrates turned against his opponents their own weapons, and often appeared as a Sophist. He proceeded very differently with persons unused to reflection, or too distrustful to rely on their own investigations. He met them with the utmost kindness, and let himself down to the humblest understandings, accommodating his instructions to their previous knowledge. He did not converse with them in pompous language, but resorted to images and arguments drawn from familiar objects. He strove to enlighten them by examples and by other means, which the resources of his comprehensive mind presented; and the more deeply the hearer penetrated into the spirit and meaning of his words, the more powerfully was he awakened and charmed. Like a spiritual midwife, as he playfully styled himself, he used to proceed with the young men, whose powers he wished to excite to action, so as to lead them inevitably to the truth; and, although he sought to effect this object by his interrogatory method, he intermingled longer discourses and explanations, into which he infused all the charms of his eloquence. Hence Alcibiades, in Plato's Banquet, bears the following testimony to his teaching: "When I heard Pericles, or any other great orator, I was entertained and delighted, and I felt that he had spoken well. But no mortal speech has ever excited in my mind such emotions as are kindled by this magician. Whenever I hear him, I am, as it were, charmed and fettered. My heart leaps like an inspired Corybant. My inmost soul is stung by his words as by the bite of a serpent; it is indignant at its own rude and ignoble character. I often weep tears of regret, and think how vain and inglorious is the life I lead. Nor am I the only one that weeps like a child, and despairs of himself; many others are affected in the same way." Socrates was, therefore, mighty in word. It is vain to seek for proofs of his eloquence in Xenophon, for the charm of oral delivery, the lofty inspiration of the moment, cannot be given to silent writing; and Xenophon does not seem to have intended to draw the true ideal of Socrates—not to say he was incapable of doing it. But in Plato we hear the genuine strains of the philosopher.

Socrates abandoned all inquiries concerning the origin of the universe and of the phenomena of nature, because he esteemed religion and practical morality more important. Astronomy and natural philosophy he by no means despised; but the want of accurate knowledge on these subjects in his age led him, perhaps, to confine their sphere within too narrow limits. He turned his attention to practical philosophy, which had been previously neglected, and, according to Aristotle, was the first to lay down general precepts of morality. In this view, it may well be said that he brought philosophy down from heaven to the abodes of men. Xenophon says, Socrates always conversed upon things relating to man's nature and condition; showed the difference between religion and impiety; explained in what the noble and ignoble, justice and injustice, reason and folly, courage and cowardice, consist; what constitutes a state, and what a statesman; spoke of the government of men, and what qualities are requisite in a governor, and other subjects, the knowledge of which he regarded important to a good man, and of which none but the mean-spirited are content to remain ignorant. All his inquiries took a practical turn, and he valued speculation and theory only as connected with practice; for the end of all knowledge, he affirmed, is virtue. Socrates was fully convinced of the existence of an all-ruling, almighty, wise, good, omniscient, and invisible being. The system of nature, and especially the admirable structure of the human frame, seemed to him a positive proof of a Creator. And as man is capable of thought, the same power, he argued, must exist in a still higher degree in the author of reason. The existence of the Deity is as little to be doubted, because he is neither visible nor tangible, as the existence of powers concealed from the senses, but known from their effects. He esteemed it rash to speculate upon the substance of this lofty Being, and deemed it sufficient to set in a clear light his spiritual nature. It is evident that he worshipped one God, as the Creator of the world and the Judge of mankind, because Xenophon represents him as speaking expressly, several times, of one God only, although in other places he speaks of

gods, which he seems to have regarded as subordinate to the Supreme Being. To the good providence of that God he traced all human blessings, and maintained that the omniscient and omnipresent Deity knows every thing, and observes all the secret thoughts and actions of men. For this reason, he esteemed it a sacred duty for men to worship him with all their powers, complying, indeed, with the forms of religious service prescribed by the customs or laws of their country, but particularly striving to do his will in all things. Hence he sacrificed and prayed at the altars of his country's gods, both at home and in public, and believed in the revelation of the Divine Being by various sensible appearances. Such revelations he supposed to be made to himself by a demon or genius, which always attended him, warning him from this or that course of conduct. But his compliance with religious usages, consecrated by age or custom, did not prevent him from raising his voice against the abuses and prejudices connected with sacrificial worship. Man, he said, could not purchase, but must merit, the favour of God; and this could be effected only by a blameless life, which is the truest and best service of the Deity. Prayer he considered a necessary part of a virtuous life, and therefore taught his disciples the following petition: "Father Jupiter, give us all good, whether we ask it or not; and avert from us all evil, though we do not pray thee so to do. Bless all our good actions, and reward them with success and happiness." Socrates entertained no less elevated ideas concerning the human soul. He considered it certain that it is of divine origin, wholly distinct from every thing material, and connected with the Deity by reason and the power of thought. He did not deny the difference between it and the divine nature, but maintained that exercise and cultivation would improve the spiritual principle in man. To this cultivation he exhorted his hearers and friends with a godlike zeal. He declared the improvement of the mind to be the highest good of which man is capable. As the chief means, he recommended self-knowledge, and he esteemed those as consummately foolish who knew every thing but themselves. Socrates distinguished, also, a sensible and a reasonable soul. Of the immortality of the soul he was firmly convinced. This doctrine he inferred from its native dignity; likewise from the supposition that the soul gives life to the body; from the phenomena of dreaming; from the opinion of former ages, and from the nature of the Divine Being from whom the soul proceeds. Hence he viewed death to the good as merely a transition to a better life, and spoke of his hopes with affecting certainty and admirable clearness. His pure soul was enraptured with the thought of meeting the virtuous men of earlier ages. He feared not to stand before the holy Judge of the world; and, in the regions of the blessed, he hoped to find unmingled happiness, with the consciousness of having laboured after truth and struggled for virtue. The images and terms by which he describes the wretchedness of the vicious are terrible. Souls which have become diseased by wickedness, covered, as it were, with stains and ulcers, in consequence of their licentiousness, effeminacy, or unlawful desires, and stamped with the hateful impress of perjury and injustice, are plunged into abodes of pain, to be reformed by punishment, or to serve as examples to others. This account of the effect of vice on the substance of the soul, though all plainly symbolical, surpassed, in fearful distinctness, all that had been said on the subject. Socrates founded his morality on his religion. God wishes men to be virtuous, and, therefore, they should act well. The performance of duty is the only way to happiness. Although he did not exclude the desire of happiness from the motives to virtue, he was far from representing it as the only motive. He thus made an intimate connexion between religion and virtue. The native dignity of virtue he painted in the most delightful colours. The dominion over the senses he declared to be the highest state of freedom: he said that virtue only was true wisdom, and that vice was insanity. He exhibited no regular system of morals; but this principle may be considered as lying at the foundation of his views of morality: Do what the Deity commands thee. The true interpreter of this command he considered to be a moral sense which distinguishes between justice and injustice, magnanimity and meanness—in short, between virtue and vice. He did not entertain the idea of moral freedom. On the contrary, he maintained that every man who is acquainted with good practises it, because every one acts agreeably to his knowledge. Virtue he declared to be the striving to make one's self and others as perfect as possible. All virtue he reduced to two heads, temperance and justice; the former embracing all the duties which man owes to himself, and the latter those which he owes to his fellow men. The temperance of Socrates included dominion over every sensual impulse. This self-government he regarded as the basis of all other virtues, which, by its aid, will unfold themselves from the promptings of the moral nature, and the increasing knowledge of good. The beneficial influence of this virtue he describes with a genuine inspiration, and draws a frightful picture of excess. His representation of a just man, one who faithfully performs all his duties to God and man, is highly interesting. Injustice he held to be a great evil. He declared that justice was due even towards enemies; and that a man should never transgress the laws of his country, however unjustly they might be administered. His views of friendship, society, conjugal affection, and the pleasures of life, were excellent. He maintained in every thing the golden mean. All his precepts were equally removed from excessive rigour and pernicious laxness; and whoever follows them will be a good man. To his precepts was added his example, so superior to all reproach, that Xenophon, his friend and disciple, in his *Memorabilia*, says none ever saw him perform a vicious or unworthy action, and, at the close of his work, draws the following picture of him: "All the friends of virtue who knew Socrates are still filled with sorrow for his loss; for they found him the best guide to virtue. He was so pious that he did nothing without the advice and consent of the gods; so just that he never injured, in any way, the happiness of any man, but, on the other hand, did the most important services to those who were connected with him. He was so temperate that he never preferred the agreeable to the useful; of so clear a mind that he never erred in the distinction of good and evil, and all by his own unaided strength. He was, besides, so able in his definitions and illustrations of these subjects, in his judgment of men, in confuting error and recommending virtue and uprightness, that I esteem him the best and the happiest of mortals." Such a man has been charged by some with being

guilty of a shameful passion, but it is unnecessary to refute this accusation; it is more important to explain the circumstances and grounds of his condemnation.

The last part of his life fell in that unhappy period when Athens had sunk into anarchy and despotism, in consequence of the unfortunate result of the Peloponnesian war. Morality and justice are always disregarded when the government of a state is dissolved. This was the case in Athens. The dominion of the thirty tyrants had, indeed, been overthrown by Thrasybulus; but, like the ocean after a storm, Athens was still unsettled, and amid the general immorality, hatred, envy and malice found opportunities to execute their purposes. Melitus, a young tragic poet of no merit, Lycon, a public orator, and Anytus, a tanner and politician, were the accusers of Socrates, and were listened to the more readily, as he had offended the people by the freedom with which he had expressed his dislike of an ochlocracy. The charges of introducing new gods, of denying the ancient divinities of the state, and of corrupting the youth, were brought, not before the Areopagus, but before the popular tribunal in the Heliæa. The accusations were supported by perverted statements of the language of Socrates, by expressions detached from the connexion which modified them. But these, and the fact that the tyrant Critias, and the public enemy Alcibiades, were his disciples, were plainly not a valid cause for his condemnation. Socrates, conscious of his moral dignity, disdained to make a laboured defence of his character. He neither feared death, nor respected his judges. Moreover, he felt confident that a long life, spent under the eye of the judges and the people, was the strongest proof of his innocence. Briefly, and with a noble dignity, he showed the groundlessness of the charges, and noticed his own deserts. Several of his blind and wicked judges took offence, and he was condemned by a majority of three voices. But, when they left him to choose the mode of punishment, and Socrates declared that, instead of deserving death, he merited a place in the Prytaneum, as a public benefactor, the furious populace, thinking themselves insulted by such a declaration, condemned him to drink poison. He consoled his afflicted friends, and reminded them that, from the day of his birth, nature had pronounced sentence of death upon him. Religious and moral feeling, and the heavenly power of a pure conscience, still triumphed within him. On the day when he was thrown into prison, the sacred galley sailed from Athens for Delos, and, in conformity with an ancient law, the execution of the sentence was deferred till its return, thirty days—an important delay for the philosopher and his disciples. Every morning his friends assembled in his apartment, and he conversed with them as he had been wont to do. He encouraged them in the path of virtue, instructed them in the subjects of his investigations, and proved to them, by his own example, that obedience to his precepts produced real happiness. In his solitary hours, he composed a hymn to Apollo, and versified several of the fables of Æsop. There was a striking contrast between the resignation of Socrates and the grief of his friends, at the thought of their irreparable loss. We may well pardon them for the projects which they formed for his escape. Simmias of Thebes offered to bribe the keeper; but they could, of course, do nothing without the consent of Socrates; and, from his known principles, it was probable that he would not listen to their plan. But they determined to make the attempt. Crito, the old and tried friend of Socrates, undertook to persuade him to comply with their wishes. Early in the morning of the last day but one, he visited him for this purpose. The good man was still asleep. Crito sat down softly by his bed, and waited till he awoke. He then informed him of the unanimous request of his friends, urging every motive which the peculiar circumstances of Socrates suggested, especially the care of his family, to persuade him, if possible, to save his life. Socrates permitted his friend to finish, and thanked him for this proof of his affection, but declared that flight was wholly irreconcilable with his principles. Plato's dialogue, entitled Crito, records this conversation, and is one of the most pleasing performances of that great master. It inspires the most profound admiration of Socrates, who adhered to his lofty principles with unshaken firmness on the brink of the grave, and, notwithstanding the injustice of his condemnation, could not be persuaded to violate his duties as a citizen. At length the fatal day dawned on which Socrates was to drink the poison. His family and friends assembled early, to spend the last hours with him. Xanthippe, his wife, was much affected, and showed her grief by loud cries. Socrates made a sign to Crito to have her removed, as he wished to spend his last moments in tranquillity. He then talked with his friends first about his poem, then concerning suicide, and lastly concerning the immortality of the soul. He spent the greater part of the day in these elevated meditations. He spoke with such animation of the hopes inspired by his faith, that his friends almost viewed him as a glorified spirit. The approach of twilight at length admonished him that the appointed hour had arrived. He asked for the cup; and, when he took it in his hand, his friends were so overcome with grief, that they burst into tears and loud lamentations. Socrates alone was calm. He then drank the hemlock slowly, and consoled his friends, as he walked up and down the apartment. When it became difficult to walk, he lay down upon the couch, and, before his heart ceased to beat, exclaimed, "My friends, we owe a cock (the emblem of life) to Æsculapius." After he had said these words, he covered himself with his cloak, and expired, in the seventieth year of his age (B. C. 400). Soon after his death, the Athenians acknowledged his innocence, and regarded the misfortunes of the state as a judgment for their injustice towards him. They reversed his sentence, put Melitus to death, banished his other accusers, and caused a brazen statue to be erected to his memory by Lysippus. The person of Socrates was not prepossessing. Plato says he had the head of a Silenus; but mental grace ennobled him, and attracted the virtuous.—See Wegger's *Socrates* (Rostock, 1811, 2d edition), and Delbrück's *Socrates* (Cologne, 1816), both in German; see, also, Mitchell's introduction to his translation of Aristophanes; Cumberland's *Observer*, and Cousin's *Nouveaux Fragments Philosophiques*.

SODA; formerly called the *mineral alkali*, because, under the name of *natron*, it is found native in the mineral kingdom. It is usually obtained from the incineration of marine vegetables, of which different species afford it in different quantities and states of purity. The various kinds of *fuci* afford the impure alkaline product known in commerce by the name of *kelp* (q. v.): the genera *salsola* and

salicornia, in particular, furnish the pure *barilla* (q. v.). These products contain much foreign matter: the soda is combined with the carbonic acid, and with that are associated muriate and sulphate of soda, a small portion of hydriodate of potash or soda, charcoal, lime, magnesia, silica and alumina. The origin of the soda in these cases is undoubtedly from the muriate of soda, with which such plants are supplied from their situation; since it has been ascertained concerning some of them, that, when transplanted to inland situations, they cease to yield soda, and only afford potash. It is usually from barilla, that soda is procured. The barilla, in powder, being lixiviated with boiling water, the solution, on evaporation, affords crystals of carbonate of soda. To remove the acid, the same process is employed as in procuring potash. The salt is dissolved in twice its weight of water, and filtered through slacked lime. The lime abstracts its carbonic acid, principally: to obtain the soda perfectly pure, however, it must be submitted to the action of alcohol. Soda thus obtained is in the state of a solid white mass. In its driest state, it contains, like potash, a portion of combined water, or is a hydrate, consisting of soda 32, and of water 9. Soda is possessed of all the alkaline properties in common with potash. It is acrid, and caustic, and abundantly soluble in water. It changes the vegetable colours to green, is powerful in neutralizing the acids, and in rendering saponaceous the animal and vegetable oils. It is acted on by sulphur and phosphorus, but does not itself act so powerfully on the metals, or the earths, as potash. It combines with the latter, however, by fusion, and forms, with silica, in particular, a very perfect glass. The basis of soda is a peculiar metal, called *sodium*, discovered by Sir H. Davy, in 1807, a few days after his discovery of potassium. It may be procured in exactly the same manner as potassium, by electrical or chemical decomposition of the pure hydrate. It requires, however, a somewhat higher degree of heat, and a greater voltaic power, to decompose soda than potash. Sodium is a white metal, having a colour intermediate between those of silver and lead. At the common temperature of the air, it is solid, and very malleable, and so soft that pieces of it may be welded together by strong pressure. It retains its softness and malleability at the temperature of 32°. It is an excellent conductor of electricity; specific gravity 0·972. It melts when heated to the temperature of 194°, and requires a much higher temperature to be volatilized than potassium. Its affinity for oxygen is similar to that of potassium. When exposed to the air, it speedily absorbs oxygen, and becomes converted into soda. When thrown into water, that liquid is rapidly decomposed; its hydrogen escapes in the state of gas, while its oxygen converts the sodium into soda. When projected on hot water, it burns with a yellowish flame, whereas that of potassium is reddish. Soda is composed of sodium 100 and oxygen 33·3. Another compound of sodium and oxygen is the *peroxide of sodium*. It is formed by heating sodium in oxygen gas. It is of a deep orange colour, very fusible, and a non-conductor of electricity. When acted on by water, it gives off oxygen, and the water becomes a solution of soda. Only one combination of sodium and chlorine is known. This is formed when sodium is introduced into chlorine gas; the sodium takes fire, and is converted into a *chloride of sodium*. It may be formed, likewise, by passing a current of chlorine gas over soda, previously heated to redness. The soda gives out its oxygen in the state of gas, and is converted into a chloride. It is composed of chlorine 4·5 and sodium 3. It is the important substance known under the name of *common salt*, or *muriate of soda*. Vast beds of it exist in the bowels of the earth, whence it is quarried under the name of *rock salt*; and sea-water contains about 3·5 per cent. of it, from which it is easily procured by evaporation. In the latter case it is less pure than in the former, requiring some care in the evaporation, in order to separate it from the salts with which it is contaminated. In warm climates, it is obtained by spontaneous evaporation; the sea-water is admitted into shallow trenches by the sea-side, and spread over an extensive surface; as it becomes concentrated by evaporation, the liquor is removed, by sluices, from one trench to another, until at length the salt crystallizes spontaneously, and nearly pure. In colder climates, the sea-water is evaporated in large boilers by the application of heat, and the evaporation is carried so far, that the salt concretes on the surface of the boiling liquor in small crystals. As obtained by this mode, small portions of muriate of magnesia and sulphate of magnesia adhere to it, which somewhat impair its antiseptic properties, and, at the same time, render it slightly deliquescent. Rock salt, as it comes from the mine, sometimes requires to be dissolved and evaporated, in order to free it from the oxide of iron and clay with which it is often blended. On account of these impurities, it presents, occasionally, a variety of colours, such as yellow, flesh-red, and blue. Its depositories are transition rocks which are in connexion with gypsum and sandstone. Mines of salt are found in Poland, England, Russia, Spain, and the East Indies. The most remarkable deposits, however, are those of Poland and Hungary. That at Wiliczka, near Cracow, in Poland, is supposed to contain salt enough to supply the whole world for many centuries, although it has been wrought for six or seven hundred years. It has been explored to an astonishing depth; and its subterranean regions are excavated into houses, chapels, and other ornamental forms, the roof being supported by decorated pillars of salt. When illuminated by lamps and torches, they are described as objects of great splendour. The purity of rock salt may be seen from the following analysis by doctor Henry:—

Chloride of sodium,	983·35
Sulphate of lime,	6·40
Chloride of magnesium,	·19
Chloride of calcium,	·06
Undissolved matter,	10·00

Common salt, when artificially prepared, or in its state of greatest purity, has the following properties:—It is white; crystallizes in cubes (rarely in octahedrons); has a specific gravity of 2·12 to 2·25. 100 parts of water

at 57°	dissolved	36 of salt.
at 140	"	37 do.
at 229½	"	40·38 do.

When heated, it decrepitates, and at a red heat melts into a liquid without undergoing decomposition. In a high temperature it may be sublimed. It contains no water of crystallization.

Sodium combines readily with sulphur and phosphorus, presenting similar phenomena to those presented by potassium. The *sulphurets* and *phosphurets* of sodium are less inflammable than those of potassium. Potassium and sodium combine with great facility, and form peculiar compounds, which differ in their properties according to the propor-

tions of the constituents. By a small quantity of sodium, potassium is rendered fluid at common temperatures. A little potassium, on the other hand, destroys the ductility of sodium, and renders it very brittle.

Salts of Soda.—In general, the salts of soda are much more soluble in water than those of potash. Many of the salts of the latter alkali contain no water of crystallization; but most of the salts of soda contain a great deal. One of the easiest methods of ascertaining whether the base of a given salt be soda, is to determine the shape of the crystals which it forms. If it does not shoot into regular crystals, separate the acid by means of sulphuric or nitric acid, and let the newformed salt crystallize. Sulphate and nitrate of soda are easily recognised by the figure of their crystals.—*Sulphate of soda.* This salt was discovered by a German chemist, named Glauber, and for that reason is commonly known under the name of *Glauber's salt.* It may be procured by saturating soda with sulphuric acid, but is more usually obtained by decomposing common salt with sulphuric acid in order to procure muriatic acid. It crystallizes with great readiness in the form of an oblique rhombic prism; specific gravity, 2·2 to 2·3. Its taste at first resembles that of common salt, but soon becomes disagreeably bitter: 100 parts of water, at 60° Fahr., dissolve 48·6 parts of crystallized salt. When exposed to the air, it loses great part of its water, and falls into a white powder, but is not otherwise altered. In this alteration, it loses about 56 per cent. of its weight. When exposed to heat, it first undergoes the watery fusion, then its water is evaporated, it is reduced to a white powder, and in a red heat it melts. (For the solubility of Glauber's salt, see the article *Salt.*) As a purgative, the use of this salt is very general; and it has been employed to furnish soda. It has been employed also in the art of glass-making: equal parts of carbonate of lime, sand, and dried sulphate of soda, produce a clear, solid, pale-yellow glass. *Bisulphate of soda* may be obtained by dissolving sulphate of soda in dilute sulphuric acid, and, after concentrating it sufficiently, setting it aside. The crystals are oblique, four-sided prisms, resembling pretty nearly, in dimensions, those of the sulphate. They do not deliquesce in the air. Its taste is very acid. It may be exposed to a red heat without losing its excess of acid. It is more than twice as soluble as Glauber's salt.

Nitrate of soda is obtained by adding dilute nitric acid to soda, or by mixing nitrate of lime and sulphate of soda together, filtering the solution and evaporating. The crystals are transparent, and have the form of the rhombic prism. Specific gravity, 2·0. It has a cool, sharp taste, and is more bitter than nitre. One hundred parts of water, at 32° Fahr., dissolve 80 parts of this salt, whereas at 50°, only 22·7 parts are dissolved. As it attracts moisture when exposed to the air, it does not answer for the manufacture of gunpowder. It is sometimes used in fire-works, on account of its communicating a fine orange colour to combustibles while burning. It contains no water of crystallization, but usually about three per cent. of water, mechanically lodged between the plates of the crystals. Its constituents are, nitric acid 6·75 and soda 4·0. An immense deposit of it, extending for many leagues, is said to exist in the desert of Atacama, in Peru. Attempts were made, some years ago, to introduce it into commerce; but they did not succeed. It might be used with advantage for the manufacture of nitric acid, and probably, also, in that of sulphuric acid.

Carbonate of soda.—This salt has been also long known, as well as common salt, above described. It is obtained from the lixiviation of marine plants, which do not afford it in purity, but associated with other salts: to separate it from these, the solution requires to be evaporated at a low heat, skimming off the crystals of common salt as they form on its surface. Of late years, large quantities of carbonate of soda have been manufactured from common salt; the consequence of which is, that it may now be obtained at one third of its former cost; and it is taking the place of potash in those manufactories that require an alkali. The process followed in Great Britain is to convert common salt into sulphate of soda by means of sulphuric acid. The sulphate of soda is heated with sawdust, or small dross of pit-coal, by which it is converted into sulphuret of sodium. Sometimes the sulphur is got rid of by means of lime, but more commonly by roasting the sulphuret, so that air from a coal fire passes through it. The sulphur is gradually dissipated, and the sodium converted into carbonate of soda. The matter thus treated is dissolved in water, and subjected to two successive crystallizations in open iron coolers. By this process beautiful crystals of carbonate of soda are obtained. They in general contain about one half per cent. of sulphate of soda. The crystals are large, frequently eight or nine inches long, and are rhombic prisms with dihedral summits. Its taste is similar to that of the carbonate of potash, but less caustic. Its specific gravity is 1·62. It dissolves in rather less than its weight of boiling water, so that, when dissolved in such water, it crystallizes as the solution cools. When exposed to the air, it very soon effloresces, and falls to powder. When heated, it undergoes the watery fusion; indeed, the soda of commerce sometimes contains so much water of crystallization, that, when once melted, it remains permanently liquid. If the heat be continued, the water gradually evaporates, and the salt becomes dry. In a red heat, it melts into a transparent liquid. A very violent heat drives off a part of the acid. It melts rather more easily than carbonate of potash, and for that reason it is preferred by glass manufacturers. Its constituents are,

Carbonate acid	2·75
Soda,	4 00
Water,	11·25
	18.

The *trona*, found in the province of Sukena, near Fezzan, in Africa, and which occurs in hard, striated masses, of such firmness that the walls of Cassar, a fort now in ruins, are said to have been constructed of it, differs from the carbonate of soda in the proportion of its constituents. It is called by doctor Thomson a *sesquicarbonate of soda.* It consists of

Carbonic acid,	4·125
Soda,	4·00
Water,	2·25
	10·375

It may be formed artificially by exposing the common carbonate of soda to an atmosphere of carbonic acid gas, and is largely manufactured for the soda-water makers, being sold in the condition of a white powder. Its taste is alkaline, but much milder than the common carbonate: specific gravity, 1·98.

Bicarbonate of soda.—This salt is obtained with ease by suspending a solution of common carbonate of soda over a brewer's fermenting tun during the fermentation of beer. It crystallizes in oblique rectangular prisms. The taste is feebly alkaline. It consists of

Carbonic acid,	5·5
Soda,	4·
Water,	1·125
	10·625

Phosphate of soda is prepared by saturating phosphoric acid (obtained from burned bones) with carbonate of soda, and setting the concentrated solution aside to crystallize. The crystals are oblique rhombic prisms, of about 67° 50′: taste saline and strong. It effloresces with great rapidity when exposed to the air, becoming white and opaque. It is readily soluble in water. It consists of

Phosphoric acid,	4·5
Soda,	4·
Water,	14·625
	23·125

As the taste of this salt is simply saline, without any thing disagreeable, it is much used as a purgative, chiefly in broth, in which it is not distinguishable from common salt. It is also employed by the chemist in assays of minerals with the blowpipe.

Borax, or *biborate of soda.*—This salt is supposed to have been known to the ancients, and to be the substance denominated *chrysocolla* by Pliny. At any rate, it is mentioned by Geber as early as the seventh century, under the name of *borax*. It is brought from the East Indies in an impure state, under the name of *tinkal*, enveloped in a kind of fatty matter, now known to be a soap, with soda for its base. When purified, it takes the name of *borax*. When pure, it presents itself in large hexagonal or octagonal crystals, of which two sides are much broader than the others. It is white and transparent; specific gravity 1·74. It converts vegetable blues to green. Its taste is sweetish and alkaline. It is soluble in twenty times its weight of water, at the temperature of 60°, and six times its weight of boiling water. When exposed to the air it effloresces slowly and slightly. When heated, it swells, loses about four tenths of its weight, becomes ropy, and then assumes the form of a light, porous, and very friable mass, known by the name of *calcined borax:* in a strong heat, it melts into a transparent glass still soluble in water. Borax consists of

Boracic acid,	6
Soda,	4
Water,	9
	19

Large quantities of borax are made in Great Britain from boracic acid imported from Tuscany. Borax was formerly employed in medicine as a sedative, and is still used to form a gargle. Its great utility, however, consists in its application as a flux in soldering, and in the fusion of siliceous stones for the formation of pastes, or artificial gems, and for the glazing of pottery.

SODALITE; a name originally given by doctor Thomson to a mineral discovered in West Greenland, by Sir Charles Gieseke. It is crystallized in regular dodecahedrons, and also occurs massive; colour green, translucent; hardness about that of feldspar; specific gravity 2·37. It was found by doctor Thomson to consist of silex 38·5, alumine 27·48, lime 2·7, oxide of iron 1·, soda 25·, muriatic acid 3·, volatile matter 2. This mineral has since been found in transparent crystals, and crystalline masses, among the lava of Vesuvius. With the sodalite, mineralogists now associate several substances formerly believed to be distinct, but whose principal differences are confined to colour and mechanical composition: these minerals are the following:—*Haüyne*, *Lapis-lazuli*, *Saphirin*, *Spinellan*, *Nosin*, and *Ittnerite*.

SOEMMERING, Samuel Thomas von, M. D., born in 1755, at Thorn, son of a physician, was a distinguished German naturalist. He passed the last years of his life at Frankfort on the Maine, where he died, March 2, 1830. He distinguished himself by his writings—*De Basi Encephali et Originibus Nervorum Cranio egredientium* (Göttingen, 1778, 4to.); *De Corporis Humani Fabrica* (Frankfort on the Maine, 1794, 4 vols.); *Tabulæ Sceleti Feminini*, with descriptions (Frankfort, 1797, et seq.); and *Abbildungen des menschlichen Auges* (Frankfort, 1801, et seq.), &c. Soemmering has rendered many services to science.

SOFEES, or SOPHIS; the professors of Sufism. (q. v.)

SOFFITA, in architecture; any timber ceiling, formed of cross beams, or flying cornices, the square compartments or pannels of which are enriched with sculpture, painting, or gilding.

SOFISM. See *Sufism*.

SOHO; a celebrated manufactory of Messrs Boulton and Watt, near Birmingham, established in 1764. The construction of steam engines, and other heavy iron machinery, is here carried to great perfection. A coining mill, erected in 1788, works eight machines, and is capable of striking between 30,000 and 40,000 pieces of money in the space of an hour. The impression on both sides is received from one blow, and the machine itself disposes each piece, and removes it after it has received the stroke.

SOILING, in agriculture; the practice of supporting animals of various kinds, in the summer season, with green food of different sorts, cut daily, and given to them in racks, in the houses, stalls, or yards, instead of sending them to the fields.

SOISSONS; a city of France, in the department of the Aisne (Isle de France), sixty miles north-east of Paris; population, 7765. It is an episcopal see, and contains a cathedral, a royal college, twelve churches, &c. Soissons was the residence of the early Frankish kings, and before the revolution, it was the capital of a district, called *Soissonnais*. It was anciently called *Noviodunum*, and afterwards took the name of *Suessiones*, and *Augusta Suessionum*, from the people.

SOLAMINE; a substance which M. Peletier has procured from the *solanum mammosum* of the Antilles. It is also found in the berries of the *S. nigrum*, as well as in the leaves and stems of the *S. dulcimara*. To obtain it, ammonia is poured into the filtered juice of the berries, when a grayish matter falls down, which is to be collected on a filter, washed, and treated with boiling alcohol. The solamine precipitates from this by evaporation. It is an opaque, white, somewhat pearly-looking powder; without smell; very bitter; fusible below 212 Fahrenheit; decomposable at a higher temperature; insoluble in water, ether, oil of olives, and

essence of turpentine; but very soluble in alcohol. It combines with the acids, forming uncrystallizable salts. It is eminently emetic.

SOLAR (from the Latin *sol*); any thing belonging to the sun.

SOLAR DAY. See *Solar Time.*

SOLAR MICROSCOPE. See *Microscope*; also *Optics.*

SOLAR PARALLAX. See *Sun.*

SOLAR SPOTS. See *Sun.*

SOLAR SYSTEM. Modern astronomy (see the article *Astronomy*), has elevated itself to the notion, that each fixed star is a sun, which we may suppose, according to the law of analogy, accompanied by a system of planets, so that each star may be the centre of a solar system. But in the narrower and most common sense of the phrase, *solar system* signifies our sun, with the planets, moons, and comets that revolve round it. The planets are, Mercury, Venus, Earth, with one moon; Mars, Vesta, Juno, Ceres, Pallas, Jupiter, with four moons; Saturn, with seven; and lastly Uranus, or Herschel, with six moons already known, and probably others undiscovered. All these planets, accompanied by their moons, move, as do also the comets, in elliptical orbits, round the sun, which is situated in a focus common to all of them, and, by his mighty power of attraction, retains them in their orbits. (See *Central Forces.*) The moons also describe elliptic orbits around the primary planets, with which, at the same time, they revolve around the sun. Moreover, the planets all have a rotation on their own axes, which, together with the inclination of these axes towards the plane of the orbits, and their continuance in this situation (*parallelism*), leads to the idea that all these planets are inhabited by beings endowed with sensation, for whose use these two arrangements seem to have been established. The discoveries of astronomy (e. g. the circumstance, but lately made known by Laplace, that the moons of Jupiter are never all eclipsed at the same time, so that the nights of that planet are never entirely destitute of light) seem to confirm this idea. We can touch upon only a few of the phenomena of our solar system. One of these is the admirable regularity in the distribution of the planets in the heavens. Before the discovery of the four new planets—Ceres, Vesta, Juno, and Pallas—it had been ascertained that the distance of the then known planets from the sun increase according to the following series:—4; 4+3; 4+2·3; 4+16·3; 4+32·3; 4+64·3. In this series, a member (4+8·3) was wanting between the members 4+4·3 and 4+16·3, corresponding to Mars and Jupiter, which circumstance gave rise to the supposition of the existence of an undiscovered planet at the above mentioned distance from the sun—a supposition which has been confirmed by the discovery of the four new planets. Another remarkable circumstance, which indicates a similarity between our earth and the other planets, is the flattening (q.v.) of Jupiter at the poles. The flattening of the earth is ascribed to the original softness of the mass composing it, which yielded to the centrifugal force of rotation. As Jupiter is subject to a very quick rotation, the flattening, supposing this planet also to have consisted originally of a soft mass, would naturally be very great, which late observations have proved to be the case. (For the historical information belonging to this subject, see the article *Copernicus* and *Kepler.*) The following tabular view presents some of the principal points connected with our solar system:

The circumference of the earth is 25,000 miles.
" surface " 196,000,000 square miles.
" cubic contents " 170,195,852,160 cubic miles.

Planets.	Sidereal Revolution. Y.	D.	Rotation. D.	H.	M	Dist. from the Sun. Miles.	Cubic Contents. Earth = 1.
Sun,			25	14			1,300,000.
Mercury,		88	1		5·5	37,000,000	1-18th.
Venus,		224 75		23	22	68,000,000	4-5ths.
Earth,	1		1			96,000,000	1.
Its moons,		27·5	27·33			From Earth 240,000	1-50th.
Mars,	1	322	1		30	143,000,000	1-5th.
Vesta,	3	224	Not known.			225,000,000	Very small.
Juno,	4	131	—			254,000,000	Less than Ceres.
Ceres,	4	220	—			263,000,000	Half size of Pallas.
Pallas,	4	221	—			263,000,000	Also not as large as our Moon.
Jupiter with four moons,	11	314		9	56	490,000,000	1281
Saturn with seven moons,	29	169		10·	16	900,000,000	920.
Uranus with six moons,	84	9		7		1800,000,000	83.

See Laplace's *Exposition du Système du Monde* (4th ed., Paris, 1813); Hassenfratz's *Cours de Physique Céleste ou Lecons sur l'Exposit. du Système du Monde* (Paris, 1803, with engravings). A very full tabular view of the solar system is contained in Littrow's Popular Astronomy (in German, Vienna, 1825, 2 vols., with engravings).

SOLAR TIME. The earth revolves, at the same time, on its own axis, and round the sun. During one rotation on its axis it advances about 1° in its orbit, and must, therefore, after the completion of a rotation, turn as much more as this advance, before the sun can come again to a given meridian. The time, which, in this way, passes between two successive culminations of the sun, is generally called a *solar day.* But the rapidity of the earth's advance in its orbit, is different at different times: at one period it passes through a larger portion of its orbit in a given time than at others, so that the solar days cannot be equal. Another circumstance, dependent upon the inclination of the axis of the earth to the plane of the ecliptic, is also to be taken into account. The apparent solar time, therefore, is distinguished from mean solar time, which has reference to an imagined uniformity, in the progress of the earth round the sun, and supposes the axis of the earth to be perpendicular to the plane of the ecliptic. Sun-dials show the apparent solar time; watches, and other time pieces in common use, only the mean solar time. The difference between the two is called *equation of time* (q. v.) The following table shows what time watches and clocks ought to indicate on the first of every month, when the sun-dial indicates twelve o'clock:—

			Min.	Sec.
On the 1st of	January,	12 o'clock,	3	48
—	February,	12 —	13	58
—	March,	12 —	12	46
—	April,	12 —	4	8
—	May,	11 —	56	53
—	June,	11 —	57	18
—	July,	12 —	3	14
—	August,	12 —	5	58
—	September,	11 —	59	58
—	October,	11 —	49	49
—	November,	11 —	43	46
—	December,	11 —	49	9

Solar time is to be distinguished from sidereal time. (q. v.)

SOLDERS consists merely of simple or mixed metals, by which alone metallic bodies can be firmly united with each other. In this respect, it is a general rule, that the solder should always be easier of fusion than the metal intended to be soldered by it. Next to this, care must also be taken that the solder be, as far as is possible, of the same

colour with the metal that is to be soldered. For the simple solders, each of the metals may be used, according to the nature of that which is to be soldered. For fine steel, copper and brass work, gold and silver may be employed. In the large way, however, iron is soldered with copper, and copper and brass with tin. The most usual solders are the compound, which are distinguished into two principal classes, viz., hard and soft solders. The hard solders are ductile, will bear hammering, and are commonly prepared of the same metal with that which is to be soldered, with the addition of some other, by which a greater degree of fusibility is obtained, though the addition is not always required to be itself easier of fusion. Under this head comes the hard solder for gold, which is prepared from gold and silver, or gold and copper, or gold, silver, and copper. The hard solder for silver is prepared from equal parts of silver and brass, but made easier of fusion by the admixture of one sixteenth of zinc. The hard solder for brass is obtained from brass mixed with a sixth, or an eighth, or even one half of zinc, which may also be used for the hard solder of copper. It is sold in the shops in a granulated form, under the name of *spelter solder*. The soft solders melt easily but are partly brittle, and therefore cannot be hammered. Of this kind are the following mixtures:—tin and lead in equal parts; of still easier fusion is that consisting of bismuth, tin and lead in equal parts; one or two parts of bismuth, of tin and lead each one part. In the operation of soldering, the surfaces of the metal intended to be joined must be made very clean, and applied to each other. It is usual to secure them by a ligature of iron wire, or other similar contrivance. The solder is laid upon the joint, together with sal-ammoniac and borax, or common glass, according to the degrees of heat intended. These additions defend the metal from oxidation. Glaziers use resin; and pitch is sometimes employed. Tin foil, applied between the joints of fine brass work, first moistened with a strong solution of sal-ammoniac, makes an excellent juncture, care being taken to avoid too much heat.

SOLDIER;* originally a warrior who serves for pay, from which circumstance, as is shown in the note, the word is derived. In other languages, having corresponding words derived from the same root—for instance, in German—*soldier* is frequently used to denote more especially the modern warrior, contradistinguished to the ancient, as well as to the feudal militia, and to the mercenaries of the middle ages. The first example of mercenaries is found about 700 B. C., in Carthage, if we except the small companies of guards in the service of some kings and tyrants. Carthage, with a moderate population, and much commerce and industry, first kept an army of mercenaries on foot. Yet every citizen continued to be obliged to serve, in case of necessity. These mercenaries disturbed the peace of the city by their conspiracies, and, in most of the struggles for national independence, proved of little use. Carthage, therefore, though defended by numerous fleets and armies, was overthrown by a power of but moderate strength, but relying solely on the valour of its own citizens. The example of Carthage was followed by Syracuse and other governments of Sicily and Lower Italy, and with precisely the same result. In Egypt also, under Psammetichus and his successors, Greek mercenaries were employed (about 656 B. C., on which account the old caste of warriors emigrated to Æthiopia;) but a single battle with Cambyses sufficed to overturn the throne of the Pharaohs, already shaken by the warlike hordes of Nebuchadnezzar; and another example was presented of the insufficiency of mercenaries; yet the employment of them became more general. In Persia, military service was confined to the nobler tribes; only on some extraordinary occasions, as the attempt of Xerxes against Greece, the whole nation was called to arms. With the increase of luxury among the ruling tribes, the standing armies of Persia came to be formed chiefly of Barbarian and Greek mercenaries; and the consequence was that this vast empire fell to pieces when boldly attacked by the Macedonians. The flower of the army of Alexander also consisted of standing troops; but they were native Macedonians, who, elevated by the genius of their commander, fought for their national honour. In the best times of Greece, her only wars had been of a national character. The battle of Marathon, the noblest conflict recorded in Greek history, was gained by 10,000 Athenian and Platæan citizens. But when Athens and Sparta began to contend for the supremacy of Greece; when internal wars became frequent, and degeneracy increased,—then mercenaries were employed. The number of citizen-soldiers diminished, and Greece lost her liberty in the battle of Chæronea. From the time when standing armies came extensively into use, a melancholy spectacle is presented. Nations appear to await their fate passively. In all directions countries are overrun with troops, and violence prevails. Every successful army establishes an empire; every general becomes a monarch. Thus arose the thrones of the New Macedonian, the Selucidian, Ptolemæan, and other dynasties. Even in Greece, tyrants (i. e. leaders of bands of warriors) were seen in every city, oppressing the defenceless or peaceable citizens, until, at a later period, republics again rose in Ætolia and Achaia. But the military empires which grew out of the Macedonian conquests, had no firm foundation. They fell in quick succession, when assailed by the national armies of Rome. On the other hand, the small Ætolian and Achæan leagues were conquered with greater difficulty than the wide-spreading empire of Antiochus, and their national warriors were overcome rather by cunning and treachery than by force. In Rome, until the latest times of the republic, the part of the people capable of bearing arms were bound by law to serve, when called upon by the magistrate. No pay was received until a late period; and, when it was at length introduced, on account of the protracted wars, none served for the sake of it, but merely received it as a means of

* One of the many words met with in all the languages of Western Europe, and though originally of Teutonic origin, yet, in its present form, borrowed from the languages of the Latin stock. *Soldier* (in German, Swedish and French, *soldat*; in Italian *soldato*, &c.) comes from the middle Latin term *solidarius*, one who receives *sold* (German for military pay, in which sense it is also used in old English writers). This receiving pay distinguished the soldiers from the former feudal militia; and the German word *sold* came into use because the Swiss were the first hired foot-soldiers; but the term for *warrior*, derived from it, first received an Italian form, because the Italians first employed hired warriors. From them it spread to the other nations of Europe. The German word *sold* (Italian *soldo*, French *solde*, Spanish *sueldo*, always signifying the pay of troops) has been derived by some from *salt*, because salt was given to soldiers as part of their pay; but it ought rather to be derived, with *salarium*, *solvere*, and the German *sahlen*, from the ancient German word *sellen* (from which the English to *sell*), which is frequently met with in the authors of Upper Germany, and corresponds to the Swedish *sälja*. It means to *give*, to *transfer*. From this verb comes the ancient Swedish *sal*, signifying the fine paid for murder. *Sól*, in Icelandic to this day, denotes a *present*, *gift*, *reward*—a meaning which *sold*, the pay of soldiers, probably had originally.

support during service. Down to the times of Marius and Sylla, there were no mercenaries in the Roman armies, and the period previous to their introduction embraces the greatest triumphs of the Roman arms—the conquest of Italy, with all its difficulties and dangers, the gigantic struggle with Carthage, and the humiliation of the empires which had grown out of the conquests of Alexander. But as the avidity for conquest and plunder increased, and the people and the government became more and more corrupt, standing armies gradually came into use, and soldiers, though enlisted from the citizens, had no longer the character of citizens. Marius, contrary to the ancient laws, introduced the lowest rabble, which had been till then entirely exempt from service, into the legions, and thus changed essentially the spirit of the Roman soldiery. For now the military service became a profession, to which persons flocked, who were destitute of public spirit and true patriotism, and who became rather the soldiers of the general than of the country. Yet important victories were still gained (as those of Marius over the Cimbri and Teutones, and those of Sylla over Mithridates), and the armies retained, partially at least, a national character. It was not till the total destruction of liberty that an entire change took place in the military system. Before that time, standing troops had been kept for the defence of the frontiers, and the preservation of tranquillity in the oppressed provinces; but in Rome and Italy the army was obliged to respect the majesty of the people and the authority of the magistrate. Even the struggles, often attended with bloodshed, which took place in the *comitia*, and on other occasions, had been chiefly confined to citizens. The soldiers of Sylla were the first who shed the blood of Roman citizens without shame and without punishment. These outrages now became common, and the people were obliged to submit to the arrogance of the generals and the legions, and sometimes to the insolence of an armed rabble, until at length, after a long warfare of factions, the most successful and most artful general concentrated in himself the whole military power, and became unlimited ruler of the people and the army. From this time, there were no longer, either in Rome or the provinces, soldiers of a national character, but only tools of the monarch. The more despotic the government became, and the more the empire was assailed by barbarians, the more numerous and permanent became the standing forces. The ancient laws, obliging all citizens to serve, were forgotten, and the characters of citizen and soldier became more and more distinct. Mercenaries were now in request, who were willing to keep the citizens in subjection, for high pay and privileges of various kinds. At a still later period, when the degeneracy of the people was frightfully increased, barbarians were taken into pay, whose interest was still more opposed to that of the Roman citizens. Only in great emergencies, forced levies of the people of the country were resorted to. The emperors granted privilege after privilege, and favour after favour, to these pillars of their tyranny; and the nation was divided into two hostile classes, differing in interests, relations and rights, one of which was degraded by law, and compelled to suffer every outrage which insolence and cruelty could inflict; the other was above the law, and perpetrated with impunity every crime. But even as the people trembled before the tyrants, the tyrants themselves trembled before the pretorian guards, whom they were obliged to caress in all possible ways, and from whom they suffered many insults. The just emperors, friends to the citizens, as Pertinax, Alexander Severus, Balbinus, Probus, Gratian, &c., were killed by the soldiery, who lamented the death of monsters like Caligula and Commodus. At length, the divisions of these very soldiers, who proclaimed emperors at pleasure, shook the empire to its foundation, and the German and Scythian tribes found it easy to conquer Rome, the mistress of the world, whose sway extended over a hundred nations, and who had at her command the resources of the richest countries, and of the most experienced tactics, and whose standing army was three times as numerous as the forces with which, in former times, she had conquered the world. After the fall of Rome, the warlike spirit of the Germans spread over all Western Europe, and as far as Northern Africa. The Germans (*Germannen, Wehrmänner*, armed men, or men at arms), were a tribe of warriors; and war with them was generally a national affair, not the exclusive concern of one class. Hence, when the people had concluded on war, every man capable of bearing arms was obliged to march into the field. When the Germans had conquered the Roman provinces, their military constitution remained the same, though, at a later period, the obligation to perform military service was attached to a certain property. Those who possessed less than the required amount combined in greater or less numbers, to send one man into the field: thus the richer part of the nation formed the army. But political changes produced changes in the relations of the soldiers. The conquering tribe often remained in a conquered province, like an army encamped in an enemy's country, separated, as it were, from the natives, who were excluded, partially or entirely, from political rights. A few unfortunate battles were always sufficient to overturn such empires as those of the Vandals, the Ostrogoths, &c.* Only when the conquered and the conquerors became mixed, or the latter were the most numerous, could permanent empires be formed, such as that of the Franks. But, by degrees, the feudal system extinguished allodial independence in the Frankish and other empires. The ancient custom of the Germans to fight not only in the wars of the whole nation, but also in the quarrels of particular leaders, gave rise to this monstrous system, which has kept Europe so long enchained, and has occasioned such an enormous expenditure of blood. These leaders whose numerous followers had enabled them to render particular services, and those nobles who had distinguished themselves by military talent or valour, and, above all, the king, or chief leader, received large portions of the conquered country, which they again assigned to their followers as fiefs. The latter bound themselves, in return, to continual fidelity, and the performance of military service. The increasing lawlessness of those times obliged the possessors of small allodial estates to surrender them to the more powerful lords, and receive them back as fiefs. (See *Feudal System*.) Every landed estate became a fief; and this had a powerful effect on the military system. Wars were now carried on solely or chiefly for the advantage of the prince, but not for the common benefit. The old national militia gradually fell into disuse, nay, was almost forgotten. The kings and princes preferred the service of their

* The Turks in Algiers have, till lately, presented an instance of a similar government.

vassals, as no resolve of the nation was necessary to call them to arms. The vassals, in their different degrees, formed a sort of standing army, ready to obey every call of the superior lord; and thus all remains of popular liberty were extinguished, and a feudal nobility, that is, nobility of a military character, dependent on the monarch, sprang up. He who was not a vassal of the crown, or of a powerful lord, became lost in the mass of the people, who were sunk in bondage. At a later period, the spirit of feudalism changed, and so did the military service connected with it; but the oppression of the people, that is, of the mass of the people, continued, nay, became still severer. Vassals became more and more powerful; fiefs became hereditary, and the richer vassals almost independent of their feudal lord. They obeyed when it was for their interest, or when they were compelled. The only security for the existence of the governments, whose defence consisted in the feudal militia, was the state of weakness common to them all. Lawlessness and brutal tyranny now raged in each state for several centuries, until the power of the feudal aristocracy was broken by a union of the monarchs desirous of extending their authority with the third estate (deriving its origin from the growth of cities (q. v.), the great source of modern civilization), which was desirous to protect itself against the insupportable arrogance of the nobility. Then a militia, consisting of citizens, was formed in the cities—warriors who fought for their hearths and their commonwealth; and the kings (Philip Augustus of France, from 1180 to 1223, was the first) established armies of mercenaries, to protect their thrones against their vassals. The people, groaning under the oppression of the nobles and the priests, considered all the power that the throne gained as an advantage to themselves, without suspecting the pernicious consequences which were to result from the establishment of armies composed of mercenaries. Though feudal service continued, the standing troops came more and more into use; and even cities, republics and confederacies (as the Hansa, q. v.), kept armies on foot according to their means. An increase of these forces seemed necessary, on account of the increasing power of the Turks. Amurath I. (from 1360 to 1389) founded the standing army of janizaries (q. v.), so peculiar in their organization, and through them obtained great advantages over the neighbouring states, which were unable to oppose to him an equally strong and well-organized force. But the formation of standing armies was difficult. If they were to continue without limitation of the term of service, they must be composed of volunteers. To induce these to enlist, pay was necessary, and the troops seemed to be rather in the service of the monarch than in that of the nation, while the revenues of the former did not allow them to keep large armies on foot. In peace, therefore, only a small number of soldiers was maintained for the preservation of internal tranquillity; and, in time of war, large bodies of troops, under commanders called *condottieri* in Italy, were taken into pay. On the close of the war, they were dismissed, and offered their services in other quarters. This system led to great abuses. The *condottieri*, when they met, frequently spared each other, having no mutual enmity, and committed the greatest outrages against the subjects of the prince for whom they nominally fought. Their bands were schools of licentiousness and cruelty. During the same period, the princes found out a popular mode of raising taxes. The deputies of the people were assembled, and, by all kinds of influence, bribery, grants of titles, &c., were induced to assent to the taxes proposed by the princes. The nations now thought they had gained much in the important right of self-taxation. Supplies for increasing the number of troops were willingly granted, to obtain long-desired privileges; but, while the people suffered themselves to be disarmed, and furnished the means of supporting standing armies, all the barriers were overthrown which had limited the arrogance of princes, their thirst for conquest, and the oppression of the people. In proportion as the power of the monarchs was augmented by the increase of their armies, they became able to add continually to the weight of the taxes. The kings of France, who had been the first to establish a standing army, also preceded the other princes in increasing the same, and in restricting the power of the great vassals, in the grant of considerable privileges to the communities, and the subsequent oppression of them, in the increase of taxes, and in all the measures of domestic despotism and foreign ambition. About 100 years after Philip Augustus, who had surrounded his throne with mercenaries, Philip IV., or the Fair (from 1285 to 1314), followed closely in his steps, so that the French throne became more powerful than any other. (See *Army*, *Standing*.) At last, the unscrupulous policy of Richelieu completed the French system of foreign aggrandizement; and all restraints on the increase of the standing army were removed, as Europe learned in the pernicious wars of Louis XIV. As soon as France had completely established a military power independent of the citizens, other states did the same, some from necessity, some dazzled by her example, some merely for the gratification of the monarch. At the same time, in all countries, even in the smallest, the army became the receptacle of the idle and arrogant nobility, who, since the expiration of the feudal times, had lost their original occupation, and yet were, for the most part, too indolent and proud to follow occupations honourable to a citizen. Through a variety of misconceptions, the governments, particularly after the time of Frederic the Great, came to the monstrous conclusion that a great military state was the perfection of political society. The benefits which Europe has so long derived from the political example of Great Britain, have been peculiarly great since that period; for, notwithstanding the abuses in our famed administration, the chief objects of its government have always been of a civil character, while on the continent of Europe, a military spirit came to pervade the whole system. The greater states considered their armies as the main pillar of their strength; the small ones imitated them, if from no other motive, from that of show and splendour. The sufferings arising from this state of things are much too numerous to be mentioned here: it affected society in all its ramifications: war increased, because the instruments for war had increased; neither in the times of the allodial nor of the feudal system did such general and protracted conflicts desolate Europe as during this last period: taxes and all kinds of political burdens were fearfully augmented: the magnitude of armies and the system of military subordination had a decidedly bad effect on the citizens at large, corrupting their morals, and blunting their sensibility for justice and right: the frauds and violence employed to recruit the armies can be com-

only to those employed in carrying on the negro slave-trade. If to these we add the violation of all constitutional and legal barriers, in the conduct of the governments towards the people, we shall have enumerated but a part of the evil consequences of these machines of tyranny. The invention of gunpowder, in the fourteenth century, producing a total change in the military art, had accelerated the arrival of this state of things. The long practice required to attain skill in the service of artillery, and the complicated system of tactics which had come into use since the introduction of fire-arms, seemed to make standing armies indispensable. The expensive equipment of armies demanded high taxes, and the armies compelled the nations to bow to the yoke of the Philips and Louises, to a Louvois, and even to a Pompadour. The monarch disposed of the property, and even of the children, of his subjects. Heavily did this burden press upon the continent of Europe when the French revolution began. In the wars which ensued, we all know what the national armies of France achieved against the numberless mercenaries of the other powers. The conscription being introduced, made every citizen liable to be drawn as a soldier. The establishment of the modern militia (of which we have spoken under the article *Militia)* is one of the most important changes in the history of national liberty, as no means so effectually oblige a monarchical government to yield to public opinion as an army of citizens. A brilliant illustration of this truth has been afforded, of late years, when some of the most powerful governments of Europe, evidently eager to make war against liberal principles, have been, hitherto at least, prevented by the well-known disinclination of their subjects. The idea of maintaining a balance of power, which has cost Europe rivers of blood, and has been made the pretext for every disturbance of peace and of the political balance, must be considered as mainly a consequence of the numerous standing armies; and if there existed no armies except those of a truly national character, men would think as little of making war upon another state to diminish its disproportioned power, as of compelling an equal division of property among individuals. It had been the policy of governments to render armies mere machines; but they found, in the wars growing out of the French revolution, that discipline and tactics are by no means the only things which ensure victory. The *morale*, that is, spirit, moral feeling, enthusiasm, fanaticism, are even more important than the physical power of an army and military skill in those who conduct it. History affords numerous instances of victories, won by troops animated by patriotism or religion, over much better organized and better commanded armies composed of mercenaries.

The class of soldiers is interesting, not only in a historical and political, but also in a legal view. Soldiers enjoy certain privileges in regard to the making of wills (see *Will*), and the acquisition of property during war (*peculium castrense)*; for though the soldier may be yet under paternal power, he has the right of a *pater familias*; i. e. he may dispose of his property in any way which he may choose. In some countries, he is not allowed to be prejudiced by ignorance of law. In many countries, he is entitled to a trial on criminal charges before a particular court; in England and United States, however, only for military offences. What soldiers obtain by conquest is not theirs, but belongs to their government, excepting a part of the movable property, which is left to them. Public money or military stores which are taken must be given up to the public authorities. The laws of the different armies, as to military offences, are too various to be stated here, particularly as they vary much with the degree of civilization, and the character of the troops.

We shall now speak of the history of tactics. Whether an army is actuated by an enthusiastic patriotism, or any other noble feeling, or by a mere thirst for booty, it remains, to a certain degree, a machine, of which the parts must move in obedience to a directing intelligence; and in proportion as this understanding exerts a more complete sway over the great machine, composed of so many individuals, all differing morally and physically, the organization of the army approaches perfection. What we have said of the great importance of the moral character of an army, will show that we do not consider modern wars as merely the operation of two machines set against each other, and as decided simply by the skill of the commanders—a common mistake among persons ignorant of the nature of warfare. In the history of European armies and tactics we may distinguish five periods: viz. of the Roman legions, of the Teutonic feudal armies, of the invention of gunpowder, of the school of generals in the time of Louis XIV., and of the school of the French revolution.

I. The Romans were but very imperfectly acquainted with the modern system of deciding the fate of battles by preparatory movements, in which the hostile forces are sometimes occupied for months before meeting. They used neither magazines nor arsenals, nor artfully concealed their plans of operation. Cæsar, while in Gaul, made marches of thirty-seven miles in twenty-four hours. In the battles, the struggle of the line decided the victory. Till the time of Scipio Africanus, who first used foreign mercenaries as auxiliary cavalry (Numidians, Spaniards, &c.), the Roman armies consisted of Roman citizens or allies. On the *Campus Martius* the legions were formed of men both married and unmarried, from seventeen to forty-six and fifty years of age: no one was exempted except those who had made twenty campaigns. Before every war, as no standing army existed, the new legions were arranged according to their physical and moral qualities by the military tribunes. The younger and poorer were taken for *velites*, a kind of light troops (the archers and slingers were foreigners). Then the *hastati* were selected: these corresponded to the companies in the centre of our regiments of the line. Then followed the *principes;* then the *triarii*; and last the *equites*. The strength and composition of the various species of troops in the legions varied. Each legion constituted a small army of from 4000 to 6000 men, including all kinds of troops, workmen, utensils and ammunition. The cavalry constituted but the twentieth part of the legion, comprising only two or three hundred horsemen, who also fought on foot. The strength of armies consisted of infantry. A consular army never included more than 18,600 men, of which number 1800 were cavalry. In times of danger, several armies were united. The Roman forces at Cannæ included four such bodies as above described, since it amounted to about 80,000 men. A cohort was a company of from 400 to 600 men. The arms, defensive and offensive, differed according to the kinds of the soldiers. A Roman warrior on the

march carried in arms, camp utensils, palisades, provisions for nineteen to twenty days, &c., a burthen of at least ninety pounds; hence double what the soldier now carries. Vegetius compares an army carrying 1000 palisades to a moving fortress. The physical strength of the soldier was exercised incessantly. The recruits were trained in Rome by carrying and marching in the burning sun. In the camp the soldiers worked on roads and bridges, aqueducts, &c., whereby the legions were made to diffuse Roman civilization. The Roman soldier was the best builder of walls ever known. The battle was begun by the *velites*. When they had retreated to the wings of each legion, or into the intervals, the *hastati* threw their spears when about twelve or fifteen feet distant from the enemy, and then rushed on, sword in hand. If they were repulsed, the *principes* advanced, and the former again arranged themselves in order. If the *principes* wavered, then the compact mass of *triarii* pressed forward—having till then rested on one knee, protected by their shields. If the enemy now gave way, the *velites* and cavalry assailed him, and made the rout complete. This threefold line of battle and threefold conflict gave the Roman legions an advantage over the Macedonian phalanx. (q. v.) The Roman soldier always remained in the camp, even in peace *(castra stativa)*; he was always occupied, and subject to very strict discipline. This kept him strong; and there were fewer sick men to encumber the march than at present. Towards the end of the republic, the armies were much increased in number by foreigners and slaves; but their moral power decreased. Augustus was at the head of forty-nine legions and 19,000 horse; to which must be added 10,000 pretorians and the provincial troops. With the discipline, the art of war declined.

II. In the time of Honorius and Valentinian, the legions could no longer resist the irregular attacks of the Huns, Goths, Vandals, Burgundians and Franks, whose power consisted wholly in their numbers, physical strength and impetuous courage. Charlemagne gave to his armies an organization which made them superior to their brave but undisciplined enemies; but the chronicles do not afford us any particulars on this point. In the eleventh and twelfth centuries, the armies consisted of feudal militia, viz. vassals, who served under the banner of their feudal lords for three months or ninety days. For this period, every one provided himself with necessaries, and, on its expiration, went home, whether the war was at an end or not. The men at arms (horsemen in armour) were the strength of the French army; the rest consisted of infantry, badly armed and exercised, mostly bondsmen. When the arts revived in Italy, the art of war also attracted its share of attention, and was improved; but the wars were carried on by mercenaries, commanded by the *condottieri*, already mentioned. These troops, eager only for pay and booty, had no desire for each other's destruction; and this circumstance gave rise to stratagems and artificial movements, and thus, singularly enough, led to the invention of modern tactics. Choice of positions, marches, and counter-marches, artificial attacks of fortresses, surprises, and avoidance of disadvantageous engagements, distinguish the wars of the famous du Guesclin, under Charles V., king of France (1364—80). The bands of mercenaries whom he commanded, amounting to 30,000 men, were real scourges of the country when not occupied in war. After this came the struggles of the Swiss for their liberty. Their strength was in infantry. In order to withstand the men at arms, they gave to their infantry the helmet and cuirass, halberd and sword. The victories of these pikemen attracted the attention of all military nations. Louis XI. of France took 6000 of them into his service; and in the Italian wars of Charles VIII., the Swiss infantry, 20,000 men strong, were the terror of the enemy, but were ready to desert the standard of their employer whenever their pay was delayed. At an earlier period, similar troops of pike-men had been in use in Germany, Spain, and France. Charles VII. of France, in particular, had instituted fifteen "*compagnies d'ordonnance*" (in 1444), the first standing army, and "*francs archers*" (in 1449), 16,000 infantry, and 9000 horse. Louis XI. increased the army to 29,000 infantry and 19,000 cavalry. This subsequently rendered a new arrangement necessary. Francis I. divided the infantry into seven legions, each of 6000 men; but regiments of from 2000 to 3000 men soon took their place. These, at a later period, were again divided into battalions of from 600 to 700 men, for the sake of manœuvring with greater ease. The sharp-shooters were light troops, and fought like the *velites* of the Romans; behind them the close lines of pike-men advanced to battle.

III. Since the sixteenth century, the use of fire-arms (rifles, muskets, and cannons) has made a new epoch in tactics. The famous Spanish general Pescara was victorious at Pavia, in 1525, over the French cavalry by means of fire-arms. But it was long before the use of the heavy ordinance was skilfully combined with that of the lance. This was first attempted by Puysegur, in the beginning of the reign of Louis XIV. The superiority of artillery over every other species of arms was now decided; yet the use of lances and pikes continued to the end of the seventeenth century. At this time, light cavalry substituted the carbine for the lance; but the defensive arms—helmet, cuirass, &c.—were laid aside too soon. After the match-locks were changed for flint-locks, the musketry was placed in the first line, and the depth of the order of battle gradually diminished. Armies had, till then, been drawn up in lines six or eight men deep.

IV. This diminution took place chiefly after the introduction of the bayonet, invented, in 1670, at Bayonne. Moreover, the difference between heavy and light infantry now ceased entirely, as all were armed in the same way, much to the detriment of the means of attack. The armies were burdened with a heavy park of artillery and much baggage, which greatly impeded their movements, and the disadvantage of the deep order of battle was not yet fully appreciated. But, even at this period, the infantry were placed in the centre, and the cavalry on the wings and in the reserve. (Marsin

and Tallard, who were beaten at Blenheim (q. v.) had placed the cavalry in the centre.) In the time of Louis XIV. all the species of fire-arms were improved; tactics made great progress, and the art of fortification and besieging was carried to great perfection by Vauban. Frederic II. of Prussia introduced greater simplicity, order, and ease into the manœuvres of the infantry. The firing was performed more quickly, and on the field of battle every evolution was executed with greater precision. Among the greatest generals of that period was marshal Saxe, who knew better than any commander of his time how to adapt the art of war to the spirit of the French soldier. After the seven years' war, the Prussian army was considered the best in Europe. Soldiers of all countries flocked to the reviews of Frederic, at Potsdam, to study in his school. But, skilful only in theory, and poor in experience, they did not perceive that the national character of the soldier properly belongs to the province of military calculation. The soldier was treated as a mere machine, and the perfection of tactics was supposed to consist in making him one, as nearly as possible, and the military service became loaded with trifling details. The French soldier, less fitted for such discipline than the native of any other country, became disgusted, and negligent of essential points of military duty. Only the French artillery retained its old reputation, because, instead of imitating, it was, itself, a model. The manufacture of arms reached the highest perfection under Louis XIV. But French discipline, whose basis is honour, received the severest shock from the minister of war, count St Germain, when he attempted to introduce the German mode of punishment, with the cane and the flat of the sword. Many unnecessary details were introduced into tactics. The mode of enlistment, too, was highly prejudicial. Vagabonds, criminals who wished to escape the laws, entered the service; and, on the other hand, the recruiting officers practised the basest frauds and violence to raise men.

V. An entire change was introduced by the French revolution; first in France. Love of country, liberty, glory, national hatred, and the hope of plunder, every thing conspired to fill the French soldier with the highest enthusiasm.* In the commencement of the wars of the French revolution, the forces of France were unsuccessful. The officers, who were all nobles, had emigrated in large numbers. Their place was supplied, in part, by inexperienced men; the old troops of the line had lost their discipline; all subordination was dissolved; France was without defenders. The people then felt the necessity of taking their own defence into their own hands; and, on the first requisition, of the unmarried men from eighteen to twenty-five, a million men entered the lines. Their school was the field of battle; their discipline enthusiasm; their tactics impetuosity. With fixed bayonets, singing sons of victory, they assaulted the batteries of the enemy. Against such courage the fire of cannon was of little avail. When the first enthusiasm had in some measure subsided, the aid of the guillotine† was resorted to; but the national pride and enthusiasm for liberty still remained the great moving power. The French generals again employed artillery; and it often decided the victory. In the time of Louis XIV., an army of 90,000 men had but forty cannons; in the seven years' war, an army equally large had 190—200; at the battles of Austerlitz, Jena, Friedland, Wagram, Dresden, Leipsic, about 1200 cannons were brought into action. The mixture of the old troops of the line with the citizen-soldiers required the new distribution of troops into divisions, brigades, half-brigades (2400 men, or three battalions). But the new system of managing and supporting the troops caused too much writing. In the train of the army was found a multitude of commissioners and agents, often detrimental both to the conquered country and the army. Great advantage was derived from the *tirailleur* system (see *Tirailleurs*), which originated in North America during the war of the American revolution, and was perfected by the French. The light troops were increased and organized anew, and the infantry of the line were taught to perform the service of the light infantry, so that the French *tirailleurs* soon became much dreaded. In order to march quickly, and to execute movements with large masses easily, the use of baggage-waggons was abolished, and pack-horses substituted. Light artillery, which had been introduced by Frederic II., was carried to great perfection by the French. In the battle of Dresden (August 26 and 27, 1813), sixty batteries of mounted artillery, comprising, perhaps, 240 pieces, in the course of three hours, silenced the cannon of the enemy. A fault was committed in arranging together in regiments this species of force, which is intended to act sometimes in small divisions, sometimes in large masses. Napoleon at length assigned a regiment of artillery to each corps of troops of the line. It is singular that a truly military character was not given to the camp equipage till 1793. This important improvement was soon generally imitated, most perfectly in Russia. On account of the size of the armies, it was necessary to dispense with tents and barracks; and the system of bivouacking was introduced, which, at first, gave the French great advantages, but soon weakened their troops greatly, by the diseases which it occasioned.

SOLE (*solea*). The soles are distinguished from the flounders by having the mouth turned in an opposite direction with respect to the eyes, seemingly deformed, with teeth only on one side, and the front of the head almost always projecting. The common sole of Europe usually weighs about four pounds, but occasionally six or eight. The flesh is tender and delicious. Several other species are found in the European and Mediterranean seas.

The fishes of the *pleuronectes* family are remarkable, among vertebral animals, for the want of symmetry between the two sides of the body—a character entirely unique, and which destroys many a beautiful theory conjured up by the ingenu-

* During the siege of Mahon, wine was cheap; the French soldiers intoxicated themselves; the service suffered, and severe punishments were of little avail. At last the duke of Richelieu gave orders, that whoever should be found intoxicated, should never have the honour of sharing in the assault. No soldier was seen intoxicated again in the camp. A regiment of dragoons had suffered very severely in the battle of Marengo, and Bonaparte, at the review after the battle, promised them good quarters. "No," cried the brave dragoons, "let us have the honour of the first attack to-morrow." With such soldiers good generals could do wonders.

† When, after the loss of the lines of Weissenburg (October 13, 1793), a want of generals existed, St Just and Lebas, the commissioners of the convention, called upon every soldier who felt the talent for command, to put himself at the head of the army, but threatened him with the indignation of the people, if he should allow himself to be deceived by his vanity. Only eleven officers accepted this offer, with the obligation to conquer or die: among them were Kleber, Pichegru, Desaix, Hoche.

ity of physiologists. The head is remarkably distorted, both the eyes being placed on the side which is turned upwards when the animal is in the water. The other, or blind side, is always flat and whitish. Sometimes individuals are found with the eyes placed in a reversed position from the rest of the species; others have both sides coloured alike, and are called *double*. This happens most commonly to the brown side, but sometimes to the white also. They are all destitute of a swimming bladder, and rarely leave the bottom. A singular method of taking flounders from the shore is practised at Boston, in the United States, with great success. Two rods are selected; a hook is attached to the extremity of one, and the sole of a shoe at right angles to that of the other; the latter is vibrated in the water, and attracts the attention of the fish, which, as they rise to visit it, are caught by a sudden jerk of the hook held in the other hand. The season when this mode is practised is when the ice is partially melted.

SOLEBAY, OR SOUTHWOLD BAY; a bay of the German ocean, on the coast of Suffolk, noted as the scene of a sanguinary naval engagement, in 1672, between the combined fleets of England and France, consisting of 101 sail, and that of the Dutch of ninety-one sail. In 1666, a famous sea fight also took place here between the English and Dutch, in which the latter lost seventy vessels.

SOLECISM (from the Latin *solœcismus*; Greek σολοικισμος); the violation of the rules of a language in speaking or writing, so called from the town of Soli, in the eastern part of Cilicia, in Asia Minor, the inhabitants of which spoke the Greek language very badly. The Romans included even awkward gestures on the stage under this name. The ancients distinguished *solecism* from *barbarism*, and designated by the latter the faulty use of single words; by the former, every violation of syntax. (*Quinctilian*, lib. i. ch. 5.) Modern grammarians have retained the words, yet not with precisely the same distinction; nor do they all agree in the distinction which they make.

SOLEURE (in German, *Solothurn*); a canton of Switzerland, bounded north by France and the canton of Basle, east by Basle and Zurich, south and west by Berne; square miles, 275; population, 54,330 of German origin, 4310 Calvinists, the remainder Catholics. The Jura mountains occupy a part of the canton; the rest of it is level and fertile. The ground is partly arable, and partly adapted to pasture; and the cattle of this canton are considered the best in Switzerland. Soleure was received into the confederacy in 1481. The capital, of the same name (4471 inhabitants), stands at the foot of mount Jura, is divided by the Aar into two parts, fortified with walls and bastions, and, though irregular and built in a bad taste, has several good edifices. It contains three churches, five convents, an hospital, a lyceum with five professors, and a town library of 8000 volumes. The environs are pleasant and picturesque. The town is very ancient, and several Roman antiquities are found here. See *Switzerland*.

SOLFAING signifies, originally, to exercise the voice upon the syllables ut, re, mi, fa, sol, la (solmization), adopted by Guido of Arezzo to designate the notes. To these, at a later period, the French added the syllable *si*, in order to complete the octave. It is applied also to the singing and reading of notes without text, in which the tones only are named. Pieces without text, intended for this sort of exercise, are called *solfeggi*. Sometimes this word is applied also to instrumental music (e. g. on the piano) and then those pieces are meant, which are merely intended to exercise the learner in reading notes and hitting intervals. Solfaing, according to the above-named syllables, had reference to the system of twenty-two diatonic tones (from *g* to *e*), divided into seven hexachords, established by Guido of Arezzo. If the music went beyond the sixth, the syllables were changed, in order to bring the *mi*, *fa*, which designated the transition from the third to the fourth degree of the hexachord, to its proper place again, for which certain rules were given. With the extension of the system of tones by the enharmonic and chromatic genera, the difficulty of singing after these syllables increased, on which account the Germans and Dutch gave up this way of designating them. See *Ut*, *Re*, *Mi*.

SOLFATARA; a height near Naples (see *Naples*); also a lake near Rome. See *Campagna di Roma*.

SOLFEGGI. See *Solfaing*.

SOLICITOR, SOLICITOR GENERAL. See the articles *Advocates*, and *Advocate of the Crown*.

SOLID, in philosophy; a body whose parts are so connected together as not to give way or slip from each other upon the smallest impression; in which sense *solid* stands opposed to *fluid*. Geometricians define a solid to be the third species of magnitude, or that which has three *dimensions*, viz. length, breadth, and thickness or depth. A solid may be conceived to be formed by the revolution, or direct motion, of a superficies of any figure whatever, and is always terminated or contained under one or more planes or surfaces, as a surface is under one or more lines.

SOLID ANGLE is that formed by three or more plane angles meeting in a point; like an angle of a die, or the point of a diamond well cut. Or, more generally, it may be defined the inclination of several plane surfaces, or one or more curved surfaces.

SOLIDS. See *Animal Matter*.

SOLILOQUY, OR MONOLOGUE, in the drama, or a work of dramatic character; the expression of the thoughts or feelings, in language not addressed to a second person; it is therefore opposed to the *dialogue*. Dramatic writers have recourse to soliloquy for the purpose of exhibiting more distinctly the real character of the persons of the action, their secret motives, and the manner in which they were affected by important events, and thus show the hidden springs of the action. It has been objected that soliloquy is unnatural, and that, in real life, persons alone never express their feelings aloud, except under a strong excitement and in a few words. Even if this criticism is just, the monologue cannot be dispensed with in the drama; but good taste requires that it should be used sparingly, and only when the same object cannot be effected by means of the dialogue.

SOLIMAN II. See *Solyman II.*

SOLINGEN; a town in the Prussian province of Juliers-Cleves-Berg, noted for its manufactures of iron and steel ware, and silk stuffs. The population of the town and parish exceeds 9000; twenty miles north-east of Cologne.

SOLIS, ANTONIO DE; a Spanish poet and historian, born at Placenza, in Old Castile, in 1610. His inclination for dramatic poetry procured him the acquaintance of Calderon, for some of whose

pieces he wrote the preludes (*loas*). He is principally known at present as a historical writer. Having been appointed historiographer of the Indies, he drew up a work entitled *Historia de la Conquista de Mejico*, which passed through many editions, and of which an English translation was published in 1724 (folio). He took orders in the church in the latter part of his life, and died at an advanced age, in 1686. An edition of the History of the Conquest of Mexico, in the original Spanish, was printed in London in 1809 (3 vols. 8vo.)

SOLITAIRE (French, *solitary*) is used also as a substantive. One of the meanings is a diamond set alone, without other stones round it.

SOLMIZATION. See *Solfaing*.

SOLMS; a German family of counts and princes, in Wetteravia, sprung from the stock of Conrad the Salian. Since 1432, it has consisted of two lines, Solms-Braunfels and Solms-Lich, the latter of which is divided into the branch of Lich and Hohensolms and that of Laubach. The line of Braunfels received the dignity of prince of the empire in 1742, and the branch of Lich and Hohensolms in 1792. In 1806, the possessions of the family were mediatised, and are now subject to Hesse-Darmstadt and Prussia.

SOLO is a piece of music, or a passage, in which a single voice or instrument performs quite alone (i. e. without accompaniment), or is distinguished above the other voices. Thus there are violin solos, solos for the pianoforte, &c., pieces for the violin or the piano only; but a solo for the violin also signifies a passage in which the violin part is the principal. A solo, also, in a piece of music for several instruments or voices, denotes a passage which is to be executed by one of the instruments separately. And *tutti* signifies that all the voices or instruments are to commence again after the solo has been played. *Soli*, in the plural, denotes that two or more voices or instruments are to execute a passage in the same manner, distinctly from the other instruments or voices. (See *Obligato*.) Peculiar freedom, ease, distinctness, and power of execution, is required to perform the solo with correctness, taste and feeling.

SOLOMON; son of David by Bathsheba, through whose influence he inherited the Jewish throne, in preference to his elder brothers. During a long and peaceful reign, from B. C. 1015 to 975, he enjoyed the fruits of his father's labours. A youth surrounded with royal splendours inspired him with a sense of dignity, and he carried with him to the throne, which he ascended, while young, with the cruelty of an Eastern monarch, the wisdom which he had derived from the lessons of his father and his father's counsellors. To confirm his power, he caused his brother Adonijah, and some discontented nobles, to be put to death, and formed alliances with foreign rulers. His remarkable judicial decisions, and his completion of the political institutions of David, showed a superiority of genius, which gained him the respect of the people. By the building of the temple, which, in magnitude, splendour and beauty, exceeded any former work of architecture, he gave to the Hebrew worship a magnificence which bound the people more closely to their national rites. The wealth of Solomon, accumulated by a prudent use of the treasures inherited from his father by successful commerce, through which he first made the Hebrews acquainted with navigation; by a careful administration of the royal revenues, which he caused to be collected by twelve governors; and by an increase of taxes,—enabled him to meet the expense of erecting the temple, building palaces, cities and fortifications, and of supporting the extravagance of a luxurious court. But while, on the one hand, the prosperity of the people was promoted, and the arts and civilization were improved, on the other, an example of pernicious luxury, and of a gradual relaxation of the severity of the Mosaic religion, was exhibited. Admiration of Solomon's wisdom and regal magnificence, which brought crowds of foreigners to his capital, and, among the rest, a queen of Sheba, easily drowned the few voices of discontent. His justice gained him the respect of his subjects; and an army stood at his command, consisting of 12,000 horsemen, armed in the Egyptian manner, and 1400 war-chariots, to overawe the Gentile tribes, which had been subjugated by David to the Jewish yoke, and were now forced to labour in the service of Solomon. Fortune long seemed to favour this great king; and Israel, in the fulness of its prosperity, scarcely perceived that he was continually becoming more despotic. Contrary to the laws of Moses, Solomon admitted foreign women into his numerous harem of 700 wives and 300 concubines; and, from love to these women, he was weak enough, in his old age, to permit them the free practice of their idolatrous worship, and even to take part in it himself. Still his adversaries, who, towards the close of his life, aimed at his throne, could effect nothing; but, after his death, the discontent of the people broke out into open rebellion, and his feeble son, Rehoboam, could not prevent the division of the kingdom. (See *Hebrews*.) The forty years' reign of Solomon, the last years of which were less glorious than the first, is still, however, celebrated among the Jews for its splendour and its happy tranquillity, as one of the brightest periods of their history. Throughout the East it is considered as a golden age. In fact, Solomon belonged more to the East, in general, than to his own nation. His mode of thinking was freer than beseemed a Hebrew. The writings contained under his name in the Bible, though they may have been collected and arranged at a later period, are substantially the work of Solomon. They breathe a philosophical spirit, elevated above the prejudices of his nation. His Proverbs are rich in ingenious and sagacious observations. His Ecclesiastes, or Preacher, savours of the philosophy which men of the world, sated with a long course of pleasure, form from the results of their own experience. It teaches that nothing is permanent, and therefore we should hasten to enjoy present good, and that God is the source of all wisdom. (For the Canticles, see *Solomon's Song*.) The book entitled the Wisdom of Solomon, though received into the canon by the Roman Catholic church, is rejected, as apocryphal, by Protestants. Solomon's wisdom and happiness have become proverbial; and the fables of the rabbins, and the heroic and erotic poems of the Persians and Arabians speak of him, as the romantic traditions of the Normans and Britons do of king Arthur, as a fabulous monarch, whose natural science (mentioned even in the Bible), whose wise sayings and dark riddles, whose power and magnificence, are attributed to magic. According to these fictions, Solomon's ring was the talisman of his wisdom and power, and, like the temple of Solomon, in the mysteries of the freemasons and rosicrucians, has a deep, symbolical meaning.

SOLOMON'S SEAL (*polygonatum*); a genus of plants, allied to the asparagus, which it resembles in the flowers and fruit, but the form of the leaves is very different. These last are entire, more or less oval or lanceolate. In most of the species, the leaves are alternate, and all directed upwards, while the flowers are pendulous, and, to the number of two or more, are disposed upon a common footstalk, which arises from the axil of each of the leaves. The calyx is wanting; the corolla monopetalous, cylindrical, divided at the summit into six obtuse lobes; the capsule is a rounded berry, containing three cells. We have two species or more in the United States. The name is said to be derived from the roots, which, in the common European species, are full of knots; and a transverse section of them shows characters which have been thought by the superstitious to represent the impress of the famous seal of Solomon.

SOLOMON'S SONG, OR THE CANTICLES, OR THE SONG OF SONGS; one of the books of the Old Testament, commonly attributed to Solomon. The manner, tone and colouring of this book bear marks of the voluptuousness, splendour and luxury of the age of Solomon; but on account of the traces of the Aramæan dialect, which it contains, it has been assigned by Eichhorn, Jahn, and others, to a later period. The scenes and incidents depicted in it form a connected whole, which has more of the idyllic or pastoral than of the dramatic character. Whether considered as the work of Solomon or of some later Hebrew poet, many view it as a love song, entirely destitute of religious allusions: its subject being the passion of the bridegroom and the bride. From the time of Origen to the seventeenth century, critics ascribed an allegorical religious meaning to this book; and, for above 1200 years, it was interpreted to describe the union of the faithful with God, Christ being signified under the emblem of the bridegroom, and his church under that of the bride. The older Jewish rabbis, however, permitted the reading of the song to no one under thirty years of age, and did not allow it to be read and explained publicly. Erasmus was the first theologian who endeavoured to prove that it was wrong to give an allegorical interpretation to this poem. Bossuet considered it Solomon's epithalamium. Lowth represents it as a sacred drama. Mr Good, who has given a metrical version of it in English, considers it a collection of Hebrew idyls; to which division of poetry Sir William Jones had previously referred it.

SOLON, one of the seven wise men of Greece, and the legislator of Athens, flourished about B. C. 600. He was descended from the ancient kings of Athens, and from Codrus, but was in such narrow circumstances as to be obliged to get his living by commerce. He possessed poetical talents, and had acquired extensive knowledge by his travels. His manners were affable and pleasing: he was a friend to reasonable enjoyment, not indifferent to riches, but free from avarice: universally esteemed by his fellow-citizens, he exercised an important influence in public affairs. It was by his means that the inhabitants of Cirrha were punished for a violation of the temple at Delphi; that those persons who had, contrary to their promise, murdered the adherents of Cyron (who attempted to make himself master of Athens) on sacred ground, were arraigned and condemned; and that Epimenides was sent for from Crete, to purify the city, and to soften the fierceness of the Athenians by religious influences. Plutarch says, that Solon made use of the services of Epimenides in the promulgation of his laws. As an instance of his patriotism, we may mention his venturing to propose the recovery of Salamis, at the hazard of his life. That island had been conquered by the Megarensians; and all the attempts of the Athenians to reduce it had been without success. It had therefore been forbidden, under pain of death, to propose the renewal of the attempt. Solon, discontented with this state of things, composed an elegy, reproaching the Athenians for their weakness, and, feigning himself mad, recited the poem with the greatest warmth before the people. The impression which he produced was heightened by the exhortations of Pisistratus, who mingled with the crowd: a new war was resolved upon, and the command of the expedition was given to Solon and Pisistratus. By the courage and prudence of the commanders, Salamis was recovered; and it would now have been easy for Solon to have made himself tyrant of Athens; but he rejected all proposals of that nature, convinced that the happiness of his fellow-citizens, and the introduction of a new and salutary form of government, would bring him a more permanent reputation. Draco's bloody laws had effected no reform in the internal condition of the state: Athens was divided into factions: the common people were entirely in the power of the rich and noble, and were cruelly oppressed by them. The rich compelled their poor debtors either to cultivate their grounds as serfs, or to sell their children, or to give themselves up as slaves; and many citizens, on this account, abandoned their country. The public treasury and the temples were likewise plundered. A new constitution was the general wish, and even many of the rich saw the necessity of it. In the third year of the forty-sixth Olympiad (B. C. 594), all parties united in choosing Solon archon, and in investing him with full powers as a lawgiver. He immediately abolished most of the cruel laws of Draco, raised the nominal value of money, entirely abrogated the debts, or reduced them so that they should not be burdensome to the debtors; and although, at first, neither party was satisfied with these measures, the poor being desirous of an equal division of the lands, yet they were afterwards convinced of their expediency and wisdom. At the same time, it was made a standing law, that no citizen should give up his own person or his children to his creditors, in satisfaction of his debts. The constitution of Solon was founded on the principle that the supreme power resided in the whole people, and that in the popular assemblies lay the prerogatives of declaring war and making peace, contracting and abrogating alliances, choosing and removing magistrates, repealing and passing laws. The judicial power was divided between the people and the judicial tribunals, already in existence. Public offences were tried before the Areopagus and the other courts; private suits were prosecuted before new tribunals, the members of which were chosen by lot from the whole people. The citizens were divided into four classes, three of which were determined by the amount of property, the fourth being composed of all those who had no property; this class was excluded from all public offices, but was admitted into the general assemblies of the people. This arrangement had the effect to encourage industry among the lowest class, by rendering it an object of ambition to them to raise themselves above the operation of the exclusion; and it was the policy of Solon to encourage art-

and industry, upon which the prosperity of Athens depended. It also tended to place the most worthy and enlightened citizens in offices of trust. By making the choice of magistrates dependent not on lot, but on the votes of the citizens, a proper degree of influence was secured to the most respectable portion of the people. The only reward of public officers was the honour attached to their offices, no salary being connected with them. Still further to excite industry among the poor, the Areopagus was empowered to punish vagabonds; and the son was released from the obligation of supporting his parents, if they had taught him no trade. The great counterpoise to the power of the people consisted in the organization of the Areopagus and the institution of a council. The Areopagus not only judged in capital cases, but kept up a rigorous inspection into the morals and lives of the citizens, watched over the faithful observance of the laws, and possessed many of the privileges of archons. In cases of emergency, it seems to have exercised all powers, like the Roman dictators. The new senate of 400 (chosen from each *phyle*) had still more extensive powers, and was directed by an executive committee (*prytanis*), chosen from its own number. Solon attempted to give stability to his constitution, by a law, that no decree contrary to existing laws should be valid, and that whoever repealed an old law, should propose a new one in place of it; and to prevent the increase of a needy populace, he made it difficult for a foreigner to acquire the right of citizenship in Athens. Prodigal, extravagant, or otherwise immoral citizens were not permitted to speak in the popular assemblies, and were thereby excluded from all public offices. Bribery was punished by death, or a fine of ten times the amount of the bribe, or by infamy, both parties being treated as equally guilty. Adulterers, seducers of a free person, and procurers, were punished with death. A woman guilty of adultery was to be divorced, and could not appear at the public festivals. The hours for the public instruction of youth were fixed with the greatest exactness; and foreigners were forbidden all access to the gymnasia. The education of boys, youths, and men was regulated by particular laws; and public officers were appointed to superintend the conduct of masters and pupils. Whoever could not afford to send his children to a gymnasium, was required to have them taught agriculture or a trade. Solon left religion unchanged, but gave to the Areopagus the supreme direction of religious matters, and built several temples, among which was one to Venus Pandemos (the priestesses of which were public strumpets). When Solon had completed his laws (see *Petiti Leges Atticæ*, Paris, 1635), he caused them to be engraved on wooden cylinders, and bound the Athenians by an oath not to make any changes in his code for ten years. He himself left the country, to avoid being obliged to make any alterations in them, and visited Egypt, Crete, Cyprus, Lydia (see *Crœsus*), Miletus, where he met Thales, and several cities of Greece proper. Returning to Athens, after an absence of ten years, he found the state torn by the old party hate; but he was received with general esteem, and all parties submitted their demands to his decision. Among the leaders, at this time, was Pisistratus, who was at the head of the popular party. Although a friend and favourite of Solon, he found an opponent in him, when his purpose of obtaining the sovereignty became obvious. Solon left Athens for ever, and died soon after; but when and where his death took place is uncertain. He is generally represented to have died in his eightieth year, in the second year of the fifty-fifth Olympiad. Of his poems and other writings we have some fragments, which are contained in Glandorf's *Gnomicorum Poetarum Opera* (Leipsic, 1776, 2d vol.) The letters to Pisistratus, and to some of the seven wise men, attributed to him, are spurious.

SOLOTHURN. See *Soleure*.

SOLSTICE, in astronomy; that time when the sun is in one of the solstitial points; that is, when he is at his greatest distance from the equator, and is so called because he then appears to stand still, and not to change his distance from the equator for some time—an appearance owing to the obliquity of our sphere, and which those living under the equator are strangers to. The solstices are two in each year, the estival or summer solstice, and the hyemal or winter solstice. The summer solstice is when the sun seems to describe the tropic of Cancer, which is on June 22, when he makes the longest day; the winter solstice is when the sun enters the first degree, or seems to describe the tropic of Capricorn, which is on December 22, when he makes the shortest day. This is to be understood of our northern hemisphere; for, in the southern, the sun's entrance into Capricorn makes the summer solstice, and that into Cancer the winter solstice. The two points of the ecliptic, wherein the sun's greatest ascent above the equator, and his descent below it, are terminated, are called the *solstitial* points; and a circle, supposed to pass through the poles of the world and these points, is called the *solstitial colure*. The summer solstitial point is in the beginning of the first degree of Cancer, and is called the *æstival* or *summer* point; and the winter solstitial point is in the beginning of the first degree of Capricorn, and is called the *winter* point. These two points are diametrically opposite to each other.

SOLUTION. See *Cohesion*.

SOLWAY MOSS; a tract of land in Cumberland, celebrated for an eruption of a very remarkable kind, which is thus described by Mr Gilpin:—"Solway moss is a flat area about seven miles in circumference. The substance of it is a gross fluid, composed of mud and the putrid fibres of heath, diluted by internal springs, which arise in every part. The surface is a dry crust, covered with moss and rushes, offering a fair appearance over an unsound bottom, shaking with the least pressure. Cattle, by instinct, know and avoid it. Where rushes grow, the bottom is soundest. The adventurous passenger, therefore, who sometimes, in dry seasons, traverses this perilous waste, to save a few miles, picks his cautious way over the rushy tussocks as they appear before him. If his foot slips, or if he ventures to desert this mark of security, it is possible he may never more be heard of. On the south, Solway moss is bounded by a cultivated plain, which declines gently, through the space of a mile, to the river Esk. This plain is lower than the moss, being separated from it by a breastwork formed by digging peat, which makes an irregular, though perpendicular line of low, black boundary. It was the bursting of the moss through this peat breastwork, over the plains between it and the Esk, that occasioned the

dreadful inundations which destroyed so large a district. The more remarkable circumstances relating to this calamitous event, were these: On the thirteenth of November, 1771, in a dark, tempestuous night,* the inhabitants of the plains were alarmed with a dreadful crash, which they could no way account for: many of them were then in the fields, watching their cattle, lest the Esk, which was then rising violently in the storm, should carry them off. In the mean time, the enormous mass of fluid substance, which had burst from the moss, moved slowly on, spreading itself more and more as it got possession of the plain. Some of the inhabitants, through the terror of the night, could plainly discover it advancing like a moving hill. This was, in fact, the case; for the gush of mud carried before it, through the first two or three hundred yards of its course, a part of the breastwork, which, though low, was yet several feet in perpendicular height; but it soon deposited this solid mass, and became a heavy fluid. One house after another it spread round, filled, and crushed into ruins, just giving time to the terrified inhabitants to escape. Scarcely any thing was saved except their lives; nothing of their furniture, few of their cattle. Some people were even surprised in their beds, and had the additional distress of flying naked from the ruins. The morning light explained the cause of this amazing scene of terror, and showed the calamity in its full extent; and yet, among all the conjectures of that dreadful night, the mischief that really happened had never been supposed. Lands which, in the evening, would have let for twenty shillings an acre, in the morning were not worth sixpence. On this well-cultivated plain, twenty-eight families had their dwellings and little farms, every one of which, except, perhaps, a few who lived near the skirts of it, had the world totally to begin again. Who could have imagined that a breastwork which had stood for ages should at length give way? or that these subterraneous floods, which had been bedded in darkness since the memory of man, should ever have burst from their black abode? This dreadful inundation, though the first shock of it was most tremendous, continued still spreading for many weeks, till it covered the whole plain, an area of 500 acres, and, like molten lead poured into a mould, filled all the hollows of it, lying, in some parts, thirty or forty feet deep, reducing the whole to one level surface." (Gilpin's *Observations on the Mountains and Lakes of Cumberland.*) In order to clear the arable and pasture land of this accumulation of moss, Mr Wilson, from Yorkshire, adopted a very ingenious plan. He formed, in the higher grounds, two large reservoirs, which he filled with water, the whole force of which he directed against a large knoll in front of Netherby house, and afterwards against the accumulated masses, which he succeeded in washing away into the channel of the Esk. Doctor Graham, of Netherby, had sent for a person to survey the ground, and estimate the expense of removing the moss in the ordinary way. The estimate was £1300; but while the matter was under consideration, Wilson suggested that it might be done cheaper; and by the method which we have mentioned, he effected it for less than £20. Another account of the eruption of this moss, by Mr J. Walker, of Moffat, will be found in the Philosophical Transactions for 1772, vol. lxii, p. 123. According to Mr Walker, the mossy ridge was reduced no less than twenty-five feet; but what is not easily explained, he makes the eruption take place on the sixteenth of December, 1772, whereas Gilpin places it on the thirteenth of November, 1771. Mr Walker mentions the remarkable case of a cow, the only one, out of eight in the same byre, that was saved. It had stood sixty hours up to the neck in mud and water; and when it was taken out, it did not refuse to eat, but it would not taste water, nor even look at it, without manifest signs of horror. It was soon, however, reconciled to it, and was then likely to recover.

SOLYMAN II. (called the *Lawgiver* by his own subjects, and the *Magnificent* by the Christians) was the only son of Selim I., whom he succeeded in 1520. Three days previous to the death of his father, and at the same time when Charles V. was crowned at Aix-la-Chapelle, he was proclaimed sultan. He had not been educated in the usual manner of the Ottoman princes, but, on the contrary, had been initiated in all the secrets of state policy. His love of justice appeared at the very commencement of his reign, when he returned the property which his father had taken from individuals. He restored the authority of the courts of justice, which had been entirely destroyed, and selected governors and other officers from persons who possessed property and were honest. "I intend," said he, "that they should resemble the rivers which fertilize the countries through which they flow, not the streams which break down all they meet." Gazeli Beg, the governor of Syria, had at first declared against Solyman, and involved a part of Egypt in his revolt; but he was overcome by the generals of Solyman, who also destroyed the Mamelukes in Egypt, and concluded an armistice with Persia. Having thus secured himself from disturbance on the side of Syria and Egypt, he besieged and took Belgrade in 1521. In 1522, he resolved to besiege the island of Rhodes, which had been in the possession of the knights of St John for 212 years. He wrote a haughty letter to the knights, in which he called on them to surrender, unless they wished to be put to the sword. The siege of Rhodes cost him many men; but, at length, the town, being reduced to extremity, was forced to surrender, December 26, 1522. The conqueror now turned his arms against Hungary, where he gained the battle of Mohatz, in 1526. He afterwards took Buda (1529), advanced to Vienna, and, in twenty days, made as many assaults upon this city, but was finally forced to raise the siege, with the loss of 80,000 men. In 1534, he marched towards the East, took possession of Tauria, but was defeated by Shah-Thamas; and, in 1565, his army met with the same fate before Malta as formerly before Vienna. In 1566, he took possession of the island of Scio, and ended his life, August 30 of the same year, at the siege of Sigeth, in Hungary, in the seventy-sixth year of his age, and four days before the taking of the fortress by the Turks. His victorious arms made him equally dreaded in Europe and in Asia. His empire extended from Algiers to the Euphrates, and from the extremity of the Black sea to the farthest limits of Greece and Epirus. His abilities were equally great for the conduct of affairs in peace and in war. As a general, he possessed a wonderful activity: his word was held sacred: he was a firm friend to justice, although his love for the sultana Roxalana, and her persuasions, pre-

* Three days' rain, of unusual violence, preceded the eruption.

vailed upon him to put to death all his children by another sultana, to secure the succession to Selim her son. His cruelty tarnished his fame. After the siege of Mohatz, by his orders, 1500 of the most distinguished prisoners were placed in a circle, and beheaded, in presence of the victorious army. Solyman thought nothing impossible to be done which he commanded. When one of his generals sent him word that his orders to build a bridge over the Drave could not be executed, Solyman sent him a linen cord, with this answer: "The sultan, thy master, commands thee, without consideration of the difficulties, to complete the bridge over the Drave: if thou doest it not, on his arrival, he will have thee strangled with this cord, which announces to thee his supreme will." Solyman used his unlimited power to establish order and security in his dominions. He divided them into districts, of which each was compelled to furnish a certain number of soldiers. The produce of a certain division of country in every province was reserved for the support of the troops; and he provided for every thing connected with military discipline, and the equipment of soldiers, with the greatest care. He introduced a system for the regulation of the finances in his empire; and, that the taxes might not be too oppressive, he was very exact in his expenses. He was the greatest of all the Ottoman emperors, and extended his power widely, by force of arms, in Asia and Europe. Under his government the Turks attained their highest glory; but this was gradually lost under his successors, who seldom appeared at the head of their armies. He was in the highest degree ambitious, active, and fond of power; and every year of his reign was distinguished by some great enterprise. A faithful observer of his religion, he was less vicious, and much better educated, than his predecessor. He loved mathematics, and particularly the study of history. He wanted but few qualities to make him a great prince, but many to make him a good one. Those who reckon the emperors of Turkey from the conquest of Constantinople, call him Solyman I.

SOMERS, Lord John, a distinguished lawyer and statesman, was the son of an attorney at Worcester, where he was born in 1652. He was entered a gentleman commoner at Trinity college, Oxford, and being destined for the legal profession, passed some time as clerk to a barrister, and, when called to the bar himself, evinced talents of a high order. His principles led him to oppose the measures of Charles II; and, on the accession of James II. he continued a firm opposer of the court, and acquired great credit as one of the council for the seven bishops. He heartily concurred in the revolution, and sat, as one of the representatives for Worcester, in the convention parliament, summoned by the prince of Orange, and was one of the managers appointed by the commons to confer with the lords on the word *abdicate*. In 1689, he was knighted, and made solicitor-general; in 1692, attorney-general, and lord-keeper of the great seal, the following year, in which capacity he displayed equal ability, integrity and gentleness. He was one of the first patrons of Addison, for whom he procured an allowance, to enable him to make the tour of Italy. In 1695, he was made lord high chancellor of England, and was raised to the peerage by the title of lord Somers, baron Evesham. Being now regarded as the head of the whigs, he made great exertions to moderate the zeal of that party. After the death of William, lord Somers spent his time in literary retirement, and was chosen president of the royal society. In 1706, he drew up a plan for effecting a union between England and Scotland, which was so much approved, that queen Anne appointed him one of the commissioners to carry it into execution. Upon a change of ministry, in 1708, he was nominated president of the council, but was again dismissed in 1710, and, in April, 1716, was carried off by an apoplectic fit, at the age of sixty-four. He was a patron of men of letters, and one of those who redeemed Milton's Paradise Lost from the obscurity in which party prejudice had involved it. Besides the many speeches and political tracts attributed to him, he translated some of Ovid's Epistles, and Plutarch's Life of Alcibiades. He also made a collection of scarce tracts, of which there has been published a selection, in four parts, each consisting of four volumes (4to.; new edition, 1809—1812. 12 vols., 4to., edited by Sir Walter Scott). His collection of original papers and letters was destroyed by a fire at Lincoln's Inn.

SOMERS' ISLANDS. See *Bermudas' Islands.*

SOMERSET, Earl of. See *Overbury.*

SOMERSET, Duke of. See *Seymour.*

SOMERSETSHIRE; an extensive county of England, bounded on the north by Gloucestershire and the Bristol channel, on the east by Wiltshire, on the south west by Devonshire, and on the south-east by Dorsetshire. Its greatest length from east to west is about 68 miles, and its breadth from north to south 47 miles. It is computed to contain 1,050,880 English acres. This county displays a great variety of soil and surface. The north-eastern quarter, including the country between Uphill on the Bristol Channel, and Frome on the border of Wiltshire, and bounded on the south by the hills of Mendip, is diversified by rocky eminences, declining towards the west into fertile plains, and near the sea into moorland tracts subject to inundation. The south-eastern portion of the county, on the confines of Wiltshire and Dorsetshire, consists of high downs appropriated to the pasturage of sheep, or raising corn; and from Shipton Mallet to Chard is a fertile tract, interspersed with fine meadows and orchards. The central district, intersected by rivers, comprises extensive fens and marshy moors, where dykes and ditches form the divisions of property, and the land is often covered by water. Towards the south-west, near the border of Devonshire, is the fruitful vale of Taunton Dean, whence the Quantock Hills extend north-westward to the Bristol Channel; further westward is the ridge of the Brandon Hills, and at the western extremity is the forest of Exmoor, lying partly in Devonshire. The loftiest eminence is Dundry Beacon in the northern part of the county, the summit being 1668 feet above the level of the sea. Landsdown, near Bath; Broadfield Down, north of Wrington; Blackdown, south-westward of Taunton; Glastonbury Tor; and Bratton, near Minehead, are hills of considerable altitude. The climate is as various as the soil; near the coast the weather is usually mild, even in winter, and it is almost equally temperate in the vale of Taunton, and in the level districts towards the south and east; on the hills of Exmoor, Brandon, and Quantock, the air becomes much colder, and storms are not unfrequent; in the central marshes the air is moist and foggy; on the heights of Mendip the cold is extreme, but as the country declines towards the estuary of the Severn,

the atmosphere becomes temperate and pleasant, and the heat in summer is moderated by the sea breezes. The rivers of Somersetshire are numerous but not very considerable, most of them through their whole course being confined to this county. The Parret, rising on the border of Dorsetshire, flows northward, being joined near Muchelney by the Ile, and at Langport by the Yoo, or Ivel, on the east, afterwards by the Tone from Taunton on the west, it passes the town of Bridgewater, and pursues a winding course to the Bristol Channel. The Brue has its source in Selwood Forest, on the confines of Wiltshire, passes Bruton and Glastonbury, and after receiving a stream from Shepton Mallett and Wells, and some others, flows westward, and enters the sea a short distance northward of the preceding. The Ax, which rises in the Mendip Hills, passes by Axbridge, and falls into the Bristol Channel near Black Rock. The Ex, which has its origin in Exmoor Forest in this county, soon passes into Devonshire. Somersetshire has long been famous for the fattening of cattle, and the richness of its dairies. The cider made here is also of a very superior quality, and is the principal drink of the common people throughout the county. Barley is not much grown, but wheat, oats, and bear, together with flax, teazels and woad, are extensively cultivated. The principal mineral products are coal, found only in the hilly tract between Mendip and the Lower Avon; lead, lapis calaminaris, manganese, copper-ore, spars and crystals, from the Mendip hills; from the Quantock hills lead and copper ores have been excavated; calamine from the Broadfield downs and other hills; iron ores from various places; and in the rocks near Porlock have been found small quantities of silver. Granite has been quarried a few miles north-east of Taunton; and at Coombe Down great quantities of excellent freestone for building. There are mineral springs of various kinds in different parts of the county, of which the most important are the chalybeate warm springs at Bath, discovered at a very early period.

There are extensive manufactories of woollen cloths in Somersetshire. Linen cloths, such as dowlas, bed-tickings, and sail-cloths, together with lace, silk, and crape, are also manufactured here. The foreign commerce of the county is chiefly carried on at Bristol. The cities are Bath and Wells, Bristol being only in part within this county. The boroughs are Bridgewater, Ilchester, Milborne Port, Minehead and Taunton; and the market-towns Axbridge, Bruton, Castle Carey, Chard, Crewkerne, Dulverton, Dunster, Frome, Glastonbury, Ilminster, Longport, Milverton, South Petherton, Shepton Mallet, Somerton, Wellington, Wincanton, Wiveliscombe, Yeovil, and Pensford; but of this last the market is entirely discontinued. The county, which is co-extensive with the diocese of Bath and Wells, is divided into the three archdeaconries of Bath, Wells, and Taunton. Population of the county in 1821, 355,314; in 1831, 403,908.

SOMERVILE, William, an English poet, was born in Warwickshire, in 1692, and educated at Oxford. He early cultivated his talent for poetry, and inherited a considerable paternal estate, on which he chiefly lived, mingling an ardent attachment to the sports of the field with the studies of a man of letters. He was courteous, hospitable, convivial; but carelessness in pecuniary matters, by involving him in embarrassments, preyed on his mind, and produced habits which shortened his life. He died in 1742. As a poet, Somervile is chiefly known by his Chase, a poem in blank verse, which maintains a respectable rank in the didactic and descriptive class. Another piece, connected with the same subject, is entitled Field Sports. His Hobbinol, or Rural Games, is a kind of mock heroic. His other pieces are not fitted to increase his reputation. See Johnson's *Lives of the Poets*.

SOMME. See *Department*.

SOMNAMBULISM designates the well-known phenomena of sleep-walking. It is also used for a certain state of a person under the influence of animal magnetism. The phenomena of sleep-walking are very singular, the person affected performing many voluntary actions, implying a certain degree of perception of the presence of external objects. This affection is commonly considered as an imperfect degree of sleep. "In the case of the somnambuli," says Dugald Stewart, "the mind retains its power over the limbs, but possesses no influence over its own thoughts, and scarcely any over the body, excepting those particular members of it which are employed in walking." Sleep-walking is not unfrequently connected with the changes of the moon; when people will rise, walk about, do certain things, and go to bed again. The placing of a wet cloth by the side of the bed of such a person, so as to wake him immediately when he steps on it, is recommended as a means of curing this habit. The subject is very obscure, the cases not having been philosophically studied to a sufficient extent. As to somnambulism in animal magnetism, the votaries of this science believe that the brain—the peculiar seat of the higher faculties—rests during somnambulism, but that the vital power of the nervous system of the abdomen is heightened so much, that it can supply, in a degree, the place of the brain, and afford the means of perception. Hence a letter placed on the stomach of a person in the state of somnambulism can be read by him! We must refer the reader to the works mentioned in the article *Magnetism, Animal*, viz. those of Wolfarth, Kieser, &c.

SOMNUS (Latin, *sleep*), or HYPNOS (ὕπνος); in ancient mythology, the god of sleep, son of Nox (Night), and twin brother of Mors (Death). He dwelt at the western extremity of the world, where the imagination of early poets placed all awful beings. The Orphic hymn (84) calls Lethe (Oblivion) his sister. His power is great, and both mortals and gods are subject to him. Some of the later poets describe him as a handsome youth, some as a dull and lazy god, whose dark abode no ray of Phœbus enters. (*Ovid.*) He is sometimes represented with a wreath of poppies; sometimes with a horn, in which he carries dreams. According to some poets, he produces sleep by the motion of his wings; according to others, he sprinkles drops of Lethe on the eyes of mortals. Ovid gives him a thousand children, but mentions only Morpheus, Icelos, Phobetor and Phantasos. See *Morpheus*.

SON (in the Tartar languages, *river*); a syllable which appears in many geographical names, as *Karason* (black river), *Akson* (white river).

SONATA (*sonata*, or *suonata*, Italian, from *sonare*, to sound) is a simple piece of instrumental music, intended to express various feelings in different passages, according to the character of the instrument used. It was originally designed for one instrument only, principally for the violin; afterwards for the piano almost exclusively. Sub-

sequently, sonatas were composed, in which the piano or harpsichord is accompanied by other instruments; for instance, the violin or flute, horn, clarionet. But these latter were also called *trios*. The union, however, is not pleasing, as the tone of the harpsichord is too weak, and the pianoforte does not harmonize well with any other instrument. The expression of the sonata is to be determined by the character of the instrument—a circumstance which modern composers have not sufficiently observed. In sonatas for several instruments, the principal instrument is either only assisted (as is the case, for instance, with many sonatas for the pianoforte accompanied by the violoncello), or the instruments alternate, so as to make the sonata a dialogue of instruments. Formerly the sonata usually began with a lively passage, followed by an andante or adagio; then came a minuet with a trio (afterwards a scherzo); and lastly a rondo or presto: instead of the second, third or last division, variations are also made use of. The old arrangement, however, is no longer adhered to, and sonatas are now written in two, three, or four divisions. But still it is a complete musical piece, in which the passages are connected by a common character. An easy or short sonata is called *sonatina*. The most distinguished composers of sonatas are Bach, Haydn, Beethoven, Clementi, Cramer, Hummel, Weber, Moscheles, Kalkbrenner, Field.

SONNET (Italian *sonetto*); a species of poetic composition, consisting of fourteen lines of equal length—the most ancient form of Italian poetry. It was used at an earlier period among the Provençals; and, in the thirteenth century, count Thibaut de Champagne mentions it as a species of poetry universally used and known. A Provençal sonnet, written in 1321, and entirely conformable to the rules for this species of poem, in which William de Almarichi congratulates king Robert of Naples, is to be found in Nostradamus, from whom Crescembeni borrowed it in his *Storia della volgar Poesia* (t. i.). In Italy, the sonnet was naturalized about the middle of the thirteenth century, when Italian poetry became imbued with the spirit of the Provençal. Fra Guittone, of Arezzo (died 1295), the first Italian poet of note, was also the first who gave to the sonnet, at least in Italy, that regular form which Petrarca (died 1374) carried to perfection, and made a model. In France, the sonnet was not cultivated after the extinction of the Provençal poetry, until the sixteenth century; but the *bouts rimés* reduced it to a mere play on words. In Germany, it first came into use in the first half of the seventeenth century. It has been of late much cultivated there, but is not adapted for the language, on account of its poverty in rhymes. In fact, the strict rules of the rhyme often compel the poet to accommodate the ideas to the expression, even in languages which, like the Italian, have a great number of rhymes for almost every final syllable; and in German, in which many final syllables have very few rhymes, there are many words which almost always are made to rhyme with certain others; so that the occurrence of one of them in a sonnet inevitably suggests to the reader what words are to follow, so as to destroy the great pleasure of rhyme. A sonnet may produce a good effect when the subject is well chosen, and naturally accommodates itself to the divisions of the poem; but it requires much skill to make it pleasing; and Petrarca himself sometimes becomes tame, from the constraints to which he is subjected. Göthe wrote but few; and their subject is the difficulties of the form, and the pleasure of overcoming them. The sonnet is often attempted by persons who find it easier to furnish rhymes than ideas; and the number of insipid sonnets in Italian and Spanish is immense. In English, also, there is an abundance of them. The most successful writers of English sonnets are, Milton, Drummond of Hawthornden, Warton, and Wordsworth.

The sonnet properly consists of fourteen iambic verses of eleven syllables, and is divided into two chief parts: the first consists of two divisions, each of four lines (*quadernario, quadrain*); the second of two divisions of three lines each (*terzina*). The quadrains have two rhymes, each of which is repeated four times, and, according to the Italian usage, either so that the first, fourth, fifth and eighth verses rhyme, and, again, the verses between them, the second, third, sixth, seventh (*rima chiusa*); or, which is rarer, the rhymes alternate (*rima alternata*); or, what is still rarer, the first quadrain is written in the first way, and the second in the second. In the two terzine there are either three rhymes, each twice repeated, or two rhymes, thrice repeated, in all positions. The Italians, who use hardly any form for lyrical poetry but the sonnet and canzone, have invented varieties of it, such as the Anacreontic sonnets, with lines of eight syllables, and those with a *coda*. The sonnet generally contains one principal idea, pursued through the various antitheses of the different strophes, and adorned with the charm of rhyme.

SONNITES. See *Sunnites*.

SONORA; one of the states of the Mexican confederacy (see *Mexico*), lying on the Pacific ocean, on which it has a sea-coast of 900 miles, with several good ports. It is generally hilly, a large portion of it lying on the table land. It abounds in mineral wealth: gold is found in washings and mines, and the silver mines are rich and numerous. The soil is also fertile. The capital of the state is Arispe, with a population of 7600 souls. Cinaloa (9500), Sonora (6400), and Culiacan (10,800), are among the principal towns.

SOODRAS. See *Hindoos*.

SOOT. See *Lamp-Black*, and *Manure*.

SOPHI: a professor of Sufism. q. v.

SOPHIA, CHURCH OF ST. The foundation of this magnificent temple in Constantinople was laid in the sixth century, in the reign of Justinian; and the work was completed by Anthemius Tralles, the most celebrated architect of his age, with the aid of Isidorus of Miletus. Anthemius was the first who undertook to erect a dome on four arcades: he chose for this purpose the form of a Greek cross. Twenty years after its dedication, in 558, the dome was shattered by an earthquake. Another Isidorus, nephew of the former, restored it, but raised it twenty feet higher than before, giving it an elliptical instead of a spherical form. The curvature of the dome is so slight, that the depth is equal to only one sixth of the diameter, which is 115 feet; the crescent, which has supplanted the cross on the centre, however, is 180 feet from the ground. This flattened form of the dome has a fine effect; and if the architect attempted to imitate the arch of the heavens, Dalaway pronounces the attempt more happily accomplished in the mosque of St Sophia than in St Peter's at Rome. The ceiling of the dome over the twenty-four windows is ornamented with mosaic work, in the form of small cubes, of a vitreous substance, which Vitruvius calls *smaltum*.

Besides containing four colossal figures, which represent seraphim, the ceiling is gilt all over, but defaced by time. The arrangement of the capitals is not conformable to rule; they belong to no particular style, and have no entablature. With the principal dome are connected two half domes and six smaller ones, which add to the general effect. The form of the building is a Greek cross, inscribed in a quadrangle; but the interior area from east to west forms an ellipse. The mass of the edifice is of brick, but it is overlaid with marble: the floor is of mosaic work, composed of porphyry and verd antique. The great pillars which support the dome, consist of square blocks of stone, bound with hoops of iron. The gallery round about is formed by sixty-seven columns, eight of which are porphyry (from Aurelian's temple of the sun, at Rome). Eight others, of green jasper, were taken from the temple of Diana, at Ephesus. The vestibule has nine bronze doors, ornamented with basso-relievos. The interior of the mosque is 243 feet in width, from north to south, and 269 in length, from east to west. The exterior of St Sophia has many defects and incongruous additions; among others, four minarets, made since it became the chief mosque of the Turks (1453), have given it the appearance of an irregular mass.—See Gibbon's *Decline and Fall of the Roman Empire* (ch. 40 and 68). Grélot, *Voyage de Constantinople* (with engravings); Banduris, *Imper. Orient.* (Paris, 1711, 2 vols., folio): and Mouradgea d'Ohsson's *Tableau Général de l'Empire Ottoman* contain representations of it.

SOPHISM; a fallacy in reasoning. (See *Sophists.*) Sophisms are usually divided by logicians into those in the words (*in dictione*), and those in the matter (*extra dictionem*). Whately divides them into those in which the conclusion does not follow from the premises, and in which the reasoning is, therefore, false, or logical fallacies; and those in which the conclusion does follow from the premises, or material fallacies. For the various kinds of sophisms—*petitio principii*, *ignoratio elenchi*, paralogism, &c.—we must refer the reader to treatises on logic.

SOPHISTS. This name of a peculiar class of teachers of eloquence, philosophy and politics, which flourished in Greece in the fifth century before the Christian era, signifies properly wise men (σοφοι, wise), and was assumed by them out of learned pride. But as the later sophists strangely perverted the science which they taught, made themselves ridiculous by their arrogance, and drew upon themselves the hatred and contempt of reasonable men, by the pernicious and corrupt principles which they advocated with the utmost shamelessness, the title became a term of reproach, and was applied to men who seek to confound the understanding by vain subtleties and false axioms, to shake the force of the pure precepts of religion and morals. We find the names of a considerable number of sophists, mentioned in Grecian history, differing not less in the kind and degree of their knowledge than in the places of their birth. The most celebrated are Gorgias of Leontium, in Sicily, Protagoras of Abdera, Hippias of Elis, Prodicus of Cos, Thrasymachus of Chalcedon, in Asia Minor. All these were contemporary with Pericles and Socrates, and resembled each other in being teachers of natural philosophy, geometry and arithmetic, astronomy, music, theology, morals, logic and eloquence. This variety of subjects, which they taught among a people of the highest refinement, proves that they had cultivated their powers to a certain degree; and, in fact, they rendered important services to learning, as they were the first cultivators of rhetoric as well as of grammar and morals. They taught all these sciences in attractive language, both orally and in writing, and were every where received with admiration. Besides, they often distinguished themselves in the service of their country. At least, it is certain that Gorgias, Prodicus and Hippias were employed in difficult negotiations. But brilliant as the sophists appear when viewed as men acquainted with all the learning of their age, and successfully extending its limits, it is not to be denied, that, when viewed on the dark side, they are deserving of abhorrence. The unblushing effrontery with which they set themselves up for the sole possessors of all wisdom, human and divine, shows them to have been impostors or conceited pretenders. In the next place, they abused knowledge to gratify the basest of passions—avarice; and, finally, they preached irreligion and immorality, and attacked whatever was held dear and sacred by the people. They denied the existence of the gods, attributed every thing to chance, and all religious ideas to the invention of some artful individual, who, after men had long dwelt in the woods like wild beasts, inspired his barbarous brethren, by the fiction of avenging gods, with fear, and compelled them to submit to a better state of things. They maintained that the right of the strongest was the only law of nature, and that all actions were indifferent—neither good nor bad. This distinction was first made by positive laws; and hence different nations form different estimates of the morality or immorality of the same actions. It is folly, they asserted, to point out what is good or just; for such a course of conduct would be connected with so many disadvantages that no man of common sense would adopt it. Proceeding on these principles, they declared every species of fraud, robbery and violence, innocent. They maintained that moderation and self-denial were marks of a weak mind, and that man's true happiness consists in the gratification of all his desires. Such were the infamous doctrines of the Sophists; and they appear still more hateful, when we remember that they were adopted merely for the purpose of attracting followers, and satisfying their own love of gain. For the same men, who so shamelessly preached up vice, were equally eloquent in praise of virtue, when they were afraid of offending their hearers or losing their wealthy disciples. If money was to be got by sound precepts of morality, they made the most florid speeches in praise of virtue. An example of this is the beautiful story of Prodicus, called the Choice of Hercules, one of the most elegant and ingenious fictions of antiquity. It is preserved by Xenophon, in his Memorabilia of Socrates (book ii., chap. 1). From the Sophists, likewise, proceeded the pernicious art of defending the most contradictory opinions, and of making the most evident truths appear uncertain, and the most extravagant absurdities probable. They effected this by false reasonings and captious questions, by which they confused their opponents. This art was the more dangerous in the hands of these corrupters of learning, as it enabled them to pass themselves off on inexperienced young men as possessors of universal knowledge, and to persuade them that they knew all the secrets of heaven and earth. Many of their arguments and conclusions were extremely absurd; but at first sight they surprised and astonished the

bearer. Thus Gorgias, in a treatise on nature, proved, 1. that there is nothing real; 2. if there were any thing real, it could not be known; and, 3. if it were capable of being known, it could not be communicated by words. Prodicus of Cos proved, in a discourse cited by Æschines, that life is not a desirable gift, and attempted to remove the fear of death by declaring death a nonentity; it does not concern the living, for they have nothing to do with it; nor the dead, because they are no more. By similar sophistry, Protagoras destroyed the distinction between truth and falsehood. He maintained, that man is the measure of all things, and that nothing really exists but what he conceives, and in the way in which he conceives it; and as every assertion may be met by another, it is folly to dispute, and refutation is absolutely impossible. These notions relate to important subjects; but among the host of disciples, who followed the Sophists, there was a multitude who endeavoured to make themselves conspicuous by the most absurd and ridiculous assertions. Plato has drawn one of these characters in his Dialogue of Euthydemus, which, in the persons of Euthydemus and Dionysodorus, describes the whole tribe, and holds them up to contempt. A single example will suffice. Dionysodorus says, "Tell me, Ctesippus, have you a bitch?" *C.* "Yes, and a very bad one too." *D.* "Has she young?" *C.* "Yes; just like herself." *D.* "Is not a dog their father?" *C.* "Yes; I saw them couple myself." *D.* "Is he not your dog?" *C.* "Certainly." *D.* "Then he is your father! So your father is a dog, and the puppies are your brothers!" On such miserable verbal quibbles did these learned disputants lay claim to the title of profound and subtle inquirers. But however little intrinsic value their teachings had, they served to set the mind at work; and we cannot help regreting the total loss of their writings, as we can now only judge of their tenets and practice from the accounts of others. These accounts, however, are so full and consistent that we should probably find no cause for changing our opinions, if we had their own works. The most flourishing period of the Sophists was from the Persian war, 490 B. C., to the death of Socrates, ninety years later. A rapid glance at the causes of the rise and success of such a class of men in Greece, is necessary. It is, in fact, however, not more wonderful than that a Socrates should flourish there: the versatile genius of the Greeks exerted itself in every form imaginable. Besides, the state of scientific and religious knowledge among the Greeks, at that time, will sufficiently account for the appearance of the Sophists. Learning was in its infancy; science was but just beginning to flourish; morals and theology had never yet been made the subject of deep and critical examination. These great services were first performed by the Socratic school; and it is not strange that selfish and superficial men erred so egregiously respecting those lofty subjects, particularly where the Eleatic school denied the reality of experience and the evidence of the senses, and perverted logic into dialectics. Considering also the democratical constitution of the states of Greece, which allowed unlimited freedom of investigation, it will appear not less natural for Sophists to have sprung up among the Greeks, than impossible for them to have arisen among the Hebrews or Romans.

SOPHOCLES. This immortal poet, who carried the Greek drama to perfection, was probably about twenty-five years younger than Æschylus, and fifteen years older than Euripides, whom, however, he survived. They both died in the third year of the 93d Olympiad. The second year of the 71st Olympiad (B. C. 495) is assigned as the period of his birth. He was descended from a rich and noble family in Athens (or rather in Colonos, a village belonging to Athens). The advantages of a fine person (though nature had denied him a good voice) and his brilliant genius contributed to open a splendid career before him. Though the fame of Sophocles, as a poet, has eclipsed his reputation as a statesman, yet he is mentioned in the history of Athens as an archon, with Pericles and Thucydides, in the war against Samos; and his name is recorded among the priests of the city. His death, which happened in his ninety-fifth year, is so enveloped in obscurity, that, by some, he is said to have expired from excessive joy, in consequence of the unexpected success of one of his dramas at the Olympic games; and by others, to have closed his life during the recitation of his *Antigone*, then just completed. In his eightieth year, an ungrateful son charged him before a judicial tribunal with being incompetent, from age, to manage his domestic affairs; but, on his reading to the judges his Œdipus at Colonos, which he had just written, the complaint was dismissed, and he was carried to his house in triumph. On his tomb was erected a marble statue of Bacchus, with the tragic mask of Antigone in his hand. Sophocles began his career as a lyric poet; but, at the age of twenty, he devoted himself to the drama, and became the rival of Æschylus, whom he surpassed in the popular favour. The first victory which he gained over his predecessor was brilliant: the first prize was awarded to him nineteen times; the second still oftener, but never the third. His reputation soon spread to foreign countries, and several princes invited him to their courts. But he remained faithful to his country. The Greek drama is seen in its perfection in his productions. Of his numerous plays, which some have estimated at 130, only seven have come down to us; but these are all complete and masterly performances: 1. the Ajax; 2. Electra; 3. Antigone; 4. King Œdipus; 5. Œdipus at Colonos; 6. the Trachinians; 7. Philoctetes. We will give a short sketch of their contents, remarking, by the way, that we can distinguish no trilogies and tetralogies, as in Æschylus; and that, according to the Scholiasts, he introduced the practice of contending for the prize with a single piece; so that the distribution of the tragic part into trilogies (three parts or distinct pieces), to which a satirical piece was often appended (the whole being styled a *tetralogy*), almost wholly went out of use. Sophocles also first introduced a third actor, and limited the lyrical element or chorus, which Æschylus frequently made the chief part of the tragedy. In the Ajax, we see that hero, wounded in his honour by Ulysses, in the contest for the armour of Achilles, seized with frenzy: on recovering from which, as if blinded by the dreadful discovery, he destroyed his own life. The Electra belongs to the tragic scenes of the family of Pelops. It contains the murder of Clytemnestra (who, with her lover, Ægisthus, had assassinated her husband Agamemnon) by the hand of her son Orestes, under the direction of his sister Electra. By the art of the poet, Electra, who would naturally appear as a subordinate character, is made the heroine of the action. In Antigone,

we see the highest triumph of female tenderness. Antigone, the wretched daughter of the wretched Œdipus, and guilty of no crime but that of attaching her own fate to that of her father, is the only being in Thebes who does not submit to Creon, the new sovereign. Her heroism is of the highest and most feminine character. Her brother Polynices, who was slain before Thebes, in a single combat with his brother Eteocles, in which both fell, and whose burial had been prohibited by Creon, owed a grave to his sister. After performing this last office of affection with the tenderness of a woman, but an unshaken firmness, she goes her sad and solitary way to the cold, stony bed prepared for her. According to Solger, the point of the tragedy consists, not in the elevation of the heroine, but in the conflict of divine and human laws. The King Œdipus, and Œdipus at Colonos, are parts of one story; and the tragic points in the history of Œdipus are thus exhibited in a terrific double picture. These tragedies are founded on the principle that man cannot escape his destiny, and that the profoundest wisdom only draws the cords of fate more tightly, till that almighty Power is appeased by voluntary penance and humiliation. In the former, a dreadful mystery is suddenly revealed, while the wretched victim trembles to behold the unwelcome light. The unconscious patricide, and husband of his mother, as one veil after another falls away, hurries back to the darkness, which has been removed from around him, by tearing out his eyes, and flees into miserable exile. The counterpart of this moving picture is drawn in the Œdipus at Colonos, weighed down by guilt and age. The darker lines of the horrible event are now softened by time. His crime has been expiated by long sufferings. In the grove of the avenging goddesses, by whom the whole dreadful tissue had been woven, his wretched wanderings end. Œdipus finds at Colonos near the walls of Athens, in the solitary abode of the Furies, rest and a grave. The Trachinians is founded on the history of Hercules; Dejanira, in the excess of her love, becomes the murderer of the hero who is taken, as it were, in the snares of fate itself, like Agamemnon, only that, in the latter case, the victim is more innocent than Hercules, and, in the former, the murderer is more guiltless than Clytemnestra. Philoctetes, the heir of the weapons of Hercules, languished for years on the desolate Lemnos, where he had been deserted by the ungrateful Greeks during a magic slumber, which, after every attack of pain, gave him some relief. But fate at length pities him, and compels his enemies to search for him, as it was decreed that, without the bow of Hercules, Troy could not be taken. This exposes him to new sufferings. Neoptolemus, the generous and worthy son of Achilles, is appointed to rob him of his quiver, and thus compel the defenceless Philoctetes to go against Troy. But the frank and honest Neoptolemus is incapable of carrying on such a design; and Hercules now appears bringing reconciliation, promising health, and persuading Philoctetes to pardon the ingratitude of the Greeks, and to comply with their request. The distinguishing characteristic of the Greek drama is simplicity. Thence its precision and perfection of form; thence its little external ornament, the accuracy with which the characters are defined, the finish of the colouring, the keeping of the whole, and the perfection of the versification. The unities of time and place are strictly observed; the plot is seldom intricate, but is skilfully contrived, and the diction is lofty and pure. The beautiful rather than the strange and awful, as in Æschylus, than the tender, as in Euripides, is its predominant feature. (See *Drama*) In all these qualities, Sophocles excelled, and was therefore the finest model of Grecian poetry. The characters of Sophocles are undoubtedly the most perfect, distinct and individual that can be drawn, and, at the same time, arrayed in all the charms of ideal representation. His choruses have always been celebrated as the finest productions of dramatic poetry. No tragic poet, in ancient or modern days, has written with so much elevation and purity of style. The versification of Sophocles stands alone in dignity and elegance, and his iambics are acknowledged to be the purest and most regular. Of the modern editions of his tragedies, the best are those of Brunck (Strasburg, 1786, 2 vols., 4to., and 4 vols., 8vo.; 1789, 3 vols.), and Erfurdt (a small edition, continued by Hermann, Leipsic, 1809—25, 7 vols., and a larger, 1802, 6 vols.). The tragedies have been translated into English by Franklin and Potter.—See Lessing's *Leben des Sophocles;* Jacob's *Character of Sophocles*, in the *Nachtrage zu Solger*, 4th vol.; and Solger's *Nachlass* (1828).

SOPHONISBA. See *Masinissa.*

SOPRANO, in Italian (*discantus*, Latin; *le dessus*, in French), in music, denotes the highest vocal part, which is only sung by boys, women and castrates, hence the name of *sopranos*, or *sopranists*, applied to the last of the three. There is a great difference in the voices of these three descriptions of singers. That of boys has sometimes quite a peculiar and affecting charm. According to the compass of the tones, the descant is divided into a higher and lower *soprano;* second descant is equivalent to *alto;* but the tones of descant are sharper, lighter, finer. The compass of a common descant is from c to c, and is quite sufficient for a voice of the chorus. A high descant, necessary for the bravura song, can reach as high as f g; the lower descant, also called *mezzo soprano*, reaches from g or a to g or a. Seldom, however, will there be found a complete compass, with complete equality of the tones from g to c. Generally, the grace of the more important middle tones is lost by the violent exertion to produce the higher tones. To the soprano belongs the melody. It is also capable of variegated ornaments and runs, since the higher tones are by nature more appropriate to these. Since high tones depend on quick vibrations, high voices are able to speak and sing quicker than deep voices. For this reason, and in this view, the soprano is the chief or leading part, to which the composer must pay particular attention. Hence it is highly important for him to understand thoroughly the nature and capacity of the soprano voice, in order to know what it can perform with ease, and, without unfavourable exertion, what are the natural divisions of the voice, &c. The same knowledge is necessary for the singer. The violin clef is now almost universally used instead of the descant clef.

SORB APPLE; the fruit of the service tree. See *Service Tree.*

SORBONNE; originally a college for the education of secular clergymen at the university of Paris, so called after Robert of Sorbon, in Champagne, a theologian of Paris, who founded it dur-

ing the reign of St Louis, about 1250, and endowed it with an income which was subsequently much increased. This institution, the teachers in which were always doctors and professors of theology, acquired so much fame that its name was extended to the whole theological faculty of the university of Paris, which was called, till the end of the eighteenth century, *Sorbonne*. Its opinions and decrees had a decided influence upon the character of Catholicism in France. The kings seldom took any steps affecting religion or the church without having asked the opinion of the Sorbonne; and, even without the limits of France, its opinions were often esteemed more highly than those of other academies. Not less inimical to the Jesuits than to the reformation, the Sorbonne steadfastly maintained the liberties of the Gallican church, opposed the bull *Unigenitus;* and, in the Jansenistic disputes, though it could not be said to take part with the society of Port-Royal, yet was always opposed to the Jesuits. In later times, the Sorbonne devoted itself much more to the defence of the rights of the church than the perfection of its doctrines and practice. Its spirit often degenerated into pedantic obstinacy, and not unfrequently into blind zeal for the letter of ancient doctrine; so that it formed a striking contrast to the acute philosophers, *beaux esprits* and free-thinkers of the eighteenth century; and its condemnation of the writings of Helvetius, Rousseau, and Marmontel, subjected it to much derision. The Sorbonne, therefore, had long outlived its fame, when the revolution put an end to its existence. The candidates for the degree of doctor in the Sorbonne were subjected to a severe trial of their patience. They were obliged to defend their theses from six o'clock in the morning to six in the evening uninterruptedly, and were merely allowed a slight refreshment in their desk.

SORDINO (*Ital.*); a small instrument of copper or silver, applied to the bridge of a violin, or violoncello, to render the sound fainter, by intercepting the vibrations of the body of the instrument.

SORELLE, OR SOREL; a river of Canada, which flows from lake Champlain into the river St Lawrence, forty-five miles below Montreal. It is sixty-nine miles long.

SORITES, in logic; a string of syllogisms in an abridged form, in which the predicate of the first proposition is made the subject of the next, and so on to any length, till finally the predicate of the last of the premises is predicated of the subject of the first. A sorites (from σωρος, a heap) has as many middle terms as there are intermediate propositions between the first and the last; and consequently it may be drawn out into as many syllogisms.

SORREL. The true sorrel (*rumex acetosa*) has long been cultivated in Europe for its leaves, as spinage and salad. They have an acid and slightly astringent taste, are cooling, and possess antiscorbutic properties. They are often put in refreshing drinks, and administered in cases of fever, &c.; but their most general use is for culinary purposes. The stems are upright, a foot and a half or two feet high, provided with a few petiolate, oblong, arrow-shaped leaves on the inferior part of the stem, and lanceolate, sessile ones above. The flowers are reddish or whitish, and are disposed in branching, upright racemes. The sheep's-sorrel (*R. acetosella*) is less than the preceding, but resembles it in habit, as well as in its sensible properties. The leaves are hastate. All domestic cattle are fond of the species of sorrel.

SORREL TREE (*andromeda arborea*). This tree sometimes attains the height of fifty feet, with a trunk twelve or fifteen inches in diameter. These dimensions are remarkable in a genus otherwise consisting entirely of shrubs. It inhabits exclusively, the range of the Alleghanies from Virginia to Georgia. The leaves are four or five inches long; oval-acuminate, and finely toothed; downy in the spring, but becoming smooth as they attain their growth. The flowers are small, white, disposed in long spikes, which are united in groups, and render the tree highly ornamental. The corolla is monopetalous, ovate, and downy. The name has been applied on account of the acidity of the leaves. These last, in drying, become black, and are sometimes used for imparting this colour to wool, when sumac cannot be procured. The wood is of a pale rose colour, very soft, burns with difficulty, and is wholly rejected in the arts. This tree is well adapted for an ornamental plant, as it is capable of enduring a cold climate, and the flowers begin to show themselves when it is only five or six feet high.

SOUBISE, CHARLES DE ROHAN, prince de, marshal of France, born in 1715, was, at the beginning of the seven years' war, perhaps the richest nobleman in France; and, without military talents, but merely as the favourite of Pompadour, received the command of a separate division, which, however, was subordinate to the main army under marshal d'Estrées—a circumstance which deeply wounded his pride. In the summer of 1757, at which time he was lieutenant-general, he therefore separated from the main army, and joined the imperial forces, with the purpose of delivering Saxony from the Prussians. Having reached Gotha, he allowed himself to be surprised by the Prussian general, who occupied the place intended for Soubise, at a feast in the ducal palace. Confiding in his superior numbers, Soubise next attempted to surround Frederic in his camp at Rossbach, but was suddenly attacked on the flank, and his troops were entirely routed. The loss of this battle, and the general ridicule which followed it, did not prevent his being again placed in command, in 1758, when he was more successful, by the aid of the duke of Broglio, who was associated with him. He received the marshal's staff in reward for his services. After the peace, he continued for some time in the cabinet, and died in 1787.

SOUBRETTE; a name given, in the French theatre, to the ladies' waiting maids; hence it is used for a subaltern and intriguing female in general.

SOUDAN. See *Nigritia*.

SOUL. What is the soul? The explanation of the soul is involved in this great difficulty, that the thinking, by which we arrive at our results concerning its nature, is an act of the soul itself; and can a single function show the nature of the power from which it proceeds? Impossible as this seems, the human mind has at all times drawn a picture of the soul, and ascribed properties to it which distinguish it from every thing divisible and transitory. Hence, with the exception of inquirers like Democritus and Epicurus, who considered every thing as composed of original atoms, or strove to explain every thing from the changes of physical organization, men have always attributed to the soul the qualities of simplicity, volition, immateriality, and immortality. Plato proposed to himself the double question, What was

…ey, and so on to the end. It is also mark… …a single knot in the middle of each inter… …as twenty-five, thirty-five, forty-five fathoms. … …e this lead more effectually at sea, or … …ater on the sea-coast, it is usual previous… …ing to the ship, in order to retard her mo… …e lead is then thrown as far as possible from … …e line of her drift, so that, as it sinks, it … …lines more perpendicularly over it.—*In narr…* …ances the being so near the land, that a line … …will attain the bottom, which is … …ecessible in the ocean.—*Soundings* is also a … …e specimen of the ground: a piece … …ow, cemented upon the base of the deep-sea … …distinguishing marks of the bot… … …, shells, coral, &c., which adhere to it. … …the depth of the water and the … …e ground, are carefully marked in the … …as well to determine the distance of the pla… …e, as to correct the observations of …

… …, a kind of cottage, made of bread, broth… …e meat or fish, with various other ingredients. … …ORE AND S…, a kind of cake, formed of cur… …which, being freed from all fat, … …, having the most putrescent … …separated, is reduced to the con… …, and will keep sound for many years. … …, it has been found to be a most … …food.

… …L. See Tania.

… …ARRET, a learned divine of the … …, born at London in 1633, and educated at … …, and Christ-church, Oxford. In … …Latin verses to Crom… … …name with the Dutch; … …he was rewarded a poem entitled … …. In 1660, he was chosen public … …of the university of Oxford: and soon after … …chaplain to Lord Clarendon. … …. In 1663, he became a pre… …, was admitted D.D., and … …. On the disgrace of his … …, he was made chaplain to the duke of York. … …, he was installed canon of Christ-church; … …, he went to Poland, as chaplain to the … …, Lawrence Hyde. On his re… …, he was presented to the rectory … …. In the latter part of the … …, Dr. South commenced a … …with Dr. Sherlock, relative to the … …. Both disputants professed … …, their difference … …manner of explaining the doctrine in … …. Dr. South died in 1716. He pos… …of uncommon share of wit and humour, which … …, exhibited in his most serious … …. His Sermons, which have been … …, were published in 11 vols. 8vo. He … …an account of his journey to Poland, and …

SOUTH AMERICA, the southern half of the … …, forms a continent, extending from lat. … …, including the archipelago of … …, in 55° 58′ S., and from 35° to … …. It is connected by the isthmus of … … with North America. Its extreme length … …, from the gulf of Maracaybo to the straits of Magel… …, is 4600 miles; its greatest breadth from cape … …, in lat. 4° S., 3500; superficial area, about 7,400,000 square miles. (See

America.) The surface rises gradually from the shores of the Atlantic ocean to the summit of the great mountain chain, which extends along the western coast, no where more than 80 miles from the Pacific ocean. This chain, called the Andes or Cordilleras (see the articles), stretches north and south through South America from capes Froward and Pilares, on the straits of Magellan, to the isthmus of Panama, where it sinks somewhat. It is volcanic almost throughout; in many parts there are volcanoes in activity. The lofty valley of Quito is often desolated by earthquakes. On the Pichincha, Humboldt counted eighteen shocks in less than thirty minutes. To the south, towards the Rio de la Plata, are extensive plains covered with saltpetre and salt, in which the springs and rivers are also saline. From the gulf of Arica, on the western coast, to cape St Roque, runs the mountain chain Chiquitos, separating the basins of the Amazons and of the Plata. At the foot of this ridge lie two immense plains, the pampas of the Plata (see *Pampas*), and the plains of the Amazons, the former covered with grass, the latter with wood. To the north is the detached chain of Guyana, in the western part of which, called the Mei, the Orinoco rises; the eastern part of the chain is called Tamucaraque. Still further north, on the coast of the Caribbean sea, is the chain of Caracas, or the sierra of Santa Martha, in which is the Silla, 8500 feet high. This chain bounds the great basin of the Orinoco, 1,000,000 square miles in extent. To complete the view of the natural divisions of South America, it is necessary to distinguish the valleys of the three great rivers, which drain nearly the whole continent, and are striking features in its geography. The Orinoco, the Amazons and the Plata have been described in separate articles. Besides these, the principal rivers are San Francesco in Brazil, the Colorado in Buenos Ayres, and the Magdalena in Columbia, flowing north into the Caribbean sea. The vicinity of the Andes to the western coast renders the streams which flow into the Pacific, little more than mountain torrents. The lakes are neither so numerous nor extensive as those of North America. Maracaybo in the north, Titicaca in the west, and Patos in the south-east, are the most considerable. In the great plains, temporary lakes are formed during the rainy season, by the overflowing of the rivers, which have sometimes been marked on the maps. The elevated plains or plateaus of South America are inferior in extent to those of the northern division of the continent, not exceeding 100 miles in circuit; but they are higher (from 8500 to 9000 feet), and are separated by deeper valleys. The lowest plain, however, the Llanos, extends over a space of 250,000 square miles, from the mountains of Caracas to the forests of Guyana, and to the delta of the Orinoco. In some parts, it is covered with woods, standing under water; in others, it is destitute of trees and fountains, or bears a few scattered palms. In the dry season, the parched grass falls to powder, the ground cracks, and whirlwinds raise clouds of dust, which resemble the waterspouts of the ocean. Even the alligator and the boa lie immovable in the dried clay, till they are revived by the first rains. Then the plain is suddenly covered with a rich carpet of grass. The climate of South America is colder throughout than in other regions under the same latitude. Even under the line, the heat is not excessive, owing to the height of the surface and the narrowness of the continent in this part. Many of the summits in the torrid zone are covered with perpetual snow. Humboldt fixes the snow-line under the equator at 15,000 feet. (See *Snow-Line.*) On the cordilleras of Grenada and Peru, it rains almost the whole year; on their coasts, it never rains nor thunders at all. In other parts, the heat is tempered by the great marshy lowlands, or by frequent rains. In some of the countries on the Amazons, it rains during ten months of the year. Guyana is thus rendered extremely unhealthy. In Patagonia, the air is raw, the skies are rarely clear, and the coasts are covered with almost perpetual fogs, and subject to violent storms. In Terra del Fuego, the valleys on the northern side are in the vicinity of high, bare mountains, covered with snow in midsummer. The peculiarities of the soil and climate, of course, have an effect upon the natural productions. The wonders of the tropical vegetation are exhibited in the great work of Bonpland and Humboldt—*Nova Genera et Species Plantarum, quas in Peregrinatione ad Plagam æquinoctialem Orbis Novi collegerunt* (fol., Paris, 1816). The potato (*solanum tuberosum*) is a native of the Andes, and, according to Pavon (*Flora Peruviana*), grows wild around Lima, in Chile, and in other places. The natives cultivate it, and call it *papas*. There are fourteen species of the cinchona or quinquina known. (See *Bark, Peruvian.*) Great quantities of the bark are collected between lat. 2° and 6° south. Cacao, vanilla and maize are also native plants, and the soil yields a great number of medicinal plants and dye-stuffs, and resinous trees. Particularly remarkable are the aracatscha, from the root of which a farinaceous substance of an agreeable flavour is obtained, and the wax palm, which grows to the height of 160—180 feet. In America alone there are 87 species of palms known, which are equally distinguished for their beauty and size, and for their various uses, furnishing wine, oil, wax, flour, sugar and salt. Of the *orchideæ*, the chief ornament of the tropical vegetation, 244 species are counted in America. Around the cataracts of Tequendama, formed near Santa Fé by the Bogotá, nature appears to have scattered various species of unknown plants and strange animals, as from her horn of plenty. The forests are so thickly filled with bushes, trees and plants, as to be impenetrable except in some places where the wild beasts have made a path to the water. Chile abounds in medicinal plants, frankincense, the cocoa-palms, &c. In the Brazilian forests there are more than eighty species of wood useful for carpentry or dyeing. In the low lands of the Orinoco, and on the coasts, the valuable guaiacum and caoutchouc exude from the trees. The plantations in Guyana yield all the productions of the West Indies without manure or ploughing. Cayenne produces spices, and Brazil, matte, or tea. In the animal kingdom, the lama, the guanaco and the vicugna, of the sheep kind, and the tapir and the peccary of the hog kind, are peculiar to the countries on the Andes. The American tiger, or jaguar and the puma, are the principal beasts of prey. The alligator or cayman, attains to a length of fifteen feet and more. The birds are not numerous in the higher parts of the country, but of great variety of colours and size, from the colibri to the condor. The low lands abound in birds and fishes. The whale fishery on the coasts of Brazil is important, and the manati, or sea-cows, are numerous in the rivers of Guyana. The alco, or wild dog, and the tuyu, or American ostrich, which inhabits the pampas, the electric eel,

and the penguin, are also found in this part of the continent. In the great grassy plains between the arms of the Plata and the Madeira, roam numberless herds of wild horses and cattle, sprung from those brought to the country by Europeans. In the Brazilian province of Rio Grande and on the Plata, the latter are so numerous that they are killed merely for their hides. In the high lands are found some of the most venomous and dangerous of the serpent tribe; for example, the rattlesnake, the enormous boa, &c. Centipedes, scorpions, frogs (for instance, the rana pipa of the Orinoco) and lizards are also found. In Guyana, the air is filled with butterflies of the most various colours. The lantern flies light the traveller by night with their shining heads. The mineral kingdom abounds in the most precious productions. In Brazil, diamonds are found of the largest size and in the greatest number; but they are inferior to the Oriental diamonds. (See *Diamond*, and *Diamond District*.) In some parts of Brazil, there are gold mines; but the greatest quantity of gold is obtained from the sands of rivers. Other minerals, as iron, tin, lead, quicksilver, salt, &c., although abundant, are little sought after. Gold mines are found in Grenada and Peru; platina is found in the mines of Choco and Barbacoas; silver is plentiful only in the colder Peruvian provinces, and the silver mines of Potosi are less productive than formerly. (See *Mine*.) In Chile, there is scarcely a mountain without gold, or a river without golden sands. Copper and tin are exported. South America, formerly almost entirely in the possession of two effete monarchies of Europe, is now, with the exception of Guyana, entirely independent of European rulers. It is divided into the empire of Brazil, the republics of Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Buenos Ayres, or the United Provinces of La Plata, and the Banda Oriental, or Uraguay; Guyana, Paraguay, or the dominions of Francia, and Patagonia, with the Terra del Fuego, in possession of the native tribes. The whole population is estimated at between thirteen and fourteen millions. The history and geographical details of each of these divisions will be found under the separate heads. (See, also, *America*, *Columbus*, *Americus*, *Cabot*, *Pizarro*, &c., for the earlier history; *Bolivar*, *Francia*, *Pedro I.*, *San Martin*, *Sucre*, *Santander*, *Paez*, &c., for more recent events; for the commerce of South America, see the article *Commerce of the World*, and the articles on the separate countries.) The population of South America is composed of whites, Indians, and Negroes, and of various mixed races descended from two or all three of the pure varieties. The whites are mostly Creoles, or native born descendants of Europeans, the number of the latter being very small. The native tribes are, in some parts of the country, still entirely independent, and, in others, have long been subdued, and converted to the Catholic religion. (See *Indians, American*.) The Negroes are Africans, or of African descent, and are not very numerous. Slavery has been abolished in the South American republics. Mestizoes form a large class of the population. Peace and order, which can only be secured by the stability of the governments and the intelligence of the people, are yet wanting to render the possession of liberty a blessing to those new states, and to heal the wounds which the bad policy of the parent states, civil wars, and domestic factions, have inflicted on that part of the American continent.

SOUTH AMERICAN REVOLUTIONS. See the articles on the different countries of South America.

SOUTH CAROLINA. See *Carolina*.

SOUTH POLAR ISLANDS. Cook sailed south as far as lat. 60° S. (See *Sandwich Land*.) In 1819, the Russian captain Bellinghausen advanced to 70°, and, several years later, captain Weddel reached the parallel of 74° 15′: and the whale and seal fishery is carried on in the Antarctic ocean from the United States. Still the south pole has not been approached so nearly as the north pole, nor have these waters been carefully examined. It was for a long time supposed that there was a great southern continent; but later voyages render it probable, that the Southern ocean does not contain any great masses of land. The islands which have been visited here are, New or South Georgia (lon. 37° W.; lat. 54° 30′ S.), inaccessible during a great part of the year, on account of the ice; it was discovered by La Roche, in 1675: Sandwich Land, visited by captain Bellinghausen, in 1819; he found it to consist of small islands surrounded with icebergs, and enveloped in fog: New South Shetland, discovered in 1819 by captain Williams (lat. 61°—63° S.; lon. 71°—81° W.); the captain explored the coast for 200 miles, went on shore, and found the island covered with snow, and uninhabited; the coast abounded with whales and seals: Alexander and Peter's island (lat 69½° S.), discovered by Bellinghausen, in 1821; it is the most southern land yet discovered; the Austral or Southern Orkneys, discovered by captain Weddel, in 1822 (lat. 60° 45′ S.; lon. 50° W.), and described as a mass of naked rocks. See Weddel's *Voyage towards the South Pole* (1825).

SOUTH SEA. See *Pacific Ocean*.

SOUTH SEA ISLANDS. See *Australia*.

SOUTH WALES, NEW. See *New South Wales*.

SOUTHAMPTON; an ancient borough and sea-port of England, the capital of Southamptonshire, or *Hampshire* (q. v.), is situated seventy-four miles from London, on a pleasant peninsula, which gently slopes down to the north-eastern shore of the Southampton Water, which at the entrance is about two miles broad, and extends to the north-west for seven miles. The town consists of one principal street, which, in elegance and spaciousness, resembles the High Street of Oxford; and many smaller ones branch from it. It was anciently enclosed by a wall, with round towers at intervals, remains of which are at present visible. When thus defended, it appears to have been about a mile and a quarter, but it is now full three miles in circumference. Many new streets and handsome buildings have recently been erected, the chief of which are the guildhall, sessions-hall, audit-house, prisons, &c. The town is well paved and lighted with gas, and the inhabitants are supplied with water from several springs in the vicinity, conveyed to the houses by means of pipes. The chief sources of amusement for the inhabitants and visitors are a theatre, assembly rooms, and races held annually in the autumn on Southampton Common. An annual regatta also takes place for subscription prizes. There are a literary society, a botanical society, and several subscription libraries. Here is a military asylum for the orphan children of soldiers, being a branch of the Chelsea institution. It was first established in 1816, under the auspices of the Duke of York. The advantages of situation, and the attractions of this part of a fine and highly pic-

turesque county have been the means of making Southampton a place of fashionable resort during the bathing season. Baths are here provided for the recreation of the healthy and the benefit of the invalid visitors. A considerable trade is carried on in this port with Russia, Portugal, Sweden, and different parts of the Baltic, and with Guernsey, Jersey, &c. The chief articles of import are wines, fruits, iron, hemp, pitch, tar, and timber. There is also a trade with Newcastle for coals, and with Wales for iron and slates. Wool shipped from any other port to the islands of Guernsey and Jersey, must be relanded here or pay the duty at the custom-house, according to an act passed in the reign of Edward III. The first indications of the progress of Southampton, as a commercial town, are mentioned in history during the reign of Henry III. at which period the Lord Mayor of London was appointed to receive the customs of the port. The harbour, which is spacious, affords accommodation for ships at all times to ride at anchor in perfect security. During the busy season of the year at Southampton, steam-packets are constantly communicating with Havre, Guernsey, Jersey, the Isle of Wight, Portsmouth, and other places; and common sailing vessels are leaving daily for destinations in all parts of the country. Population in 1831, 19,324.

SOUTHAMPTONSHIRE. See *Hampshire*.

SOUTHERN LIGHTS, OR AURORA AUSTRALIS. See *Aurora Borealis*.

SOUTHCOTT, JOHANNA; a singular fanatic, whose extravagant pretensions attracted a numerous band of converts in London and its vicinity, said to have, at one period, amounted to upwards of a hundred thousand. She was born in the west of England, about the year 1750, of parents in very humble life, and, being carried away by a heated imagination, gave herself out as the woman spoken of in the book of Revelations. In this capacity, although in the highest degree illiterate, she scribbled much unintelligible nonsense, and for a while, carried on a lucrative trade in the sale of seals, which were, under certain conditions, to secure the salvation of the purchasers. A disorder subsequently giving her the outward appearance of pregnancy, after she had passed her grand climacteric, she announced herself as the mother of the promised Shiloh, whose speedy advent she predicted. The faith of her followers, among whom were several clergymen of the established church, rose to enthusiasm. A cradle of the most expensive materials, and highly decorated, was prepared by her expectant votaries at a fashionable upholsterer's, and every preparation made for the reception of the miraculous babe that superstition and credulity could induce. About the close of the year 1814, however, the prophetess began to have her misgivings during some comparatively lucid intervals, in which she declared, that "if she was deceived, she had, at all events, been the sport of some spirit, either good or evil," and, Dec. 27 in that year, death put an end to both her hopes and fears. With her followers, however, it was otherwise; and though for a time confounded by her decease, which they could scarcely believe to be real, her speedy resurrection was confidently anticipated. In this persuasion many lived and died; nor is her sect yet extinct; but, within a short period, several families of her disciples were living together in the neighbourhood of Chatham, in Kent, remarkable for the length of their beards, and the general singularity of their appearance. The body of Johanna underwent an anatomical investigation after her death, when the extraordinary appearance of her shape was accounted for upon medical principles, and her remains were conveyed for interment, under a fictitious name, to the burying ground attached to the chapel in St John's Wood.

SOUTHERN, THOMAS, a dramatic poet, was born at Dublin, in 1660, and educated there at Trinity College. In 1678, he went to London with the view of making the law his profession, and entered himself of the Middle Temple, but soon abandoned the study, and dedicated his time to the cultivation of his muse. His first dramatic effort was a tragedy entitled the Persian Prince, or the Loyal brother, founded on the story of Shah Thamas. It was first performed in 1682, and, besides raising the author's reputation, procured him the favour of the duke of York, to whom he had paid his court in it. On the accession of James to the throne, Southern went into the army, and rose to the command of a company, in which he served during Monmouth's rebellion. Another of his tragedies, the Spartan Dame, written in 1687, was acted in 1721. From this period he continued to produce occasionally comedies as well as tragedies; in the former style of composition, however, he was far from being successful; but two of his tragedies yet keep possession of the stage. These are his Oronooko, founded, it is said, on a true story, which forms the ground work of one of Mrs Behn's novels; and Innocent Adultery, which, under its modern name, Isabella, or the Fatal Marriage, is one of the most pathetic dramas in the language. The latter part of his days was passed in ease and affluence. His death took place in 1746, when he had attained the advanced age of eighty-six. His works have gone through several editions.

SOUTHWARK. See *London*.

SOUZA BOTELHO, JOSEPH MARIA, baron de, a Portuguese nobleman, distinguished as a diplomatist and man of letters, born at Oporto, in 1758, studied at Coimbra, entered the army, and served from 1778 to 1791. He was successively Portuguese ambassador at Stockholm, Copenhagen, and Paris, till 1805, and spent the rest of his days in literary retirement. His leisure was devoted to the preparation of an edition of the Lusiad of Camoens, with a memoir. This magnificent work, printed by Didot at Paris, in folio, with engravings by Gerard, appeared in 1817. In 1824, he published a translation, in his native language, of the *Lettres Portugaises*, with the French on the opposite pages, and prefatory observations. His death took place in 1825. After the death of his first wife, he married, at Paris, in 1802, the countess de Flahault, widow of the count de Flahault, guillotined in 1792. This lady is well known in the literary world as the authoress of *Emilie et Alphonse; Adèle de Sénanges; Charles et Marie;* and other popular works of fiction.

SOVEREIGN, in politics; a word of various meanings. In the widest sense, it denotes that political person, or body of persons, from whom all legal power is considered to emanate. Thus, where the monarch is regarded as the original fountain of all legal power, he is called the sovereign: in an aristocracy, such as that of Venice was, the body of the nobles is the sovereign; and in a democratic republic, like that of the United States of America, the people themselves, as the source of power, are the sovereign. The historical origin of sovereignty

is viewed by some as of great importance; others think it of little moment. The inquiries of the first class have led them to diverse results. Some of them say that the power which the divine law confers on the father over his family, gradually gave rise to chief priests and monarchs. They acknowledged no true sovereignty but that vested in a monarch. Others derive sovereignty from the right of the strongest. The husband has a right, they say, to exercise authority over his wife, because he has the power to do so; and the authority of the monarch rests on the same foundation. Strangely enough, this very theory, which, in fact, justifies all kinds of revolutions, and is the principle whence spring the violences which continually convulse the despotisms of Asia (see the beginning of the article *Slavery*), has been preached of late, with great zeal, by many of the apostles of divine right and absolutism. Others, again, have traced the origin of sovereignty to the social compact, representing a number of men as uniting to form a state, and as delegating certain powers to certain individuals or bodies of men, either expressly or tacitly (in the latter case, the delegation being proved by the resumption of the delegated power at the pleasure of the majority). The advocates of this opinion rely upon the fact, that in many instances we have such contracts actually made in the case of civilized nations, as well as of tribes in their infancy, who easily remove a chief if he is disagreeable to the majority; and where no contract is found recorded, they say that the monarch's power rests on the consent of the people, because they find the power to remove him if they choose; and we often find him, in fact, driven from his throne by a revolution of his subjects. The doctrine of divine right, they contend, is quite unnecessary to account for a people's submission to a particular man, because there are abundance of other causes to account for the fact of a people or an army supporting one man in authority rather than another.

Others, we have said, consider the historical origin of sovereignty of little importance in determining the true source of sovereign power. Its principles, they say, can be well settled without ascertaining this point, just as we can settle the true principles of language, music, architecture, the useful arts, &c., although we may be unable to trace out their origin. The great question is not, How did governments originate? but, What is the principle which lies at the basis of them all, and becomes more distinctly developed with the progress of political society? The principle which supports the organization of a tree remains the same whether it be raised from a seed or a cutting; and the inquirer would learn but little of its nature from determining to which of these its origin is to be referred. If we investigate the nature of man and of governments, we cannot but see that the fundamental principle of all the latter is the sovereignty resting in the collective body of the individuals comprising a political society, often disguised in various ways, sometimes to the benefit, sometimes to the disadvantage, of the people. This theory has rapidly gained ground of late, and, in fact, was, to a great degree, always acted upon in Europe until the last century, when the monarchs of the continent strove to establish systematic despotisms. Never would so much have been said about the sovereignty of the people, had not the monarchs and the supporters of absolute governments started such absurd theories respecting the nature of sovereignty. What we have said refers immediately to the internal organization of states. The external sovereignty, i. e. the entire independence of one government upon others, and the acknowledgment of this independence by other governments, are intimately connected with its internal constitution. A sovereign state, therefore, may adopt whatever laws it pleases for the regulation of its domestic concerns, and, as to its external relations, is not bound to acknowledge any superior. It may, therefore, appeal to arms or to arbitration, if differences arise between it and another state. The princes of the German empire (while that empire existed) were called *états mi-souverains*, because they stood, in certain respects, under the emperor, and were not entirely free in their foreign relations. The states forming the confederacy of the United States, call themselves sovereign; but they are not so in the sense in which this word has always been taken, because they have given up to the general government many of the rights of sovereignty; i. e. such as can be exercised only by the supreme power of the state, or in the name of the whole state. The rights of sovereignty embrace the power of making laws and of providing for the administration of justice, even by capital punishments; the power of making war and peace, and of conducting the foreign relations of the country; of raising and supporting armies, levying taxes, of coining money, &c. The various states of the Union have ceded the following powers to congress —the power to declare war, maintain armies and navies, and make peace; to regulate all foreign relations; to raise taxes; to coin money, and provide for matters connected with it; jurisdiction in certain cases (see *Courts*), and the power of legislation necessary for carrying into execution the delegated powers. See also *Constitution*.

Sovereign also means, in a narrower sense, the monarch, even if he is acknowledged to share his power with other branches, as in England, where the king by no means unites in himself the whole sovereign power. See *Political Institutions*, *Estates*, and *Legitimacy*.

SOVEREIGN; an English coin. See *Coins*.

SOY; a dark-coloured sauce, prepared by the Chinese from the seeds of a sort of bean (*dolichos soja*). The plant has an upright and hairy stem, erect bunches of flowers, and pendulous, bristly pods, each containing about two seeds. The common story that soy is made from cockroaches or beetles, has probably originated from the form and colour of these seeds. The process of preparing soy consists in boiling the seeds until they become soft, and mixing with them an equal weight of wheat or barley meal, coarsely ground. This mixture is fermented, and, a certain proportion of salt and water being added, the whole is allowed to stand for two or three months, care being taken to stir it daily: at the end of this time it is ready for use. The seeds are, besides, employed in China and Japan as food: they are made into a kind of jelly or curd, which is esteemed very nutritious, and is rendered palatable by seasoning of different kinds. In Japan, they are put into soups, and are the most common dish of the country, being frequently eaten three times a day. Soy is chiefly imported from China and Japan, and that from the latter country is the most highly esteemed. The quantity annually sold in England, at the East India company's sales, is from 800 to 2000 gallons.

SPA, or SPAA; a celebrated watering-place in the Belgian province of Liege, situated in a romantic valley, surrounded by heights covered with woods, about seven leagues from Aix-la-Chapelle; population, 3100. Spa has been long famous for its medicinal springs, which are mentioned by Pliny, and are six or seven in number. The principal ones are Pouhon, Geronstère, Sauvenière, and Tonnelet. The waters are all chalybeate, and those of Pouhon, being the most strongly impregnated, are bottled for exportation. (See *Mineral Waters.*) Their effect is diuretic and exhilarating; useful in cases of relaxation, obstructions of the liver, &c. They are visited in the warm season, lasting about four months. The company is composed, in a great measure, of men of rank from Germany, France, Russia, Netherlands, and England. Spa is provided with various amusements, and has good accommodations. The new Vauxhall is one of the finest buildings of the kind on the continent. The town, on account of its being resorted to from various parts of Europe, has been allowed neutrality during the hottest wars. The promenades are the four o'clock walk (*la prairie de quatre heures*), and the seven o'clock walk (*la prairie de sept heures*), so called from the hours at which they are respectively visited. The inhabitants manufacture various little ornamental articles of varnished wood, as boxes, &c., called Spa work (*ouvrage de Spaa*).

SPAGNOLETTO, a celebrated painter, whose true name was Joseph Ribera, or Ribeira, was born at Xativa, in Valencia, in 1588, but educated at Naples, and probably takes the name by which he is usually known from the country of his birth. He was at first a pupil of Caravaggio, but afterwards improved himself by the study of the works of Raphael and Correggio, at Rome and Parma. After his return to Naples, he was appointed court painter to the viceroy, the duke of Ossuna, and overseer of all the royal works, in which post he conducted himself with great haughtiness towards the artists, and is said to have shown a particular jealousy of Domenichino. It has been said that Ribeira concealed himself, out of chagrin, occasioned by an amour of don John of Austria, natural son of Philip IV., with one of his daughters, and that nothing more was heard of him; but, according to Bermudez, he died, in good circumstances, at Naples, in 1656. Ribeira excelled in the representation of terrible scenes, such, for example, as the flaying of St Bartholomew. He executed such subjects with a minute accuracy that excites horror, and was very skilful in delineating the separate parts of the body—hair, wrinkles, skin, &c. There are works of his in Naples, Paris, Vienna, and Dresden.

SPAGNUOLO. See *Crespi.*

SPAHIS, or SIPAHIS; a part of the Turkish cavalry, which is said to have been organized by Amurath I., the founder of the janizaries. (See *Janizaries.*) Their number is estimated at 20,000 men. They are paid by the sultan. The lowest rate of pay is twelve aspers per day; but those who have performed especial services, or have the advantage of favour, receive higher pay. When the sultan takes the field in person, each spahi receives a present of money: and the janizaries enjoyed the same privilege. The spahis are composed of two classes: the *spahaoglari*, who have red, and the *silhatari*, who have yellow banners. The latter, who pretend to have been instituted by Ali, the pupil of Mohammed, were formerly the most important; but the former have now become superior. The usual arms of the spahis are a sabre, a lance, a jereed (a dart about two feet long, which they hurl with great strength and skill), and a second sabre, or rather broad-sword, attached to the saddle. Some of them have bows and arrows, and also pistols and carbines: but they make little use of fire-arms. In war, the spahis form a tumultuous mob, without discipline or organization. Their first charge is formidable; but if they are unable to make an impression on the enemy's line after three attempts, they flee in confusion.

SPAIN (*Espana*). The physical features of the Spanish peninsula have exercised a most important influence on the character and history of its inhabitants. The whole surface of the peninsula comprises 225,600 square miles, of which 187,110 belong to Spain, and the rest to Portugal and the republic of Andorra (110 square miles). It is separated from France and the rest of Europe by the Pyrenean chain of mountains, and is surrounded by three seas, the Mediterranean, the Atlantic, and the bay of Biscay. Spain lies between lat. 36° and 43° 47′ N., and between lon. 9° 13′ W. and 3° 15′ E., and is the sixth in extent of territory among the European powers. The bay of Biscay gives great facilities for northern commerce; the gulfs of Alicant and Rosas offer secure harbours and roads to the merchants of Italy, the Levant, and Northern Africa, whilst the bays of Corunna and Cadiz open to her mariners the path to the Indies. One hundred passages lead over the Pyrenees to France; but only three of these are passable for carriages. (See *Pyrenees.*) From this frontier ridge rise the Cantabrian mountains, which traverse Asturia and Galicia, and terminate at cape Finisterre. To the south-east extends the Sierra d'Occa, five ridges of which, running nearly east and west, separate the basins of the Minho, Douro, Tagus, Guadiana, and Guadalquivir; and two others, to the south-west, form the southern point of Spain, the island Tarifa. The valleys of the Xucar and the Ebro have a southerly direction. These sierras, among which the Somo Sierra, the Guadarrama, the Sierra Morena, the Alpuxarras, the Sierra Nevada, and the Sierra de Ronda, are the principal, surround the plains of Castile and La Mancha (the highest of such extent in Europe) with strong bulwarks, and even constitute distinct moral divisions of the inhabitants. The whole country thus appears to be formed of several great intrenched camps, and is admirably adapted for a war of posts, and particularly for guerilla warfare. Although Spain contains 150 considerable streams, very few of which, however, are navigable, there is a deficiency of water. Except the Albufera, in Valencia, there is no lake of much extent; and there are no marshes except in the valley of the Guadiana. The marshy islands in the Guadalquivir have been drained and planted since 1819. The dry and pure mountain air renders the inhabitants vigorous and healthy: the sea breezes have the same effect upon the coasts; but in the southern parts the scorching solano, from the shores of Africa, is felt during some seasons. Snow lies upon the summits of some of the mountains till July; and the capital is situated in a region fifteen times more elevated than the site of Paris. The fertile soil, wherever it is well watered, produces abundance of plants with little cultivation. The finest wines are exported in great quantities (Alicant, Sherry, Malaga),

and other kinds are consumed at home. Since the expulsion of the Moors, agriculture has been in a low state, in spite of the patriotic exertions of numerous societies; hardly two thirds of the productive soil is under cultivation. Wheat, in Valencia, yields from twenty to forty fold. The Andalusian wheat commands a higher price in the Spanish market than the northern. Among the principal productions are olives, saffron, anise, cumin, cork, esparto or Spanish broom, soda, &c. In the warmer parts of the country, the sugar-cane and the banana thrive; and even the heaths, or *landas*, are covered with fragrant herbs and shrubs. But neither the wood (except in the maritime districts), which is sold by weight in Madrid, nor the corn (with the exception of barley), is produced in sufficient quantity to supply the wants of the inhabitants. The breeding of Merinoes is profitable for the *mesta* (a society composed of owners of the flocks), but is injurious to agriculture. The whole number of migrating sheep is about ten millions; that of the stationary flocks, about eight millions. Valencia produces much silk: Andalusia breeds excellent horses; but the Andalusian studs have lost their importance. The mules are also of excellent quality. The gold mines of Spain have long ceased to be worked; but iron, copper, tin, and lead, are obtained. Silver mines are worked on the Sierra Morena, and the quicksilver mines of Almaden, in La Mancha, are rich, but do not yield enough for the mining operations of America. Sea and mineral salt are abundant, and there are mineral springs at Salcedon and other places.

The Spanish people are descended from Iberian Celts, mixed with Carthaginian and Roman colonists, with a strong infusion, at later periods, of Teutonic (Gothic) and Moorish blood. The population of Spain was estimated by Minano, in 1826, at about 13,900,000; and that of the Spanish colonies at 4,088,000, making the total population of the monarchy 17,988,000. The kingdom is politically divided into fourteen principal parts, each of which has its separate authorities and administration, and several of which are subdivided into smaller provinces, forming, in all, forty-one provinces. The division into fifty-one provinces by the cortes, in 1822, was abolished on the restoration of absolute power. The general divisions are as follows: 1. the kingdom of Navarre; 2. the Vascongades, or Biscay; 3. the principality of the Asturias; 4. the kingdom of Galicia; 5. the kingdom of Arragon; 6. the principality of Catalonia; 7. the kingdom of Leon: 8. Old Castile; 9. Estremadura; 10. New Castile; 11. the kingdom of Valencia; 12. Andalusia (including the kingdoms of Cordova, Seville, and Grenada); 13. the kingdom of Murcia; 14. the Balearic isles. The Spaniard is in general temperate, persevering, reserved, honest, and pious. The Spanish gravity is more observable in the higher than in the lower classes, or among women. The Spaniard of the lower order has more gayety, wit, vivacity, and, though frugal, is so indifferent to outward goods, that, were he less courteous and good-humoured, he might pass for a practical philosopher of the school of Diogenes. His pride of birth, rank and faith appears, however, on every occasion; and he is suspicious, irritable and vindictive. This pride also manifests itself in the contempt with which the northern Spaniard, the inhabitant of Biscay or the Asturias, looks down upon the native of the south, whose darker complexion and smaller frame betray his Moorish blood. The nobles are distinguished into the *titulados*, grandees who have the right to cover themselves in presence of the king (in 1787, their number was 129), marquises, counts, and viscounts (in 1787, their number was 535); and the lower nobility, *caballeros*, *escuderos*, and *hidalgos*, the number of whom, in 1797, was 484,131. Music, singing and dancing are national amusements. The two former are simple, often monotonous, but full of feeling; the latter is extremely voluptuous. The *bolero* is popular on the stage: the *fandango* and *seguidilla* are favourite dances in the open air, and in the family; the latter is danced by four couple, to the music of the cithern, which the player accompanies with his voice. Athletic sports, as the *barra* (throwing an iron bar at a mark) and balloon (a game at ball) are common. The favourite popular amusement is the bull-fights, which was prohibited in 1805, but was revived by Ferdinand VII. The Spaniard, in general, is of the middle size, and well built, with an expressive countenance, brilliant eyes, white teeth and black hair. The men of the higher classes are much less robust than those of the lower. The Spanish women are distinguished for beauty of person and dignity of manner. Their complexion is neither white nor delicate, but healthy: they dress with taste, and move with ease and grace: they are unaffected, and have often, particularly among the lower classes, a ready vein of wit. In general, they are characterized by intelligence, deep feeling, fidelity and constancy; but they are almost entirely uneducated. Their courage and patriotism have often been displayed even in the field of battle. The strictness with which the female sex was formerly treated, and the formal stiffness which prevailed in society, have been much diminished; and the Oriental Moorish traits are gradually disappearing.

The most important element in Spanish society is religion: the ecclesiastics form the most privileged order, and every family endeavours to find a place in the church for some of its members. Religion, however, consists merely in the outward observances of the church, in the practice of penances, and in the reverence of priests and monks. The apostle James is the tutelary saint of the kingdom; but he has lost reputation, since Charles III., with the estates, in 1760, took an oath of their belief in the immaculate conception of the virgin Mary, who was declared the patroness of the Spanish monarchy. The invocation of the virgin is, therefore, the chief act of divine service; and there are saints for all orders and degrees, whose festivals occupy a great portion of the time. The clergy, particularly the inquisition, has hitherto usurped the direction of education and literature; and the Spanish church has thus obtained possession of the supreme power, although it has had the prudence to conceal its exercise of it. The most enlightened ecclesiastical college is that of the chapter of San Isidoro, which has been exposed to persecution on a charge of Jansenism. The edict of March 2d, 1819, divided the prohibited books into two classes: 1. books which are forbidden even to those who have received a license from the Holy Office for reading prohibited books in general; and 2. books which contain revolutionary principles, are directed against the inquisition, the clergy, true religion, the king and monarchical power, or which ridicule the sacrament of marriage, or jealous men. The importation of Spanish books, printed out of the country, is punished by four years' confinement to the galleys. (See *Inquisition*.) The number of the clergy,

before the wars with France, was 256,000; in 1826, 146,696, among whom were sixty-one archbishops and bishops, 61,327 monks, and 31,400 nuns. According to an estimate of a member of the cortes, the income of the clergy and convents in Spain, in 1808, from their real estate alone, was 51,000,000 dollars; and, according to the statement of Arguelles, minister of finance in the time of the cortes, the property of the church exceeded, by one third, the domains of the state.

The inaction of the Spaniard arises less from indolence than from his frugality and fondness for religious festivals, the fertility of the soil, and the ease with which his few wants are supplied. The system of taxation—founded not upon the land, but upon production—and the privileges and monopolies of particular classes and societies, also contribute to discourage industry. The greatest activity prevails in the maritime towns and provinces, where industry is sure of its reward. The woollen manufactures are the most important; but they do not furnish more than one twentieth of the consumption. The best stuffs are made at Segovia and Guadalaxara. There are silk manufactures at Talavera, Madrid, Segovia, Toledo, Valencia, &c.; but less flourishing than in the fifteenth and sixteenth centuries. Iron and steel wares are exported from Biscay, blankets from Valencia, and fine handkerchiefs from Barcelona. The black Cordovan leather, from Cordova, is of excellent quality, The manufacture of hats at Valencia, Segovia, &c., and of sail-cloth, is on the increase. The glass and mirror works at San Ildefonso produce good articles, but at a high price. The porcelain of Madrid is much inferior to that of other countries. The principal tobacco works are in Seville. The esparto, or Spanish broom, is a peculiar product of Spain, and is spun and woven into forty different articles. The commerce has undergone an entire change since the loss of the American colonies, from which the mother country received 35,000,000 dollars yearly in gold and silver, and 20,000,000 dollars in cochineal, cacao, vanilla, sugar, tobacco, hides, cotton, vicugna wool, cinchona, dye-woods, ipecacuanha, sarsaparilla, &c. The commerce with the colonies was closed against all foreign nations, but, since they have become independent, is carried on by the North Americans, the British and Dutch. Internal commerce suffers from the heavy tolls, and the want of means of communication. Among the five canals, none of which are completed, the imperial canal, or the canal of Arragon, is the most important.

The form of government is monarchical. The king, who bears the title of *Catholic majesty*, is absolute in Castile, Arragon, and in the islands; but the three northern provinces of Biscay, Guipuzcoa, and Alava, have maintained their privileges; and they consented to pay the extraordinary taxes of 1816, only on condition of the confirmation of these privileges, and the removal of the troops stationed among them. The Cortes forms an important element in Spanish history. (See *Cortes.*) The crown is hereditary, in the male and (according to an act of Ferdinand VII.) in the female line. The crown-prince has the title of *prince of Asturias;* the other children of the king are called *infantes* and *infantas.* The king is grand master of the orders of the golden fleece, of St Jago (St James), of Calatrava, of Alcantara, of Montesa, and of Charles III. The order of Maria Louisa was founded in 1792, for sixty ladies of the high nobility. Ferdinand VII. ascended the throne in 1814, and died in 1834. His three first wives died without children; his fourth wife, Mary Christina, sister of Ferdinand, king of the Two Sicilies (born 1806, married 1829), bore him a daughter, who is queen of Spain, under the regency of her mother. The old Salic law of Spain is the ground upon which Don Carlos (brother of Ferdinand) contests the succession of Maria Isabella, his niece. The predecessors of Ferdinand have been, I. of the Austrian dynasty: Philip I., husband of Joanna of Castile; Charles I. of Spain (V., as emperor of Germany); resigned the crown 1556; Philip II. (died 1598). Philip III. (1621); Philip IV. (1665); Charles II. (1700): 2. of the Anjou (Bourbon) dynasty; Philip V. (abdicated in 1724, but his successor, Louis, dying the same year, he resumed the crown, and died 1746); Ferdinand VI. (died 1759); Charles III. (1798); Charles IV. (resigned 1808.) Of the Bonaparte dynasty, Joseph (expelled 1813).

The colonial possessions of Spain are, in Asia, the Philippine islands and the Carolinas; in Africa, the *presidios* (towns on the coast) of Ceuta, &c., remnants of her former conquests in Northern Africa; the Canaries, and the three islands on the coast of Guinea, Annaboa, Fernando Po, and Prince's island: in America, Cuba and Porto Rico are the sole relics of the magnificent colonial empire of Spain.

The administration is conducted partly by five ministers, who have a seat and voice in the council, and partly by the provincial councils, of which the most distinguished, the council of Castile, existed as early as 1246. Justice is administered in the towns and villages by *alcaldes*, of whom there are five classes. The *alcaldes mayores*, or superior *alcaldes*, are also called *corregidores*. An appeal lies from them to the royal courts (*audiencias*), of which there are twelve at Valladolid, Grenada, &c., and to each of which is attached a chamber of criminal jurisdiction. The laws, the judiciary, and the legal process, all stand in need of a thorough reform. The public revenue is about 20,000,000 dollars; the expenditure is much greater, and the public debt is stated at nearly 800,000,000 dollars. In 1817, the conscription was introduced; at the close of 1827, the forces consisted of 91,000 men, including the militia, and of 350,000 royal volunteers. The naval force is composed of ten ships of the line, sixteen frigates, and thirty other vessels, with 14,000 men.

See, for the geographical and statistical accounts of Spain, the works of Bourgoing, Townsend, Laborde, Bory de St Vincent, and Minano's *Diccionario de Espana y Portugal.* The fourth edition of Laborde's *Itinéraire de l'Espagne* (5 vols., and an atlas) appeared in 1827.—For descriptions of the life, manners and character of the Spaniards, see Southey's *Letters written in Spain and Portugal;* Doblado's (Blanco White) *Letters from Spain; A Year in Spain*, by a young American; and Inglis's *Year in Spain* (London, 1831, 2 vols., 8vo.)

The *ancient history* of Spain embraces the period previous to the great irruption of the northern tribes into the Roman empire. As early as the third century before the Christian era, the two rivals, Rome and Carthage, contended for the possession of this important peninsula. The determined spirit of the people is shown by the resistance of Saguntum to Hannibal (B. C. 219), of Xativa (A. D. 1707) and Barcelona (A. D. 1714) to Philip V., and of Saragossa (1808 and 1809) to Napoleon. More than one Roman army found its grave in Spain. The

Lusitanian Viriathus, at the head of his countrymen, withstood the Roman power till he fell by assassination (B. C. 140). For fourteen years, the Romans attempted, without success, to subjugate the Numantines, till Scipio (B. C. 133) triumphed over the ashes of the city, whose inhabitants had destroyed themselves. Afterwards, this land, which is possessed of much natural strength, afforded refuge to several of the popular leaders of Rome, on their fall from power. Thus Sertorius, an adherent of Marius, lived in Lusitania (B. C. 72), and the sons of Pompey fought against Cæsar in Hispania Bætica, where Cneius fell. After a struggle of 200 years, when Agrippa, the general of Augustus, conquered the Cantabrians, Spain was first completely subjected to the Roman power. Augustus himself founded the colony of Cæsar Augusta (Saragossa) and Augusta Emerita (Merida). For 400 years, the Roman manners and language took root in the Spanish provinces, which, in Cæsar's time, had a population of 40,000,000. Merida supported a garrison of 90,000 men; Tarragona had 2,500,000 inhabitants. In the arts of war and peace, the peninsula rivalled Rome. Pomponius Mela, Seneca, Lucan, Trajan, and Theodosius the Great, were natives of Spain. The Celtic language continued only in Cantabria, and is still understood in Biscay, as William von Humboldt's investigations have shown. See his *Attempts to ascertain the original Inhabitants of Spain by Means of the Basque Language* (Berlin, 1821).

The *Middle Ages* of Spain include the times of the Goths and Arabians from the irruption of the barbarians into the Roman empire to the fall of Grenada, the last Moorish kingdom in Spain (1492.) At the commencement of the fifth century, the Vandals, Suevi and Alans spread themselves over the peninsula. About 419, the brave Wallia founded the kingdom of the Visigoths in Spain. The Vandals, from whom Andalusia received its name, could not withstand him, and withdrew into Africa in 428. From 467 to 484 the great Euric extended the kingdom of the Visigoths by the expulsion of the Romans, and gave them their first written laws. At length Leowigild, in 585, overthrew the kingdom of the Suevi, in Galicia. Under his successor, Reccared I., the introduction of the Catholic faith, in 586, gave the corrupt Latin language the predominance over the Gothic; and, after that time, the unity of the Spanish nation was maintained by the Catholic religion and the political influence of the clergy. But, after 125 years, Alaric's family, from revenge at being passed by in the choice of a king, recalled the Arabians, who had passed over into Africa. King Roderic fell in the seven days' battle against Tarik, at Xeres de la Frontera, in Andalusia, in 711. After that, the greatest part of Spain became a province of the caliphs of Bagdad. Forty years later, in 756, Abdorrhaman I., the last of the Ommiades, made himself master of Spain, overthrowing the government of the Abassides, and establishing a separate caliphate at Cordova; which, however, after 1038, fell to pieces, the different governors becoming independent, and assuming the title of kings. Thus Arabian princes reigned at Saragossa, Toledo, Valencia and Seville. In these places, the Moorish language and customs were almost universal. Yet the Christians were allowed the free exercise of their religion. The Arabians likewise permitted their new subjects (called *Mozarabians*, that is, spurious Arabians) to retain their language, laws and magistrates. At this time, the Jews spread over Spain. Meanwhile, the Visigoths, under their hero Pelayo and his successors, maintained their freedom in the mountains of Asturia and Galicia. The Moorish governments being weakened by changes of dynasties, and by internal dissensions, the Christian kings wrested from the Arabians one portion of the country after another, till, after the great victory, which the united Christian princes obtained over the Almohades, in 1220, at Tolosa, in Sierra Morena, there remained to the Arabians only the kingdom of Grenada, which was likewise obliged to acknowledge the Castilian supremacy in 1246, and was finally conquered by Ferdinand and Isabella in 1491. During the period of Arabian power, agriculture, commerce, the arts and sciences, flourished in Spain. The population was considerable. In Tarragona, there were 80,000 families, or 350,000 inhabitants. The rich city of Grenada contained 70,000 houses. 250,000 inhabitants, and 50,000 men able to bear arms. The Ommiades had connexions with the Byzantine emperors. The universities and libraries at Cordova and other places were resorted to by Christians, as the seat of the Greco-Arabic literature and the Aristotelian philosophy. From these institutions, Europe received the knowledge of the present arithmetical characters, of gunpowder, and of paper made from rags. Among the Gothic Spaniards, the blending of the chivalrous and religious spirit gave occasion to the foundation of several military orders. The great Cid or don Rodrigo Diaz de Vivar el Campeador, the hero without an equal, has been celebrated since the end of the eleventh century as the hero of his age. The romantic elevation of national feeling, which found its support in the religious faith and national church, preserved the Christian Gothic states Navarre, Arragon and Asturia, from many internal and external dangers. The county of Castile, at first called *Burgos*, became, in 1028, a separate kingdom. Ferdinand I., by his marriage in 1035, united with it Leon and Asturia. For him the great Cid conquered a part of Portugal. The kingdom of Navarre has existed since the ninth century. It formed a part of the Spanish territory of Charlemagne, south of the Pyrenees, obtained by conquest from the Arabians, and extending as far as the Ebro. Here, in the county of Barcelona, now the principality of Catalonia, powerful vassals ruled, till one of them, Raymond V., became, by marriage, king of Arragon, in 1135. His descendants in the male line reigned there 258 years. Alphonso VI. (died 1109), king of Leon, Castile and Galicia, together with Portugal, as far as Montego, conquered the Moorish kingdom of Toledo, or New Castile; but he gave up Portugal to his son-in-law Henry of Burgundy. Ferdinand III. did more: he conquered Cordova, Murcia, Jaen, Seville, Cadiz, and subjected Grenada to a feudal dependence on him. He became, in 1252, the true founder of the kingdom of Castile, by establishing the rule of indivisibility and primogeniture in the succession. Still the whole was as yet but an imperfect confederation. The privileges granted to the Jews in Spain, in the middle ages, had an injurious influence on the government and the public welfare. They were placed nearly on a level with the nobles; they were appointed ministers of finance, farmers of the public revenues, and stewards to the great: thus they obtained possession of all the money in the country, and, by their excessive usury, at length excited a universal outcry against them;

and, in 1492, they were banished for ever, to the number of 800,000, from Spain. The improvement of the country was much retarded by the defects in the public administration, particularly in regard to the taxes, by powerful vassals, bad kings, and family disputes: so that the third estate was not formed in Castile till 1325, 200 years later than that of Arragon, and with inferior privileges. Meanwhile, the Cortes, consisting of the estates of the kingdom, namely, the clergy, the high nobility, the orders of knights, and eighteen great cities, restricted the royal power, without, however, bringing about a state of legal order. But, in Arragon (a kingdom since 1035), of which Alphonso I., since the conquest of Saragossa, in 1115, had been in complete possession, the third estate was formed before the middle of the twelfth century, sooner than in any other European country, and a well-settled political order ensued. Disputes between the king and this estate, or of the members of this estate among themselves, were decided by a supreme judge, called *justitia*. (See Mariana, *Teoria de las Cortes*, Madrid, 1812.) From these circumstances, and the wisdom of the kings, the country flourished. Arragon comprehended, besides Catalonia and Cerdagne, already united to it, in 1135 the counties of Roussillon, Montpelier, the Baleares, or Majorca, from 1220 (where, however, from 1276 to 1344, a collateral line reigned), also Valencia, from 1238, Sicily from the Sicilian Vespers, in 1282, and Sardinia from 1326. But, by the provisions of James II., in 1319, the states of Arragon, Catalonia and Valencia only were indissolubly united each with its own constitution. At length the marriage of prince Ferdinand of Arragon (see *Ferdinand V. the Catholic*), with Isabella, heiress of Castile, in 1469, laid the foundation of the union of the crowns of Castile and Arragon. This followed on Ferdinand's accession to the throne in 1479.—See Murphy's splendid work upon the Arabian Antiquities of Spain (London, 1816); and the *Introduction to the History of the Mohammedan Empire in Spain;* and particularly Conde's *History of the Dominion of the Moors in Spain* (Spanish, Madrid, 1820), with the *History of the Visigoths*, by Joseph Aschbach (Frankfort on the Maine, 1827); and doctor E. A. Schmidt's *History of Arragon in the Middle Ages* (Leipsic, 1828; the two last in German).

With this union, with the entire subjugation of the Moors, and the discovery of America, a new period in the history of Spain begins. The young monarchy advanced immediately to the first place among the European governments; but, exhausted by political and spiritual oppression, it quickly declined in consequence, till the Spanish branch of the Hapsburg race became extinct in 1700. Spain now became a power of the second rank, under the kings of the house of Bourbon. These reigned without a cortes, and brought Spain into a close political connexion with France. At length they sunk before the power of Napoleon, and the revolt of Spanish America followed. The state of Spain since the restoration of the Bourbons will be treated in the sequel.

From 1479 *to* 1700. Spain had, when Ferdinand and Isabella founded the monarchy, a population of about 14,000,000; which, however, was much divided by difference of customs and laws. To unite the discordant parts into one powerful nation, was the great object which occupied for forty-three years Isabella Ferdinand, and cardinal Ximenes. By a severe administration of justice, and by the institution of the Hermandad, order was established through the country. The royal power was particularly strengthened and extended by the introduction of the inquisition, and by the union with the crown of the office of grand master of the three great military orders of Castile. Grenada was conquered in 1491, after a ten years' war. Soon after began the cruel persecution of the Jews and Moors, so injurious to Spain. They were obliged to be baptized, or to leave the country. Till then toleration had prevailed in Spain. Princes and nobles at one time even fought for the Albigenses; and, in the thirteenth century, the kings of Arragon braved the papal excommunication. But by this system of persecution the peace and prosperity of the country were deeply shaken. The discovery of America, in 1492, by Christopher Columbus, under the patronage of Isabella, withdrew much of the activity of the nation from the improvement of the mother country; and avarice, united with fanaticism, established in the West Indies an unwise colonial system. In general, the politics of Spain, under Ferdinand the Catholic, were characterized by cunning and desire of foreign aggrandizement, as appears from the acquisition of Naples, the league of Cambray, and the conquest of Navarre, south of the Pyrenees, though the warlike fame of the nation was maintained by one of the greatest commanders of his time, Gonsalvo Fernandez of Cordova, and by the expedition of the great Ximenes into the north of Africa. After Charles I. (as emperor of Germany, Charles V., son of the Infanta Joanna and Philip of Burgundy), had succeeded his father in the government of the Netherlands, his maternal grandfather (1516) in that of Spain, and his paternal grandfather in that of the Austrian dominions (1519); and after he had repressed, with the help of the nobles, insurrections in Valencia and Majorca, and particularly in Castile (1520), where the third estate demanded a freer constitution; and after he had annihilated the principal part of the liberties of the nation by the separation of the deliberative estates,—Spain became the first military and political power in Europe, during the four wars which Charles carried on with Francis I. of France, and by which he obtained Milan. The victory of the Spaniards at Pavia (February 24, 1525), which made Francis I. the prisoner of Charles, in Madrid, till the peace of Madrid (January 14, 1526), and the expedition of Charles into the north of Africa, extended the fame of the Spanish arms throughout Europe. The wealth which flowed in from Mexico, conquered by Cortez, in 1518, and from Peru and Chile, conquered by Pizarro and Almagro, in 1528, was not sufficient to supply the demands of the royal treasury; so that the revenues of the crown were exhausted, the taxes increased, and debts contracted. The thirty-five years' union of Germany with Spain promoted the intercourse between the two countries. But the strength of the powerful monarchy was exhausted by the forty-two years' tyranny of Philip II. Oppression and religious intolerance, war, and insurrections, occasioned the loss of the Netherlands, and depopulated the rest of the monarchy; and the conquest of Portugal, which remained united with Spain from 1581 to 1640, could not prevent its decay. England and Holland triumphed over the naval force of Spain, and destroyed her commerce; and Philip died in 1598, a bankrupt. Under his weak successors, Philip III. (died 1621), Philip IV. (died

1665), and Charles II. (died 1700), the abuses in the administration increased. An incurable wound was inflicted upon the country by the expulsion of 600,000 Moriscoes in 1609. On the whole, the persecutions of the Arabians cost Spain about 2,000,000 of souls, and the expulsion of the Jews about 800,000. The southern coasts, likewise, were depopulated by the continual incursions of the pirates of Northern Africa. Favourites, such as Lerma and the count Olivarez, wasted the resources of the kingdom. Olivarez wished to employ harsh measures; insurrections were excited; and Mazarin compelled Spain to acknowledge the superiority of France, in the peace of the Pyrenees (1659). By the peace of Aix-la-Chapelle, in 1668, by that of Nimeguen, in 1678, and by the *reunions* of Louis XIV., Spain lost many places in the Netherlands and Franche Comté. But after the death of Charles II. (1700), the monarchy sunk entirely from its ancient elevation, in consequence of the wars respecting the Spanish succession; and the population, which, in 1688, amounted to about 11,000,000, had diminished, in the first fourteen years of the eighteenth century, to about 8,000,000.

From 1700 *to* 1808. Charles II., the last Spanish sovereign of the race of Hapsburg, in his second will, made Philip of Anjou, a grandson of his sister, the consort of Louis XIV., and second son of the dauphin, sole heir of his dominions, in order to prevent the division of the Spanish monarchy, which had been resolved on in a treaty between England, Holland, and France. Louis XIV. acknowledged his grandson king, according to the testament. The emperor Leopold I., of the race of Hapsburg, laid claim to the throne, whilst William III., king of England and stadtholder of Holland, was in favour of a division of the monarchy, for the sake of preserving the balance of power in Europe. The measures of Louis XIV. at length brought on a war with England. Thus began the war of the Spanish succession (see *Eugene, Marlborough, Utrecht, Peace of*), in which the Bourbon, Philip V., after many changes of fortune, by the victories of Berwick and Vendome, maintained himself on the Spanish throne in opposition to Charles of Austria (afterwards the emperor Charles VI). But by the peace of Utrecht, in 1713, he was obliged to resign the Spanish dependencies in Europe—Naples, Sardinia, Parma, Milan, and the Netherlands to Austria, and Sicily to Savoy. England likewise retained Gibraltar and Minorca. Under the Bourbons, the nation lost its last constitutional rights; for Arragon, Catalonia, and Valencia were treated by Philip as conquered countries. The last diet held in Castile was in 1713, and in Saragossa in 1720. Biscay and Navarre alone retained some of their privileges. The ambition of cardinal Alberoni, in 1717 et seq., involved Europe for a short time in confusion. Spain, in 1735, again obtained possession of the Two Sicilies, for the Infant Carlos, and, in 1748, of Parma, for the Infant Philip. Naples and Sicily were ceded to a Spanish Bourbon. Under the reign of Charles III., 1759—88, the Bourbon family compact of 1761, involved Spain, to its injury, in the war between the French and British. The expeditions against Algiers likewise miscarried; as did the siege of Gibraltar, in the war of 1779—83. Yet this did not disturb the course of the internal administration, to the improvement of which, men like Aranda, Campomanes, Olavides, and Florida Blanca, devoted themselves. They provided particularly for the advancement of agriculture, the useful arts, and commerce. The population consequently increased. According to the census of 1768, it amounted to 9,300,000, and, in 1798, to 10,061,000 men. The power of the inquisition was restricted, and the secret opposition of the Jesuits annihilated at a blow, by the pragmatic sanction of April 2, 1767, which banished them from all the Spanish dominions, and confiscated their property. But the imagination of the nation was employed upon the mystery of the immaculate conception, and the sinless purity of the virgin Mary. The pope, at the desire of Charles III., declared the whole Spanish monarchy, together with the colonies, under the protecting influence of the immaculate conception. The king established some orders with the device of a female figure dressed in white and blue, in allusion to this doctrine; and every Spaniard, who wished to receive a degree from a university, or to belong to a corporation, and even mechanics, on joining the associations of their trades, were obliged to take an oath of their firm belief in the immaculate conception. The progress in improvement, even during the reign of Charles IV., 1788—1808, was obvious; so that Florida Blanca was able to quiet the wish of the people for the reassembling of the ancient cortes. But he was superseded, in 1792, by Godoy, whose administration was as void of plan as it was injurious to the state, and greatly exasperated the nation; so that the fall of the most fortunate and proudest favourite of modern times, was immediately followed by that of the royal house. Spain, at first, entered with zeal into the war against the French republic (the voluntary contributions of the nation to the expenses of the war amounted to 73,000,000 francs); but the favourite, who wished to conduct the war from his palace, ruined all, and hastened to conclude the discreditable peace of Basle, by which Spain resigned half of St Domingo; on which occasion Godoy received the title of "prince of peace." He then concluded with the republic, the leaders of which deluded him with the prospect of placing a Spanish prince on the throne of France, the important offensive and defensive alliance of St Ildefonso, in 1796, and declared war against Britain; but being defeated at sea, Spain lost Trinidad, by the peace of Amiens, in 1802. In consequence of the entire interruption of the colonial trade, taxes and debts increased, whilst the credit of the nation sunk. The prince withdrew from the conduct of affairs, but his relation Cevallos (q. v.), after the banishment of the able Urquijo, became prime minister in 1800. The prince retained his influence, and rose to high dignities. He leaned to the politics of Napoleon, and commenced military operations, in 1801, against Portugal, which was obliged to cede Olivença to Spain, at the peace of Badajoz; whilst France took possession of Parma, and made its duke king of Etruria in 1801; in consequence of which, Spain ceded Louisiana to Napoleon, who, in 1803, sold it to the United States. Charles IV., in the war between Britain and France, in 1803, having purchased permission to remain neutral, by a monthly tribute of 1,000,000 piasters to Napoleon, the British seized the Spanish frigates, which were carrying the products of the American mines to Cadiz (October, 1804); and Spain, though suffering under great exhaustion, famine, and the yellow fever, was compelled to declare war against Britain. The victory of the British at Trafalgar,

October 21, 1805 (q. v.), destroyed its naval power; the bold Miranda, excited the desire for independence in Spanish America, in 1806, and Napoleon overthrew the throne of the Bourbons in Naples.—See the works of Desormeau, *Chronological Abridgment of the History of Spain* (in French); and of W. Coxe, *Memoirs of the Kings of Spain of the House of Bourbon* (1700—1788, 2d edition. London, 1815).

Spain from 1808. The prince of peace (October 3, 1806) called on the nation to arm against "the common enemy;" and Napoleon, therefore, sent a Spanish army, under Romana, to Denmark, and another, under O'Farill, to Tuscany. October 27, 1807, he concluded a secret treaty at Fontainebleau, respecting the division of Portugal, mentioned in the article *Napoleon*. Twenty-eight thousand French soldiers, maintained by Spain, marched over the Pyrenees, and were joined by 11,000 Spaniards. The family quarrels of the royal family favoured the plans of the French ruler in Spain. The prince of Asturias (Ferdinand) had refused to marry the sister-in-law of the prince of peace; and, to secure himself against the vengeance of the offended favourite he wrote, by the advice of Escoiquiz, his former teacher (October 11, 1807), to Napoleon for protection, and requested the hand of one of his nieces. The emperor did not answer this letter till April 16, 1808, when the prince was on his way to Bayonne. At the time of his writing to Napoleon, the prince had addressed a letter to his father, exposing the mistakes and abuses of the administration, and requesting to be allowed some participation in the government. The queen was enraged, and the prince, Escoiquiz and the duke of Infantado were arrested. Charles IV, at the instigation of Godoy, now wrote to Napoleon, stating that the prince of Asturias had intended to dethrone him, and to deprive his mother of life, so that he ought to be excluded from the succession. The junta, however, which was convened for that purpose, unanimously acquitted the prince and the other prisoners; but Godoy induced Ferdinand to ask pardon of the king and queen; on which the king caused the letter to be published in the Gazette of Madrid, and issued a decree granting pardon to the prince on account of his repentance. The other prisoners were banished. Thus ended, in November, 1807, the process of the Escurial. In the mean while, French troops had entered Spain. Charles IV. received them as allies; but, on a sudden, the court prepared to leave Aranjuez for Seville. It was rumoured that the royal family intended to go to Mexico. A violent commotion now took place in Madrid, and multitudes flocked to Aranjuez. March 18, 1808, the people and the soldiers broke out into fury against the prince of peace, who was only saved by the promise of the prince of Asturias, that he should be brought to justice. In other parts of the country, also, the people showed their bitter hatred of this unworthy favourite. Charles IV., on the same day, took the command of the army and fleet, the prince of peace being dismissed. But on the 19th, he resigned the crown in favour of his son, of which he informed Napoleon, as he had done of the former step. Ferdinand VII., on March 24, made a public entry into Madrid, which had been occupied by Murat, grand-duke of Berg, and commander of the French troops, the day previous. Ferdinand informed Napoleon of his assumption of the royal power; but the emperor caused the whole family to be conveyed to Bayonne, where he himself arrived, April 15. Charles IV. had secretly retracted his resignation, on March 21; and on the same day the queen had written to Murat, to obtain protection for the prince of peace. Charles IV. informed Napoleon of his having retracted his resignation; and, in short, the affairs of the royal family were most wretchedly embroiled. During the meeting at Bayonne, a commotion, attended with bloodshed, took place, on May 2, at Madrid. The Spaniards had been excited by the arrogance of the French, and attacked them. Many were killed on both sides. This event is thought to have hastened the steps taken at Bayonne. But though the most enlightened part of the Spaniards were in favour of Joseph, and all the ministers of Ferdinand VII. entered Madrid with him (July 20), some parts of the country would not acknowledge him so easily, in many cases instigated by the priests and monks, who had every thing to fear from a more enlightened government. It could not, however, be expected that any country should change dynasties so suddenly without a struggle; yet this struggle would have, at length, ceased, had it not been kept up, in the sequel, by the support of Britain. The people in Asturia first took up arms; Arragon, Seville and Badajoz followed. Palafox carried from Bayonne to Saragossa the order of the prince of Asturias, that the people should arm; and the supreme junta received permission to assemble the cortes. Revolution broke out every where, which the French were too weak to resist. Moncey retreated to Valencia; and generals Dupont and Wedel were beaten at Baylen, July 19 and 20, 1808. The badge adopted by the Spanish soldier was a red ribbon, with the inscription *Vencer o morir por patria y por Fernando VII.* June 6, the junta at Seville had issued a proclamation of war. The French squadron at Cadiz surrendered, June 14, to the Spaniards. Six days later an insurrection broke out in Portugal. July 4, the alliance of Great Britain with the Spanish nation was proclaimed, and a struggle began, which, whatever opinion may be entertained respecting the conduct of Napoleon, every one will admit to have led, as far as respected Spain, to nothing but evil. Marshal Bessières was successful in the battle at Medina del Rio Secco, July 14, over general Cuesta; but the affair at Baylen, above mentioned, decided the retreat of the French from Madrid, and, August 23, Castanos entered the city. General Romana had secretly embarked his troops at Fühnen, and landed in Spain, and Wellesley was victorious over the French under Junot, August 21, at Vimeira, on which the French general capitulated the day after at Cintra, and soon after evacuated Portugal. A central junta had been formed September 25, 1808, but unity did not prevail in it. Napoleon advanced with a new army, November 6, as far as the Ebro. On the 10th, Soult defeated the centre of the great Spanish army. Victor and Lefebvre's victory on the 11th, at Espinosa, opened the way to Asturia and the northern coast; and, in consequence of the success of Lannes, at Todela, November 22, many fugitives took refuge in Saragossa. (See *Saragossa*.) The mountain pass of Somo Sierra was taken by assault, by the French and Poles, November 30, under Napoleon and Bessières; and, December 2, the French army appeared before Madrid, which surrendered on the 4th. The central junta now retired to Badajoz, and afterwards to Seville. The Spaniards believed that the success of the French was owing to treachery, and

more than one of their generals was assassinated in consequence of the suspicion. The French gained many victories and took many fortresses; but the conquerors remained masters only of the places which they occupied. The guerillas surrounded and harassed them every where.* No line of communication was safe for the French: their means of support failed. In vain did Napoleon, December 4, 1808, abolish the feudal privileges, and the inquisition; in vain did Joseph try every means to win the love of the people; nothing could avail against the fanaticism of the monks. Austria now declared war. Napoleon was obliged, in January, 1809, to leave the conduct of the war to his marshals; and the Spaniards considered his departure as a victory. During the following five years, the French generals did all that talent and courage could do; but the charm of Napoleon's presence was wanting, and Wellington finally triumphed over them. The situation of Joseph became extremely unpleasant, even as regarded his relations with France, as has been stated in the article *Joseph Bonaparte*. Many of his adherents began to waver when the rumour was spread that Napoleon intended to separate some provinces from Spain; against which, however, Joseph declared himself explicitly. The struggle continued during six bloody campaigns, from May 2, 1808, to the battle of Toulouse, April 10, 1814. Every where, and almost daily, blood was shed, from Cadiz to Pampeluna, and from Grenada to Salamanca. No mercy was shown. Spanish women tortured and murdered the prisoners. Seven hundred French prisoners were drowned in the Minho. In Oporto and Coimbra, the French sick and wounded were murdered in the hospitals. Even non-combatant officers were killed. The supreme junta created armies with restless activity. Napoleon's exertions were also great. The French forces in the peninsula, when most numerous, viz. when Masséna marched with 80,000 men to Portugal, amounted to 200,000 infantry and 30,000 cavalry; and, in 1813, when Madrid and Valladolid were evacuated by them, to 130,000 infantry and 20,000 cavalry. The non-combatant officers, besides, were extremely numerous.† In the French lines, the sword and dagger, plague and want, were active in the work of destruction. De Pradt estimates the loss which France suffered in the actual expenses of the war, during six years, at 230,000,000 of francs, without reckoning the loss occasioned by the interruption of commerce. Two objects chiefly occupied the French generals in 1809 and 1810—the re-conquest of Portugal, and the march over the Sierra Morena to Cadiz. As the British had become masters of Portugal, and the northern coasts of Spain, including Ferrol and Corunna, were again open to their ships, the re-conquest of Asturia was not effected by Ney and Kellermann until May 14—20, 1809. In the meantime, Sir Arthur Wellesley (subsequently duke of Wellington) advanced from Lisbon, by the way of Alcantara, up the Tagus, and Cuesta joined him near Traxillo, whilst the British general Wilson advanced over Placenzia, and the Spaniard Venegas, from the Sierra Morena, towards Madrid. This bold plan of attack was frustrated by the battle of Talavera (July 27 and 28). The British, indeed, were victorious over Joseph, Victor and Jourdan; but, not being sufficiently supported by the Spaniards, and being threatened by Soult and Ney advancing on their flank, they were obliged to retire to the frontiers of Portugal; after which Venegas also began to retreat, and was defeated by Joseph at Almonacid, August 11, as was Wilson by Ney, in the passes of Baros. Madrid thus escaped a siege. August 18, the Spanish orders of monks were abolished; but this measure was far from popular, and the sufferings of Spain, which the people, as usual, attributed to the existing government, tended greatly to aggravate the excitement of the mass of the nation against their French sovereign. The central junta at Seville now resolved to yield to the universal wish, to assemble the cortes and to nominate a regency. New armies were created. Arezaga advanced with 55,000 men as far as Ocana, where, however, he was entirely defeated by Mortier, November 18. Madrid, therefore, was again saved; but in Catalonia, Arragon and Biscay, the bloodiest struggle was carried on with the bands of the insurgents. The Empecinado's troop advanced even to the vicinity of Madrid. In Old Castile, the troops of Barrioluchio, Couvillas, Rodrigues and Jacobe, in Navarre, the troops of Mina, were a terror to the enemy. The largest company of them, 4500 men, under the dreaded Marquesito, formerly a colonel in the army, encountered several French generals in the open field. In vain did the French establish fortresses on their lines of communication, and endeavour to protect their rear by movable columns. Yet their plan against Andalusia succeeded. With 22,000 men, the rash Arezaga thought he could maintain the line on the Sierra Morena, fifteen leagues long, intrenched and mined, and having in its centre the fortified pass of Peraperos, against 60,000 troops commanded by the best generals of Europe. Dessolles and Gazon, on January 20, 1810, took the pass of Despenna-Peras; Sebastiani stormed the defile of St Estevan, and took the bridges over the Guadalquivir; and, January 21, Joseph entered Baylen. Jean was conquered; Cordova submitted. Sebastiani occupied Grenada January 29, Malaga February 6, and Joseph entered Seville February 1, from which the junta had fled to Cadiz. This place, the only one which remained in the hands of the Spaniards, defended by 16,000 men under Albuquerque, and 4000 British soldiers under Graham, and the combined British and Spanish fleets, was besieged February 6; but all the efforts and offers of the French were in vain. The war in Catalonia and Arragon continued. In Leon, the French conquered Astorga, April 22, and now directed their arms against Portugal. In this country, to the north of the Tagus, Wellington commanded a British army of 30,000 men, and Beresford a Portuguese army of 59,500 men, besides 52,800 militia. The right wing of Wellington, at Badajos, was joined by 20,000 Spaniards under Romana, and 8000 under Ballesteros. The main body of the allied force was posted on the heights of Lisbon, which had been rendered impregnable. Wellington's plan, therefore, was defensive. Masséna began his undertaking in June, by the siege of Ciudad-Rodrigo, which surrendered July 10, and Ney entered Portugal, over the river Coa, July 24; but Almeida, which was defended by Coxe, detained Masséna until August 27, when it was obliged to capitulate. Wellington

* According to Carnicero, the system of the guerillas was principally organized by Romana. General Juan Martin, surnamed the *Empecinado*, collected a body of them in the neighbourhood of Madrid. Among the other guerilla leaders, Mina and Porlier were distinguished. This system preserved the energy and the confidence of the nation unbroken. After every reverse, the Spaniard consoled himself with the well-known *non importa*.

ordered the whole country, through which Masséna could follow him, to be laid waste; and the latter was obliged to take measures for the support of his army during four weeks, before he could proceed. At last, Masséna advanced, September 18, over the Mondeja, to Coimbra. On this march, he was beaten, on the 27th, at Busaco, but nevertheless, was able to occupy the heights of Sardico, which opened to him the plains of Lisbon. Wellington now entered the strong position of Torres-Vedras, which consisted of two lines on the heights of Lisbon, defended by 170 well-placed works and 444 cannons. Masséna found this position unassailable, and retreated, after several engagements of little importance, November 14, to Santarem. Here he remained till March, 1811, when he was compelled, by want of provisions, to evacuate Portugal entirely. He hardly succeeded, by the battle of Fuentes d'Onoro, of two days' continuance, in effecting a union with the garrison of Almeida, which blew up the works, and fought its way to him under Brenier. But the French were victorious at other points. Suchet, January 2, 1811, took the important fortress of Tortosa, in Catalonia, and, June 28, after a murderous assault of five days, the fortress of Tarragona: Soult took the frontier fortresses towards Portugal, Olivença and Badajoz, March 10; and Victor defeated the British general Graham, who wished to deliver Cadiz, March 3, at Chiclana. In the autumn, Suchet marched against Valencia. After having beaten the army under general Blake, Saguntum fell, October 26, and Valencia surrendered, January 9, 1812. Wellington now again entered Spain. January 19, he took Ciudad-Rodrigo, and, April 7, Badajoz. But he was ill supported by the cortes and the regency consisting of general Blake* and the naval officers Agar and Ciscar. Marmont was now at the head of the army in Portugal. But the loss of the decisive battle of Salamanca, July 22, 1812, obliged him to give up the defence of Madrid. Wellington entered the city August 12. The French retired from before Cadiz August 25, 1812: they withdrew their forces from the south of Spain, and concentrated it in the eastern and northern parts. After the occupation of Madrid, Wellington followed the enemy to Burgos; but the seige of the castle of Burgos, after several unsuccessful assaults, occupied him from September 19 to October 20, when he gave it up, as the Spaniards afforded him insufficient support, and the French had received succours. He retreated to the Duero. After several engagements, he transferred his head-quarters to Freynada, on the frontier of Portugal, November 24, and the French again entered Madrid. Thus ended the year 1812, in which 134 members of the cortes had drawn up a new constitution for the monarchy, and signed it, March 18, at Cadiz. March 20, the regency took the oath to maintain it. This constitution was acknowledged by the allies of Spain—Great Britain, Sweden, Denmark, Prussia, &c.—also by Russia, in the treaty of alliance concluded with Spain, at Welicki-Lucki, July 20, 1812. It perhaps gave too much power to the cortes for a monarchical government, and a people so little accustomed to the exercise of civil rights. At length Napoleon's disasters in Russia decided the fate of the peninsula. Soult was recalled in the beginning of 1813, with 30,000 men, from Spain. Suchet left Valencia in July, but delivered Tarragona, which was besieged by Bentinck, in August, and withstood Clinton on the Lobregat. But Joseph had been obliged to leave Madrid again, May 27, and Wellington had occupied Salamanca, May 26. The French army, commanded by Joseph and Jourdan, retreated to Vittoria. Here Wellington overtook the enemy, and gained the splendid victory of Vittoria, June 21; after which the French army, pursued by Graham and Hill, retreated in disorder over the Pyrenees to Bayonne. It lost all its baggage. The victors immediately invested Pampeluna. Count Abisbal occupied the pass of Pancorbo. Graham besieged St Sebastian, and Wellington entered France July 9. In the mean time (July 1), Napoleon, then in Dresden, had appointed marshal Soult his lieutenant and commander-in-chief of his armies in Spain. He united the beaten corps, and opposed a considerable force to the victor. July 24, the struggle began in the Pyrenees, and was maintained until August 1, on every point. Wellington, on August 31, took St Sebastian by assault, after having several times repulsed the enemy, who approached to deliver the garrison. It was not, however, till October 7, that he left the Pyrenees, and passed the Bidassoa. After Pampeluna had fallen (Oct. 31), no French soldier was left on the Spanish territory, except in Barcelona and some other places in Catalonia. Wellington now attacked the enemy on the fortified banks of the Niville (Nov. 10), and Soult retreated into the camp of Bayonne. But, until Wellington had passed the Nive (Dec. 9 and 10), and had repulsed several attacks, which continued to the 13th, it was not possible for him to obtain a secure footing in the hostile territory. His head-quarters were at St Jean de Luz. Thence he repulsed, in 1814, Suchet's attacks on the Garve. Feburary 26, he fought a battle with Soult at Orthies, by which the latter was driven from his strong position, and obliged to retreat, in great disorder, to the Upper Garenne. Wellington followed the French, under Soult, to Toulouse, where the bloody battle of April 10, and the occupation of the place, put an end to the war.

The cortes had already held its first session (Jan. 15, 1814), and had resolved that Ferdinand VII. should swear to preserve the constitution, before he should be recognised as king. The treaty of Valençay, between Ferdinand and Napoleon (Dec. 11, 1813), was made void by declaring all the acts of the king during his captivity null. Ferdinand arrived at Valencia, where he received the deputies of the cortes, April 16. In reply to their question, when he would swear to maintain the constitution, he answered coldly, "I have not thought about it;" and, on the 4th of May, he issued a proclamation, declaring it invalid. May 14, he entered Madrid, after having caused the principal members of the regency, and sixty-four members of the cortes, to be arrested. The people, dissatisfied with the new direct taxes which had been imposed by the cortes, received him with acclamations. The friends of the cortes and of Joseph were persecuted with the greatest rigour. All officers above the rank of captain, who had served under Joseph, were condemned to perpetual banishment, with their wives and children, and many civil officers received the same sentence. Freemasonry was abolished, and the inquisition was revived; the conventual estates were restored, and the Jesuits recalled, and reinstated in all the rights and property of which they had been deprived since 1767. And, although the king had solemnly pro-

* In 1813, the cardinal of Bourbon, archbishop of Toledo, took Blake's place.

mised a new constitution, founded on liberal principles, in place of that of the cortes, declared his abhorrence of despotism, and promised security of property and person, liberty of the press, &c., none of these promises was fulfilled. The persecutions for political offences produced disturbances and conspiracies in different parts of the country. A great number of officers, who had aided in the restoration of Ferdinand, were executed as conspirators, on account of their opposition to the domineering pretensions of the monks. The army was in the highest degree disaffected to these proceedings, and guerillas, or bands of soldiers, infested the interior. Even the lower classes, though averse from liberal principles, were discontented with the severity of the government, while the better classes were divided into the hostile factions of the serviles and the liberals. Those counsellors who ventured to remonstrate with the king, as the Empecinado, Ballesteros, &c., were banished or thrown into prison. For six years, Ferdinand reigned with absolute power (1814—1820.)

The dispute with the court of Brazil, which had occupied the Banda Oriental while Spain refused to give up Olivenza to Portugal, would have resulted in the invasion of Portugal, but for the interference of the British. In 1820, Spain ceded Florida to the United States, for the sum of 5,000,0000 dollars. Preparations were meanwhile making against the American insurgents, who were declared rebels by the king, and required to submit themselves unconditionally. These preparations served only to exhaust the resources of the state; and the insurgent privateers captured Spanish vessels in sight of the coast, while the Spanish officers were literally dying of hunger. Cadiz at length obtained permission to fit out frigates, at its own expense, for the protection of its trade. The people were oppressed with extraórdinary taxes, and recourse was had to loans. The sentence of the arrested members of the cortes was finally pronounced by the king, after repeated dissolutions of the commissions named for that purpose, on account of their mild proceedings. They were condemned to imprisonment in the fortresses and African *presidios*, or banished to the convents, or obliged to enter the army. From 1814 to 1819, there were twenty-five changes in the ministry, mostly sudden, and attended with severities. They were produced by the influence of the *camarilla*, or persons in the personal service of the king. Every attempt to save the state was frustrated by such counsellors, and the overthrow of this ancient monarchy was accelerated by the loss of the American colonies. The army was the instrument of its fall; several conspiracies had been organized by the officers for the restoration of the constitution of the cortes, and Porlier, Mina, Lacy and Vidal, were successively the leaders of the conspirators. Mina had been obliged to save himself by flight; the others had been executed, and their friends had suffered on the rack, or been thrown into prison. The army was indisposed to the American service, for which it was destined, and the officers favourable to the constitution of the cortes, took advantage of the state of feeling to effect their own purposes; whole regiments had determined not to embark, and the commander himself, O'Donnel, count del Abisbal, was in the secret. But finding his ambitious project of becoming dictator of the monarchy frustrated by the civil authority, he caused a division of troops which had given the signal of insurrection to be disarmed (July 8, 1819), and the officers, 123 in number, to be arrested. The embarkation of the troops was fixed for January; but, on the first day of the month, four battalions, under Riego, proclaimed the constitution of 1812, surrounded the head quarters of general Callejo, who had succeeded O'Donnel in the command, took possession of the town of Isla de Leon, and delivered the officers arrested in July, among whom was Quiroga. The insurgents were unsuccessful in their attack on Cadiz, but occupied La Caraca, where the naval arsenal, a ship of the line, and other vessels of war, with some transports, fell into their hands. Quiroga declared, in the name of the army of the nation—the title assumed by the insurgents—that it was their purpose to obtain from the king the acceptance of the constitution. All attempts to engage the people of Cadiz in the cause, were frustrated by the influence of the bishop of Cienfuegos. Meanwhile the troops in Seville had put general Freyre in command; and the king had confirmed him in the post on account of his popularity among the soldiers. Freyre endeavoured, without success, to detach the insurgents from their leaders by promises of amnesty; but he did not venture to attack them, from fears of the fidelity of his own soldiers. Riego, at the head of a troop of 2500 men, now occupied Algesiras, entered Malaga, and, after some fighting with O'Donnel, advanced through Ecija and Cordova to Antequera, while the national army, under Quiroga, in addresses to the king and to the nation declared their only object was to save their country by the restoration of the constitution, which had already been accepted by the nation. Risings now took place in all quarters in favour of the constitution of the cortes; the royal forces joined the insurgents; Freyre himself was obliged to proclaim the constitution in Seville; and Ferdinand, abandoned, by his own troops, was obliged to yield to the general cry, and, by proclamation of March 8, declared himself ready to summon the cortes of 1812, and accept the constitution of that year. On the same day, a general amnesty was proclaimed. On the 9th, a provisory junta of eleven members was named, to conduct the affairs till the meeting of cortes; and Ferdinand swore to observe the constitution in presence of this body, and of the municipal authorities of Madrid. The inquisition was abolished on the 10th, as inconsistent with the constitution, and obnoxious ministers, &c., were succeeded by others favourable to constitutional principles. In place of the Council of Castile, and that of the Indies, a supreme judicial tribunal, with appropriate subordinate courts, was established, national guards were organized in the provinces, the municipal authorities were made to conform to the constitution, and the cortes finally assembled, July 9. It was composed of 149 deputies for the peninsula, and, in place of regular deputies from America, of thirty delegates of the Americans in Spain. In a session of four months, this body endeavoured to moderate the violence of the liberals, to restore the *afrancesados* to their rights, to counteract the machinations of the *serviles*, and to heal the wounds of the country. But the abolition of many of the convents, and of the *majorates*, the banishment of the non-juring clergy, and some other of their measures, excited discontents. An apostolical junta established itself on the frontiers of Portugal, and in several provinces, bands of peasants, monks, and guerilla soldiers were formed, for the purpose of restoring the privileges of the crown

and the clergy. On the other hand, some parts of the country were disturbed by popular excesses. In March, 1821, began the second session of the cortes, which, in April, declared the whole country in danger, and in a state of siege. The command of the armed force was now given to Morillo, and quiet was in some measure restored. But the ultra-liberals, or *exaltados*, as they were called, were not a little excited by the events in Naples and Piedmont, in 1821; and the kingdom was in so disturbed a state that an extraordinary cortes was summoned in September. In the summer, Catalonia was desolated by a yellow fever, which, since 1800, had prevailed almost every year in the southern parts of Spain. At the same time, Mexico declared itself independent; Lima was occupied by the Chileans, under San Martin; and the Spanish part of the island of St Domingo was lost by its union with Hayti. Under these circumstances the government wished to temporize; but the *comuneros*, or the party of the adherents of the constitution, at the head of whom were don Romero Alpuente and don Diaz de Morales, made complaints of the weakness and mistakes of the ministers, and the cortes, in December, 1821, requested the king to appoint an abler ministry. He at last yielded, in 1822: on the other hand, the cortes passed several laws by which the *descamisados*, who were in favour of a republic, were disarmed. The *absolutistas* alone, though beaten every where by the troops of the government, could not be entirely suppressed; the cortes declared themselves ready, at the same time (Jan., 1822), to acknowledge America as a kingdom independent of Spain, but united with her under a common sovereign, Ferdinand VII.; but the deputies sent to America could effect nothing on these conditions. The session of the extraordinary cortes was concluded February 14, 1822. In the third session of the cortes, from March 1 to June 20, 1822 (during the first month under the presidency of general Riego), the moderate liberal party prevailed at the outset, and tranquillity was gradually restored to the internal affairs of the country, when it began to be threatened from without. The strong sanitary cordon of French troops along the Pyrenees, and the intrigues of the exiles, led the government to suspect that the disturbances excited among the peasants in Navarre and Catalonia, by priests and monks, were instigated by the French government. Bands of *soldiers of the faith*, so called, who, under political pretences, frequently committed robbery on the high-ways, infested other parts of the country. The cortes therefore armed the volunteer national guards. They were every where victorious; but the pecuniary resources were chiefly in the hands of the supporters of despotism. Most of the educated classes belonged to the *comuneros*. The freemasons formed also a powerful party, and were in possession of most of the offices, while the friends of absolute power instigated the democrats, particularly the *zurriagists* so called from the Gazette termed *Zurriago* (a whip), to excesses which they hoped would disgust the moderate party with constitutional liberty. The Landaburu club, in which terrorism was recommended, became important. Discontent was kindled against the ministry, which attached itself particularly to the freemasons; and, in July, 1822, the friends of absolute government dared to attempt the overthrow of the constitution, with the assistance of the royal guards; but the national guards frustrated their project. The royal guards, in spite of the opposition of Murillo, their commander, entered Madrid July 7; but Ballesteros, at the head of the national guards, defeated them, and they fled into the royal palace: but the king, who favoured them originally, now showed himself irresolute. They were unable to resist the popular force, but would have been allowed to retire, if they had not again fired on the national guards, who then fell upon them, and killed or wounded the greater part of them. On the 8th, every thing appeared calm. The *anilleros*, or moderate party, who had been in favour of a chamber of peers, and the extension of the royal power, now joined the popular party (the *comuneros*). All the ministers resigned, as the king had offended them by keeping them confined in separate rooms in his palace during the insurrection of the guards. The new ministers acted in conformity with the views of the *comuneros;* and the king, whose authority had sunk entirely since July 7, approved of every thing which they proposed. Many persons of rank, including some bishops, were banished. General Elio was executed; but the guards were treated with much mildness. The king again declared his adherence to the constitution; but the apostolical troops in Biscay, Navarre and Catalonia, continued their revolting cruelties. Under the marquis Mataflorida a regency of the friends of absolute government was established at Seco d'Urgel, near the French frontier, in August 1822. It issued orders, in the name of the "imprisoned" king, for the restoration of every thing to the state in which it had been before March 7, 1820. The troops of the apostolical party, after much bloodshed, were beaten by Mina and Milans. Generals Espinosa, Torrijos, and Jaureguy, called *El Pastor*, distinguished themselves against Quesada, a Trappist, and others. The regency fled to France in November, 1822; and it was obvious that its cause was not that of the nation. No troops of the line nor national guards, no important cities or individuals went over to them. Some companies of "soldiers of the faith" still continued in Spain, particularly those of Bessières, Ullmann, &c. An extraordinary cortes was again convened, which, from Oct. 7, 1822, to Feb. 19, 1823, was occupied with raising and equipping an army, and with the care of the foreign relations. The pope refused to receive the Spanish ambassador Villanueva, and the papal nuncio in Madrid left the city in January, 1823. Britain received an indemnification of 20,000,000 francs for damage done to British vessels by Spanish privateers in the American waters. France threatened war, and the royalists of that country assisted the apostolical party in Spain. At last, the French government aided the equipment of apostolical soldiers on French territory; and, in November, 1822, France acceded, at the congress of Verona, to the principle of armed intervention, pronounced by Austria, Russia, and Prussia, in relation to Spain. The French ambassador at Madrid, La Garde, received orders to advise a change in the constitution, as the condition on which a continuance of peace between France and Spain must depend; and, in order to enable Ferdinand VII. to make such changes freely, he must first of all be restored to the full enjoyment of sovereign power. The same demand, and even in bolder terms, was made by the ministers of Prussia, Austria, and Russia, while Britain advised the cortes to yield, and offered her mediation. The Spanish government answered the notes of the foreign ministers in a circular, of Jan. 29, 1823, addressed to

its foreign ministers, and repelled with indignation the interference of the foreign powers. The remarkable sessions of the cortes (Jan. 9 and 11) showed that all parties among them felt alike on this point. The threatened discontinuance of diplomatic intercourse on the part of the foreign powers now took place. The French ambassador was recalled, after the Russian, Prussian, and Austrian ministers had left Madrid. 100,000 French soldiers were assembled with the *feotas* (soldiers of the faith) at Perpignan and Bayonne, and the cortes summoned the national guards to serve with the troops of the line; but the attempts to raise an army were unsuccessful because bands of the *feotas* gave full employment to the troops of the line and the national guards in various quarters. February 19, the ministers were dismissed; but disturbances in Madrid obliged the king to reinstate them. The king now remained in general, passive. The seat of government was transferred to Seville. April 2, the Duke of Angoulême issued a proclamation to the Spaniards, declaring that the object of the French was only to aid them, and that France desired nothing but the deliverance of Spain from the evils of revolution: and, without a declaration of war, the French army passed the Bidassoa, April 7, and marshal Moncey entered Catalonia towards the end of April; with him entered the *feotas* or *afrancesados*, under Quesada and Eroles. The duke of Angoulême established a junta, consisting of Eguia, Calderon, and Erro, who formed a provisional government, declared the king the sole depositary of sovereign power, and that no change in the government should be recognized but such as the king should make of his own free choice. All the decrees of the cortes were declared void. The cortes had no ally. The relations of Portugal to Great Britain did not allow her to conclude a defensive treaty with Spain. The treaty made March 8, 1823, between the two countries, only provides for the exchange of deserters, criminals and rebels; and the fourth article contains a remarkable stipulation, allowing each of the governments to pass the frontiers of the other in the pursuit of rebels, and to carry on such pursuit either by itself or by the aid of the military power of the other. Britain remained neutral, though Canning, in parliament, called the attempt of the French unjust, and wished the arms of the cortes success. Her government, however, allowed the exportation of arms and ammunition to Spain; and, in return, the ports of the new world were opened to her ships. April 23, the king of Spain formally declared war on France. The cortes were deceived respecting the state of the nation, and hoped that Britain would take part with them in the war; but a memorandum, sent by the duke of Wellington to Madrid, in which he earnestly recommended a change of the constitution, was not heeded, and Britain remained neutral. The adherents of the constitution were confined to the educated class, the army, and the people of the cities: the country people were under the influence of the priesthood. April 11, the king arrived in Seville. April 27, the cortes passed a law respecting the registering of all rights on personal service or real property, which rendered the great landholders unfriendly towards the constitution; and in vain did Ferdinand VII. call on the nation by a proclamation, May 1, 1823, to support the constitution. The French army consisted of 91,800 men, including the Spanish division. The French government provided, at an immense expense, for the support of the army; every thing was well paid for in ready money; discipline was strictly maintained, and no one was persecuted by the French for his political opinions or former conduct, while the Spanish troops gave themselves up to the greatest excesses of party hatred. The French were received, by the clergy and the lower orders of the people, as "good Christians." The Spanish army amounted to about 120,000 men, in four divisions, commanded by Ballesteros, Mina, L'Abisbal and Morillo. San Sebastian and Pampeluna, Santona and Santander, made a good defence, but were obliged to surrender, Santona on the 11th, Pampeluna on the 17th, and San Sebastian on the 27th of September. The French corps not employed in the siege of these places marched, without difficulty, into the interior. Only at Logrono an engagement took place, April 18, in which the French were defeated. Upper Catalonia, Biscay, Arragon and Castile were occupied by the French, with hardly any resistance. A guerilla warfare now commenced in Lower Catalonia, where Mina occupied the enemy for a considerable time. The royalists every where conducted themselves in the most outrageous manner. The duke of Angoulême, commander-in-chief, marched by the way of Aranda and Buitrago, the duke of Reggio by the way of Burgos and Valladolid, to Madrid. Abisbal became suspected by the cortes, and fled to France. May 24, the duke of Angoulême entered Madrid, with a great show of rejoicings on the part of the people. He nominated a regency, consisting of the duke of Infantado, the duke of Montemar, the bishop of Osma, the baron d'Eroles, and don Ant. Gomez Calderon (May 26). The majority of the people demanded the "absolute king," and the regency put every thing on the same footing as before March 7, 1820, except that they confided the ministry of foreign affairs to the confessor of the king, D. Victor Saez. The regency had no pecuniary resources, and no power, if they had the will, to prevent the furious eruptions of party hatred. The theatre of the war was now transferred to Andalusia and Estremadura. The cortes had in vain tried to excite a general guerilla war. On account of the want of money, they decreed the seizure of all the property of persons of the opposite party, a forced loan of 200,000,000 of reals, and the coining of the superfluous church plate, by which measures the hatred of the people was still more increased. Yet the ministers did not dare to propose to the cortes the mediation offered by Britain, through Sir W. A'Court, the British minister. The king refused to go to Cadiz; and a regency of three members, with royal powers, was appointed, because the case of moral incapacity on the part of the king, provided for by the constitution, had occurred. On the 12th of June, the cortes and the king, with the regency, departed for Cadiz; but the people showed themselves so furious against the constitutionalists that the authorities called in the aid of the French; but general Bourmont could not enter until June 21. The king had arrived at Cadiz, June 15, and the regency had again ceased. The regency in Madrid declared all the members of the cortes who had participated in the session of the 11th, when the king was declared morally incapable, to be traitors; but more it could not do: it was so destitute of resources that it was even supported by French money. The kings of France, Prussia, and the emperor of Austria, sent ministers to the regency in Madrid. Morillo declared himself, on June 26, against the cortes. In

vain did Quiroga, in Corunna, where Sir Robert Wilson also was, collect a troop of constitutionalists, with whom he continued the struggle. The heights of Corunna were taken, July 15th, by general Bourck, after a bloody contest, five hours in length. Quiroga then left Corunna, which was bravely defended by Novella until August 13th, when it was surrendered; and the war in Galicia was soon after terminated. Mina, with not more than 6000 men, sustained a partisan warfare, in Catalonia, for two and a half months, unequalled in the boldness and skill with which it was carried on. June 26, he took up his head-quarters near Barcelona. Donnadieu and Curial advanced upon Barcelona, July 8, while Milans and Llanera gradually fell back, disputing the ground before them. General Sarsfield, at this time, abandoned the cause of the constitutionalists, and offered his services to marshal Moncey; the garrison of Cordova planted the standard of Ferdinand, and Barcelona was blockaded by sea. Meanwhile, Molitor had compelled Ballesteros to evacuate Valencia, and gained several advantages over him, which resulted in his capitulation, August 4, and the termination of the campaign. July 23, the regency issued a decree, removing from office all volunteers and members of secret societies; and such was the violence practised towards the friends of the constitution, that the French generalissimo published an ordinance forbidding arbitrary imprisonments, and commanding the release of persons illegally confined for political offences; notwithstanding which the outrages were continued. The duke of Angoulême presented himself, August 16, before Cadiz, which had been previously invested by generals Bordesalle and Bourmont, and took possession of the city on the 4th of October. An act of the cortes, September 28, had already reinvested the king with absolute power, and requested him to retire to the French camp. On the first of October, the king and his family had been received by the duke, in form, at Puerto-Santa-Maria, with cries of *Viva el rey! Viva la religion! Muera la nacion* (Death to the nation)! *Mueran los negros!* The first measure of Ferdinand was to declare all the acts of the constitutional government, from March 7, 1820, to October 1, 1823, void, on the ground that during that time the king was acting under compulsion. The war, which still continued in Catalonia, where Riego had been wounded and made prisoner, September 15, was brought to a close in the beginning of November; and, on the 22d, the duke of Angoulême took his leave of the army of the Pyrenees, which had so successfully accomplished the military objects of its mission. See Pecchio's *Journal of Military and Political Events in Spain*, translated by Blaquière (London, 1824). The political objects of the expedition, to secure a system of mildness and moderation, were frustrated by the bad faith of the Spanish government. (See *France*.) In direct violation of the terms of the military capitulations, a persecuting and vindictive policy was adopted towards the former partisans of the constitution. Among the crowds of fugitives were Mina, the count del Abisbal, Morillo, &c. Riego was executed, at Madrid, November 6, and on the 13th the king made his entry into the capital on a triumphal car twenty-five feet high, drawn by 100 men, and amidst the rejoicings of the people. In addition to the evils caused by the excesses of political and religious bigotry, the bad credit of the government rendered it impossible to raise a loan; and it became necessary to have recourse to the former system of indirect taxes, and even to revive the income tax (*frutos civiles*). To restrain the violence of party fury, a treaty was concluded with France, stipulating for the maintenance of a French force of 45,000 men in the country, until the Spanish army could be organized: and the debt due to France for the expenses of the French expedition was fixed at 34,000,000 francs. At the same time, the Spanish government invited the great powers to hold a congress in Paris, on the subject of the Spanish American colonies; but the opposition of Britain prevented the execution of this project. February 9, 1824, Spain, therefore, opened the ports of her American colonies, as she continued to call them, to the subjects of all friendly powers. The personal moderation of the king towards the constitutionalists led to the formation of a plot by the absolutists, to compel him to abdicate, and to raise don Carlos to the throne (thence their name of *Carlistas*). The introduction of the inquisition was successfully resisted by the moderate party, supported by the French, and was pronounced inexpedient and impolitic even by the pope. The decree of amnesty finally appeared, May 1, 1824, but contained so many exceptions that those who were to enjoy its benefits seemed rather to form the exception than the rule. The year 1825 was disturbed by several insurrections of the Carlists, which were attended with numerous executions; and the frequent changes of ministry which occurred at this period show the weakness of the government. The independence of the colonies was acknowledged by foreign powers, and the general interruption of commerce and industry, with the flight of many persons of property, occasioned much distress. The disturbances continued during the subsequent years, attended with the same marks of feebleness on the part of the government, and a continuance of the general distress. In 1827, Spanish subjects were permitted to trade with the Spanish American republics, but under foreign flags; and in the following year Spain was evacuated by the French troops. The fort of St Juan de Ulloa, near Vera Cruz, was lost November 22, 1825, and Callao, near Lima—the last post on the American continent in the possession of Spain—January 22, 1826. The foolish and ill-concerted expedition against Mexico was terminated by the surrender of Barradas to Santa Anna, in September, 1829. The French revolution of 1830, although it excited some Spanish patriots in exile* to attempt to awaken their countrymen to a struggle for more liberal institutions, had little effect on the people at large. By a royal decree of March 29, 1830, the succession to the throne, which hitherto had been limited to the male line, was extended to the female; and in October of the same year, the queen was delivered of a daughter, Maria Isabella. Since the death of Ferdinand, the succession to the throne has been disputed by Don Carlos, his brother, on the ground that no royal decree could alter the Salique law of the land. This has led to an unhappy contest, which has not yet terminated, although meanwhile the crown remains in the possession of Maria Isabella, under the regency of her mother Christina. A history of the war between the Carlists and Christinos, or Absolutists and Liberals in which so many hundreds of our own countrymen have taken

* One of the most distinguished of these was general Torrijos, who entered Spain, with a few companions, for the purpose of stirring up the people, but failed, was taken, and

a part, will come to be given in the Supplement to this work.—For the history of Spain, see Mariana's *Historia General de Espana* (to 1612); Bossi's *Storia della Spagna Antica e Moderna* (Milan, 1822, seq.); Robertson's *Charles V.*; Watson's *Lives of Philip II. and Philip III.*; Sempère's *Considérations sur la Grandeur et la Décadence de la Monarchie Espagnole* (Paris, 1826), &c.; Southey's *History of the War in the Peninsula*; Napier's work on the same subject; Foy's *Hist. de la Guerre de la Peninsule* (Paris, 1827); *History of Spain and Portugal*, in Lardner's *Cabinet Cyclopædia* (London, 1831).

Spanish Language, Poetry, Literature and Art. To understand these subjects, it will be necessary to say a few words respecting the character and situation of the Spaniard. Nature has given him a beautiful country, the excellencies of which were acknowledged even by the Romans. Claudian says, *Dives equis, frugum facilis, pretiosa metallis.* On account of the situation of Spain, separated from the rest of Europe, the character of the people developed itself, in a great degree, independently of the influences of other nations—a case the reverse of that which has prevailed in Italy, lying, like Spain, beneath a southern sun, but always visited by all the nations of Europe. Gravity, fire, national pride, originality, became characteristic traits of the Spaniards, whose peculiarities were heightened at a later period by their mixture with the Moors—a gallant and chivalrous people—and by a struggle of 700 years against the Crescent, whence originated their peculiar mixture of romantic spirit and religious fervour, not unfrequently rising to fanaticism. The Spaniard is brave, provided his soul is in his cause; but when he becomes excited, he is also cruel, and shows the untamed spirit of the African. The conquest of America affords a dreadful example of what he is capable under the influence of religious hatred, pride and avarice. The deep earnestness of the Spanish character made it capable of carrying chivalry to the highest degree of development; and with all his pride and exquisite sense of honour, the Spaniard has been famous for unconditional submission to the fair, the church, and the king, and could even endure the horrid fetters of the inquisition. The ease of obtaining the necessaries of life in a country so highly favoured by nature, and the wretched government under which it has laboured for a long series of years, are the reasons why industry is much neglected, so that thousands suffer from want. The government is extremely poor, and the country very thinly peopled, compared with other countries in the south of Europe. The Spaniard dislikes to adopt foreign manners, and fights with obstinacy if his national pride is offended. The ancient Celts, before the times of the Romans, carried on wars with the Phœnicians and Carthaginians. The Romans then colonized the country. The Visigoths conquered it in the fifth century. The unfortunate struggle of their descendants against the Moors, in the eight century, obliged them to retire into the mountains and to the seashore, where, however, they soon acquired new strength, until, after a contest of seven hundred years, they again delivered their country.—The oldest language of the country was that of the ancient Cantabrians, which may yet exist in the Basque language, spoken by the people of the Pyrenees. This, perhaps already enriched by Phœnician and Carthaginian words, was followed by the Latin during the Roman sway; and Spain gave to Rome herself her best writer on eloquence—Quinctilian. Under the Visigoths, however, there grew up in Spain a *romanzo* or *romance* dialect, yet without extinguishing the Latin before the invasion of the Moors, and without having an opportunity to develope itself much. When the Moors conquered most of Spain, they treated the inhabitants generously; and the Moorish dialect, then already a fine one, and much cultivated for the purposes of poetry, was soon adopted by the people, and within a short time was fluently spoken every where. But in the small kingdoms which originated during the struggle with the Moors, in the mountainous districts and on the sea-shore, the *romanzo* again gained ground with the victories of the people. The descendants of the Visigoths had retired before the Moors, leaving them in possession of the greatest part of the country, and confining themselves to the shores of the Atlantic ocean, to the mountains of the regions subsequently called Asturia, Galicia and Biscay, to the chain of the Pyrenees, and the territories of Navarre and Arragon; and a number of small principalities were formed, all united against the Moors, but, from jealousy and other causes, often at war with each other when not contending against the common enemy. The kingdom of Leon, originally including the whole of what was afterwards called Portugal, became very powerful, and Arragon was the centre of the most vigorous resistance to the Moors. Between the two lay Old and New Castile, Navarre, Catalonia, Valencia, &c. Among the latter, Castile, including the greatest part of the north-west of Spain, having become independent, attained to the highest power, and surpassed even Arragon, with which, after the expulsion of the Moors in the fifteenth century, under Ferdinand, it was permanently united by his marriage with Isabella. This division of Spain naturally had an effect on the Spanish language; and, during the period of the struggle with the Moors, we find as many dialects of the Spanish *romanzo* as Spanish kingdoms. These dialects, however, became blended with each other, on the gradual union of these kingdoms. The *romanzo* became developed at an early period, peculiarly on the coasts of Murcia, Valencia, Catalonia, and Portugal as far as Galicia, where it even took the name of *Galician* language. The Galician language, at a later period, developed itself into the Portuguese—an idiom which vies with the Castilian. The Catalonian dialect flourished in the time of the Troubadours, and continued, after having spread to the kingdom of Arragon, as long as Provençal poetry existed in Spain. But it was entirely superseded by its neighbour, the Castilian dialect, when Arragon and Castile were united under one sceptre. In the heart of Spain, the provinces of Asturia and Leon, which were subjected to the new sceptre, now gave rise, during the struggle against the Moors, to a kingdom which was destined, by its situation, to exercise a commanding influence in the peninsula, viz. the kingdom of the two Castiles. The mountains of Castile were inhabited by a valiant race, among whom the Spanish character was most developed. Here the Castilian poetry and language grew up, and soon obtained the predominance over the poetry and language of the neighbouring Catalonia, which was at last united to Castile. But the Portuguese dialect remained, because Portugal, as early as the twelfth century, formed a separate kingdom. The

Castilian language came to be considered as the standard of Spanish, and became the idiom of the court and the learned, whilst the other languages sunk into mere dialects of the common people. Thus we find, at last, but three chief divisions in the Spanish *romanzo*, of which, however, the third—the Catalonian—has not come down to us; and we may confine ourselves, therefore, at present, to the consideration of the Castilian. Every romance language is a mixture of Germanic languages with the Latin, and each of them received a peculiar character from the nature of the country and of the conquering tribes, from political relations and other circumstances. The dialect of Spain became deeply imbued with the Oriental element, in consequence of the influence of the Moors, who were much more cultivated than the conquered people. The Castilian idiom originated in the mountains of the interior of Spain, and, like that of the Doric mountaineers among the Greeks, was characterized by deep and open tones, which now distinguish the Spanish from the Portuguese. The latter we may compare to the Ionic dialect in the Greek language. The Spanish abounds in full-sounding vowels, and every discourse is filled with assonances. Its rhyme is the most natural and most perfect to be found in the modern European languages. The Spanish gutturals indicate, perhaps, the Teutonic and Moorish elements. The language is peculiarly fitted to express the dignified and the pathetic. Not unfrequently its solemn dignity seduces the Spaniard into bombast. The poetry, the fine arts and general literature of a nation bear the stamp of its peculiarities. Few are the nations among whom these have flourished equally. The Spanish people is decidedly poetical. In works of eloquence, both religious and secular, no language is so poor as the Spanish, though, in some respects, finely adapted for them. As to architecture, Spain may, perhaps, have exercised an important influence, in consequence of the contact into which the Moorish and Gothic architecture were brought in this country. Gothic architecture, indeed, has sprung from the whole spirit of the modern Christian nations, and belongs much more to Germany than to Spain, Italy, and England; but it is very probable that what is called the new Gothic architecture developed itself with more beauty and grace in the neighbourhood of the light, splendid, and rich architecture of the Moors. The innumerable churches of Spain are in the Gothic taste, like the old buildings of Germany and England; and among them are many fine edifices, but not to be compared with the minster of Strasburg, St Stephen's church at Vienna, or Westminster abbey. One of the most remarkable monuments of Spanish architecture and Spanish greatness is the famous Escurial.

Music, dancing, and painting could not be wanting in so poetical a nation. Music was used to accompany their songs and ballads, and every shepherd still knows how to play on his instrument. The dance, so natural to southern nations, acquired a national character in Spain, and, to this day, the Spaniard has many an almost allegorical dance, borrowed from the Moors. Painting and sculpture were used to ornament the churches (Seville, Toledo) and palaces. Madrid has even an *Academia de las tres nobles artes, pintura, escultura y architectura*, and the royal palace of that city and the Escurial have galleries; but there is no proper Spanish school of reputation in either of these arts. Yet we cannot pass by the names of the painters Velasquez, Murillo, Zusbaran, L. de Vargas. The art of dramatic representation never reached a high degree of perfection in Spain. We therefore proceed to the poetry. In general, it may be observed that the spirit of the Spanish poetry is found, likewise, in the Portuguese. Both are the representatives of a peculiar species of romantic poetry. The time when Spanish poetry began to flourish coincides with the origin of the Italian epic, being just at the period when the Provençal poetry expired, in the middle of the fourteenth century. If we consider the time of the Troubadours as the infancy of the modern poetry of Southern Europe, the Spanish poetry, and the Italian, which begins with Dante, form the adult age. The age of the Provençal poetry could not last long in Spain. The life of the Spaniard, filled with battle and toil, was too grave to allow him to be satisfied with poetry of so gay, and often trifling a character. Only at the court of Arragon, and for a short time at that of the king of Castile, there were courts of love and wandering minstrels. The more Castile extended its power from the centre of Spain, the more did the Provençal poetry retire from Arragon, Catalonia, and Valencia, to France. Castilian poetry began with the ballad, passed over to the romance, and reached its highest point in the drama, and in each of these departments always remained of a decidedly romantic character. Spanish poetry differs from the Italian by a peculiar mixture of romantic fervour, frequently of an Oriental kind, with deep gravity. The Moors may have added to this spirit, besides having introduced into Spanish fiction the fairy world of the East. Spanish poetry proceeds always with a solemn pace. Its plays of wit are heavy, and its fondness for allegory excessive. The perfection of the intrigue is one of the great merits of Spanish writers, and they have served as models to the rest of Europe. A great peculiarity of Spanish versification is found in the *redondillas*, which became not only the standing metre of the ballad, but also of the drama, and in the assonances, which the Spaniards carried to the highest perfection. *Redondillas*, in their later form, are strophes of four lines in trochaic verses, mostly of four feet, and are peculiarly adapted for Spanish poetry. In the Spanish sonnets, prior to the connexion with Italy, they assumed the most popular character. The rhyme alone did not satisfy the writers, but the assonance was carried through whole lines. The song was the natural growth of the warlike period of Spain, and served to commemorate martial exploits. No language has such a store of ballads as the Spanish; but they are, particularly the earlier ones, little more than simple, childlike relations of chivalrous deeds. They may be properly divided into the chivalrous (derived especially from the fabulous history of Charlemagne, in which are mingled also tales of Moorish and Spanish heroes—as don Gayferos, the Moorish Calaynos, count Alarcos, &c.) and the historical: of the latter kind, an endless number originated during the struggle with the Moors. After those which belong to the early times of these conflicts, in the ninth and tenth centuries, there arose the brilliant ballads relating to the Cid, the hero of the first Castilian king, Ferdinand. Their nature is fully exhibited to us in probably the earliest poem of length relating to this subject which has been preserved, *El Poema de Cid*—a story whose simplicity and poetic colouring are very striking. It is nothing more, and, in this early childhood of

Spanish poetry, could be nothing more, than a long historical Spanish ballad, without any plot. The language is often very old Castilian, and the verse, which is considered by many as Alexandrine, though it cannot properly be so called, on account of its great want of precision, is truly iambic. It belongs, according to all conjecture, to the twelfth century, and is much superior to the *Poema de Alexandro Magno*, which is of nearly equal antiquity, and to the rhymed prayers, legends, and rules of religious orders, by the Benedictine monk Gonzalo Berceo. In connexion with these ballads should be read those which are taken from the history of the Moors, of which many are found in the *Historia de los Vandos de los Zegris y Abencerrages*, which is itself a sort of romantic chronicle of the Moorish heroes. There are also a number of Spanish ballads, founded on various popular stories. Little different from the ballad was the song; and perhaps the whole difference, especially in the thirteenth and fourteenth centuries, consisted in this, that the song was divided into couplets or small strophes. Subsequently the song became more lyrical; and then arose the *canciones*, properly so called (in twelve lines, similar to the madrigal and the epigram), the kindred species of *villancicos* (stanzas of seven lines), and the poetical paraphrases of known songs and ballads, in which the old songs were interwoven, line by line, with the words unchanged. Spain is distinguished above other countries for having united the greatest part of her ballads and songs in large collections, and thus preserved them to posterity; and the only thing to be regretted is, that the date and the author are not generally given. Thus there is a great collection of ballads made in the sixteenth century, called *Romancero general* (by Miguel de Madrigal, 1604, and Petro de Flores, 1614), and an older one, *Cancionero de Romances*, &c. (Antwerp, 1555). The songs are to be found in the *Cancionero general* of Fernando del Castillo, which belongs to the commencement of the sixteenth century, and was preceded by a *Cancionero de Poetas Antiguos*, in the reign of John II. Here we should mention the *Silva de Romances viejos, publicada par Jac. Grimm* (Vienna, 1815), and Collections of the best old Spanish historical, chivalrous, and Moorish Ballads, arranged with notes, by Depping (Altenb. and Leipsic, 1817). Spain, in the sixteenth and seventeenth centuries, reached its greatest elevation; and when the grandson of Ferdinand the Catholic, Charles V., united the German imperial throne with the Spanish, and was powerful in Italy, Spain became so flourishing that his successor Philip could lavish, without restraint, the resources of his kingdom, which yet were not consumed until about the end of the seventeenth century, when, after the death of the weak Charles, the Bourbon family ascended the throne. With the prosperity of the monarchy, poetry also flourished. Crowned heads, as Alphonso X. in the thirteenth century, and the Castilian prince don Juan Manuel (who died in 1362), had tried their powers in verse and prose; and Manuel's work, the Count Lucanor, a collection of important rules for the lives of princes, remains a beautiful monument of Spanish refinement in the fourteenth century. The knights themselves, and not, as in other lands, merely monks, had employed themselves in writing chronicles; and the Spanish historical style has hence become more dignified and noble. The pursuits of active life and of literature have been so intimately connected in Spain, that its greatest warriors have been also the most intellectually cultivated, and not unfrequently were distinguished poets. Thus we find, in the fifteenth century, at the court of John II., celebrated as a patron of poetry, the marquis Henry de Villena, who has left the oldest Spanish Art of Poetry, under the title of *La gaya Ciencia* (the gay science), and, from his knowledge of natural philosophy, almost acquired the reputation of a magician; and his yet more celebrated pupil, don Inigo Lopez de Mendoza, marquis of Santillana, author, among other works, of the *Doctrinal de Privados* (Manuel of Favourites) in which the favourite of John II., don Alvaro de Luna, who was executed, relates his transgressions, and enjoins moral truths on the turbulent Castilians. Santillana's letter upon the oldest Spanish poetry is very celebrated. Several others, for instance, Juan de Mena (the Spanish Ennius), who died in 1456, author of the allegoric-historical-didactic poem, *Las Trecentas* (The 300 Stanzas), and Rodriguez del Padron, who, in his songs of love, exchanged his French idiom for the Castilian, received distinguished favours from the above-mentioned king. Attempts were now made in all branches of the art. During the reign of John II., and his celebrated daughter Isabella, the dramatic spirit first prevailed. Yet before the time of Juan de la Enzina, who, about the end of the fifteenth century, composed pastoral dramas (also the author of the *Disparates*, which is in the ballad form), the marquis de Villena encouraged the writing of allegorical plays, and an unknown author produced the celebrated satirical pastoral dialogue *Mingo Rebulgo*. Then followed the dramatic romance of Callistus and Melibœa, which was also called a tragi-comedy. Some historical and biographical works of importance appeared at the same time. The Chronicles of the poet Perez de Guzman, and of the high chancellor of Castile, Pedro Lopez de Ayala, have been reprinted in modern times, by the academy of history at Madrid. The History of the Count Pedro Nino de Buelna, by Gutierre Diaz de Gamez; the History of Alvaro de Luna, by an unknown friend; and the *Claros Varones* of Fernando de Pulgar, still preserve their reputation. Then commences the period when the whole monarchy was permanently united under Ferdinand the Catholic. Spain and Italy were brought into connexion by the conquest of Naples, under the great captain (*el gran capitan*) Gonsalvo Fernandez de Cordova; the inquisition, which restraining the faith of the Spaniards, left freer room to its fancy, was established, and America discovered. Boscan (about the year 1526), nourished by Italian genius, gave Castilian poetry a classic character, by judiciously incorporating in it the excellencies of his Italian models. He confined himself to sonnets and songs; but his friend Garcilaso de la Vega, became the author of very popular pastoral poems, to which, in later times, the Portuguese Saa de Miranda and Montemayor gave a more elevated character; the latter, in his pastoral romance Diana. More imbued with the spirit of Horace and Aristotle was the distinguished statesman Diego de Mendoza, the dreaded minister of Charles V., in Italy, and author of the comic romance *Lazarillo de Tormes*, who composed, upon the model of Sallust and Tacitus, his History of the Rebellion in Grenada. He wrote various songs, poetical epistles, and satirical pieces. In odes, in the new style, Herrera and Luis de Leon met with much success. The witty Castillejo was partic-

larly inimical to this classic Italian school. All attempts to imitate the romantic epic of the Italians in Spanish literature failed; and, in fact, even the later attempts of the Spaniards in the epic have been unsuccessful, if we except the *Araucana* of Alonzo de Ercilla y Zuniga (about 1556), which celebrates the conquest of a brave tribe of American Indians. But the fairest flower of the Spanish Parnassus now opened. We mean its drama. The history of this, henceforth, embraces nearly all the history of Spanish poetry. The drama of Spain first became independent in the time of John II. It originally proceeded from the religious spectacles; and a great part of its productions has always remained of a religious character.

In connexion with the Spanish drama, the old Art of Poetry of Juan de Cueva is particularly deserving of attention. This drama does not recognize the Grecian distinction of comedy and tragedy, but its peculiar divisions are the *comedias divinas* and *comedias humanas*. The former have been divided, since Lope de Vega, into histories of the lives of the saints (*vidas de santos*); and *autos sacramentales*, plays which were performed upon Corpus Christi days, and had for their object the commemoration of the sacrament. The *comedias humanas* consist of three classes:—1. The heroic, more properly historical in their nature; 2. pieces of the cloak and the sword (*comedias de capa y espada*); drawn from high life, and full of the most complicated intrigue; 3. the *comedias de figuron*, in which vain adventurers or ladies play the chief parts. With these arose, too, the preludes (*loas*), and the interludes, mostly comic (*entremeses*), and usually accompanied with music and dancing (*saynetes*). If we estimate the modern dramatic art according to its true romantic character, we soon see that two nations have reached the highest excellence in it, each in its own way—the English in Shakspeare, and the Spanish in Lope de Vega and Calderon. The religious comedy is peculiar to the Spaniards; and Calderon's Devotion to the Cross proves of what elevation it is capable. This grave people, too, has produced the most original comedies; and its theatre has become a fund of comic intrigues for the writers of the rest of Europe. In the first half of the sixteenth century, after a learned party had attempted, without success, to imitate the Grecian and Roman drama, Torres Naharro appeared, and laid the foundation of true Spanish comedy; and Lope de Rueda, called, by Cervantes, the *great*, followed, with pieces in prose. The theatres of Spain at that time consisted, according to Cervantes, of some boards and benches; and the wardrobe of the actors, with the decorations, could be packed into a bag. From rude beginnings, among which we must not omit the two tragedies in the history of Ines de Castro, by the dominican Bermudez, the drama unfolded itself, until the time of Cervantes, the rival of Lope de Vega. Lope de Vega (born 1562) held the highest rank before the appearance of Calderon. In all the above-mentioned kinds of Spanish comedy, he obtained unbounded applause; and his celebrated plays, with the exception of the *autos*, and the preludes and interludes, fill alone twenty-five volumes. He possessed an inexhaustible power of inventing complicated intrigues, but wanted the highest kind of refinement. A crowd of imitators surrounded him (among whom we may mention Mira de Mescua); but the drama was carried to its highest perfection by the immortal Pedro Calderon de la Barca, who was born in 1660. He was the friend and poet of Philip IV., who had a great fondness for the stage, and wrote himself for it. (See *Calderon.*) His example also allured a swarm of imitators; but Solis, Moreto, Molina, Roxas de Castro, and others, should be mentioned with respect. With the monarchy sank the poetic standard. With the French race of sovereigns the French taste also was introduced into the Spanish theatre; and it was not till the second half of the eighteenth century that Vincente Garcia de la Huerta attempted to revive the old Spanish theatre. He published his *Teatro Espanol* (16 vols.) in 1785—a collection of the best old plays of Spain. Among the late tragic poets are De Moratin and Quintana; among the comic, Ramon de la Cerucycano and Commella.

In one of the finest departments of works of fiction—the romance—Spain has accomplished much. The romance of chivalry early received a peculiar character in the *Amadis* (probably by Vasco Lobeira, in the fourteenth century), and flourished for a long time. Its principal productions we may best learn from the judgment passed on them by the curate and barber in Don Quixote. Diego de Mendoza, in his *Lazarillo de Tormes*, furnished the model of the romances of low life (*del gusto picaresco*), which afterwards became so numerous, and of which *Don Guzman de Alfarache*, by Mattheo Aleman (1599), is one of the most distinguished. A flood of other tales appeared about the same time, among which must be mentioned those of Timoneda and Perez de Montalvan. But the immortal Miguel de Cervantes Saavedra (born in 1547), in his Don Quixote, surpasses all his predecessors and followers. In this, Spanish prose found its perfection; and the work makes an epoch in the history of romance—a circumstance which would not have been so much overlooked had it not been customary to consider the knight of La Mancha only as a subject of jest, and to put out of sight the fact that the work affords the most vivid picture of human life. With the addition of the other works of Cervantes, the circle of poetic creation in Spain may be said to be completed. The continual decline of Spanish literature, with the decline of the state, has been already mentioned. The brothers Argensola, with the title of the Spanish Horaces, many writers of epic, pastoral and lyric poetry, of moderate merit, Espinel, Morales, the Figueroas, Sousa, Virues, Montalvan, can scarcely be distinguished above the increasing deluge. The usual appearances of a declining poetry and literature are observed here. The ingenious, but affected, Louis de Gongora de Argote (after 1600) soon carried a bombastic and strained mode of writing to a great height, and found many followers both in poetry and prose. Spain had, likewise, at this time, as Italy at an earlier period, her Marinists, or concettists, and a peculiar class, called *culturists*, who veiled their want of genius in turgidity and affectation. They were not, indeed, without opponents. The celebrated satirist Francis de Quevedo Villegas (at the beginning of the seventeenth century) bitterly assailed the Marinists; and he, as well as the Spanish Anacreon, Stephen Manuel de Villegas, upheld, in some measure, the old Spanish simplicity. But the time of decline had come; and the introduction of the French style, under the Bourbons, could only add to the degradation. In the department of criticism, we must mention the *Poetica* of Ignatius de Luzan (1737, folio,) the founder of the French school. In philosophy, the-

ology, &c., nothing of importance is to be found; but the prose style has not been neglected. On the contrary, it has been cultivated in a peculiar manner in works relating to the history of the nation. The learned theologian Perez de Oliva, who died in 1533, much improved didactic prose; and his scholar and nephew, Ambrosio de Morales, the historiographer of Philip II., pursued the same course. Diego de Mendoza wrote, as we have already mentioned, a History of the War in Grenada, and Geronymo Zurita *Anales de la Corona de Arragon*. Antonio de Solis wrote, in the seventeenth century, an excellent work upon the conquest of Mexico; yet the Jesuit Mariana deserves, perhaps, to be called the most industrious Spanish historian. Lorenzo and Balthasar Gracian, the latter of whom, by his *Arte de Ingenio*, had an important influence on the Spanish literature of the seventeenth century, contributed to the introduction of Gongora's defects into the prose style. The *Real Academia Espanola*, at Madrid, founded in 1713, deserves great praise for its *Diccionario de la real Academia** (in 6 vols., folio), by which the Castilian dialect became the established language. Candamo, Zamora, Canizares, and the Mexican nun Inez de la Cruz, and some others, were distinguished as lyric poets in the eighteenth century. Jos. Lopez compiled a *Parnaso Espanol*, in 1768, drawn from the old lyric poets. Lately, Llorente has appeared as a historical and political writer; but his works have been produced out of his own country. The first historical romance that has come from the pen of a Spaniard, is in English, namely, Gomez Arias, or the Moors of Alpujarras, by Telesforo de Trueba y Cosio (3 vols., London, 1828). Anaya's Essay on Spanish Literature (London, 1818) gives a short account of Spanish literature. See, also, Bouterwek's *History of Spanish Literature*, which is contained in his *History of Modern Poetry and Eloquence*, and has been translated into Spanish, French and English. The events of the reigns of Charles IV. and Ferdinand VII. have created an excitement beneficial to Spanish literature. Jovellanos has written with talent and elegance, on legislation and political economy; Capmany has distinguished himself in philology; Antillon in geography; Llorente in the history of his country; Conde in Oriental literature; the canon Morales in mathematics and general literature; and various others might be mentioned. Juan Melendez Valdez has been called the Spanish Anacreon. Badia is known for his Travels in the East, under the name of Ali Bey. We have mentioned, in the course of this article, *Coleccion de las mas celebres Romances antiguos Espanoles historicos y caballerescos* (edited by Depping, Leipsic, and by a Spaniard, London, 1825, 2 vols.; the Leipsic edition contains the Moorish ballads, which the London does not); there is also a *Coleccion de las Piezas dramaticas de los Autores Espanoles:* the first six volumes (Madrid, 1826) contain the best pieces of Calderon, Moreto, Tirso de Molina, Ruiz de Alarcon, and Perez de Montalban. Spain has now, besides the seminaries, fifteen universities. In these there were, in 1826, 9867 students, and in the seminaries 3810.

SPALLANZANI, Lazarus, an eminent naturalist, was born at Scandiano, in Italy, in 1729, and studied at Reggio and at Bologna, under Laura Bassi, the celebrated female professor of physics in that place. Being nominated professor of natural philosophy at Pavia, he devoted himself to experimental researches, which he pursued for many years with assiduity, and published, in Italian, various works on physiology, which made his name known through Europe. In 1779, he travelled through the Swiss cantons; in 1785, he made a voyage to Constantinople, Corfu and Cerigo, and, in 1788, journeyed through the Two Sicilies, and part of the Apennines, to collect volcanic products for the museum at Pavia. This celebrated natural philosopher died of apoplexy in 1799. Among the numerous writings of Spallanzani are Experiments on animal Re-production; On infusory Animalcules; On the Phenomena of Circulation; On animal and vegetable Physics; Travels in the Two Sicilies; On the Transpiration of Plants.

SPANDAU; a fortified town in Prussia, on the Havel, at its union with the Spree; eight miles west of Berlin; lon. 13° 11′ E.: lat. 52° 33′ N.; population, 4303. It is well fortified, and contains a large work-house and a manufactory of arms.

SPANGENBERG, Augustus Gottlieb, a Moravian bishop, was born at Klettenberg, in Germany, in 1704, became a student of law at Jena, and, in 1726, doctor of philosophy. The following year he formed an acquaintance with count Zinzendorff, founder of the sect of Moravians or Herrnhutters, of whom he became a follower, and was sent on a mission to the West Indies and North America (1735—1739). Having established a colony of the United Brethren (q. v.) in Georgia, and visited Pennsylvania, he returned to Europe. In 1744, he was elected bishop of the Moravians, and sent again to America as superintendent of all the establishments of the brethren among the English and savage nations. He returned from this mission in 1749, and in 1751, crossed the Atlantic a third time. On the death of Zinzendorff (q. v.), in 1760, he was called to the supreme council of the Herrnhutters, and, in 1764, was appointed general inspector of the establishments in Upper Lusatia. He took up his residence at Zeitz, whence, in 1769, he removed to Herrnhut, devoting his time especially to the seminaries for the education of foreign missionaries. In 1789, he became president of the general directory, and died at Bertholsdorf, near Herrnhut, in 1792. Among his works are the Life of Zinzendorff (in German, 1772—75, 8 vols., 8vo.); and *Idea Fidei Fratrum*, or a Summary of the Christian Doctrine of the Evangelical Community of the Brethren (1779, 8vo.), translated into English by Latrobe.

SPANHEIM, Ezekiel, a distinguished numismatist and philologian, son of Frederic Spanheim, a professor of divinity at Geneva and Leyden, was born at Geneva, in 1629, accompanied his father to Leyden in 1642, and, although at that period the animosity between Heinsius and Salmasius was at its height, succeeded, by his modesty and abilities, in obtaining the esteem of both those scholars. In 1651, he accepted a professorship of rhetoric in his native city; but, his reputation inducing the elector palatine to select him as superintendent of his son's studies, he entered the service of that prince, and soon after published a tract in support of his patron's pretensions to the grand vicarship of the empire. That prince despatched him as his envoy to Rome, where he became personally acquainted with his father's patroness, queen Christina, who afterwards employed him in diplomatic missions to the states-general, Breda, and London. Circumstances

* The most complete Spanish dictionary, for foreign students of the language, is the *Dictionnaire Espagnol-Francois et Francois-Espagnol*, by Nunez de Taboada (2 vols., Paris).

induced him to enter the service of the elector of Brandenburg, afterwards king of Prussia, who raised him to the order of nobility, while ambassador extraordinary at Paris. In 1702, he proceeded in the same capacity to London, where he died in 1710. His principal works are a Dissertation on the Excellence and Use of the Medals of the Ancients (folio, 2 vols.); Letters and Essays on Medals; a Commentary on the writings of Aristophanes and Callimachus; an edition of the writings of the emperor Julian, in Greek and Latin, and a French translation of the same work, illustrated by medals.

Frederic Spanheim, brother of Ezekiel, was born in 1631, at Geneva, studied at Leyden, and succeeded to the divinity chair at Heidelberg, in 1665, which he exchanged for that at Leyden in 1670. He was a voluminous writer, principally on theological subjects, and compiled an elaborate history of the Christian church. His death took place in 1701.

SPANIEL (*canis extrarius*, L.). The spaniel has the hair very long in parts; it is generally white, with large brown, liver-coloured or black spots, of irregular shape and size; the nose is sometimes cleft; the ears are very long and pendulous, and covered with long hair. This race came originally from Spain, whence its name. The setter is sometimes called the *English spaniel*. It corresponds, in every point, with the true spaniel, but is trained more particularly for field sports. The Alpine or St Bernard's variety of the spaniel breed exceeds all others in size and beauty. It is generally two feet high at the shoulders, and full six feet from the nose to the end of the tail. These dogs are sent out in couples to scour the mountain in search of lost or wearied travellers. They have frequently been of great use in this way.

The smaller spaniel, king Charles's dog (*canis brevipilis*, L.), is a small variety of the spaniel, used as a lap dog. It is sometimes found entirely black, and is then called, in England, *king Charles's dog*, from the liking of Charles II. for this variety.

The Maltese dog and the lion dog (*canis leoninus*, L.) are small species of spaniel. The first is supposed to have sprung from the intercourse of the little spaniel with the smaller water dog. It has the hair, all over the body, very long and silky, and generally pure white. The other has long silky hair about the head, neck, shoulders, and extremity of the tail; but, on the other part, short, giving the little animal a leonine appearance. It is probably bred between the little spaniel and one of the naked varieties.

The great water spaniel (*canis aquaticus*, L.) is supposed to be the offspring of the great water dog and the little spaniel. It is very much like the former animal, but the curly hair is more silky, and like that of the land spaniel. There is also a useful variety of this breed between the water spaniel and the shepherd's dog. These animals are used to find water-fowl, shot over water.

SPANISH FLY. See *Cantharides*.

SPANISH MAIN; the Atlantic ocean and coast along the north part of South America, from the Leeward islands to the isthmus of Darien.

SPANISH SUCCESSION, WAR OF THE. See *Spain*, and *Utrecht*.

SPAR. See *Barytes*, *Corundum*, *Fluor*, and *Lime*.

SPARRMAN, ANDREW, a Swedish naturalist and traveller, was born about 1747, and studied medicine at Upsal. His attention to natural history attracted the notice of Linnæus. In 1765, he made a voyage to China. On his return, he described the animals and vegetables which he had discovered; and, to continue his researches, went to the cape of Good Hope in 1772. Doctor Forster and his son visiting the cape with captain Cook, he joined them in the voyage round the world, and returned, in 1775, to Africa, undertook a journey into the interior; and, after penetrating to the distance of 350 leagues from the cape, he returned to that settlement in April, 1776, bringing a copious collection of African plants and animals. The same year he returned to his native country. In 1787, he engaged in an abortive attempt to explore the interior of Africa, and returned home in 1788. He died at Stockholm, July 20, 1820. He was the author of several works, among which is an Account of his Voyage to the Cape of Good Hope, and Travels in Africa, written in Swedish, and published in German at Berlin, and in English at London, 1785 (2 vols., 4to.).

SPARROW, OR FINCH (*fringilla*). The common European sparrow is almost domesticated in this portion of the globe, frequenting the habitations of man, even in the midst of populous cities, and nestling under the eaves of houses, in holes in the walls, in pots placed for their use, &c. It is of a robust form, and has a stouter bill than the majority of the finches. It is found almost throughout the Eastern continent, supporting equally well severe cold and extreme heats. It is inconveniently familiar, and its incessant and monotonous note is fatiguing to the ear. In many districts it is so numerous as to do great injury to the grain fields. Its voracity is extreme; neither can its flesh or plumage be applied to any useful purpose. Fortunately for America, they are free from this pest on that side of the Atlantic. They have, in its place, the chipping sparrow, a delicate bird, almost as familiar, but nowise obtrusive. They have, besides, numerous species of finch, which are readily distinguished from other small birds, by the short, conical bill, with cutting edges, which seems peculiarly adapted to the purpose of freeing seeds of the hulls—an operation which these birds accomplish with great adroitness. Though granivorous, they feed their young on worms and soft insects only.

SPARROW-HAWK, AMERICAN (*falco sparverius*, L.). This beautifully marked bird appears to reside principally in the warmer parts of the United States. It is particularly abundant, in the winter, throughout South Carolina, Alabama, Georgia and Florida, whither the birds assemble from the remote interior of the Northern States, wandering, in summer, as far as the Rocky mountains. They do not seem to visit the maritime districts of New England. They are found in the West Indies, also south of the equator, even in Cayenne and Paraguay. The nest is built in a hollow, shattered or decayed tree, at a considerable elevation. The eggs are said to be four or five, of a light brownish-yellow, and spotted with brown. The food of this bird is sparrows and other small birds, also mice, grasshoppers and lizards. The female is eleven inches long; the stretch of the wings twenty-three inches. The male is about nine and a half or ten inches long. The cere and legs are yellow; the head bluish-ash; crown rufous. The upper parts are reddish-bay, striped transversely with dusky brown; the lower parts pale yellowish-white, marked with longitudinal spots of brown; the claws black.—The European sparrow-hawk, is a

short-winged hawk which destroys many pigeons and partridges.

SPARRY IRON. See *Iron, Ores of.*

SPARTA, OR LACEDÆMON, one of the most powerful states of ancient Greece, called also *Laconia*, lay to the east of Messenia in the Peloponnesus. The Eurotas here empties into the gulf of Laconia, the western shore which terminates in cape Tænarus (Matapan). Here, near the town of Tænarus was pointed out a cave, which was said to be the entrance to the regions of Pluto. At Amyclæ, near Sparta, stood one of the most celebrated temples of Apollo. According to fable, Lacedæmon, son of Jupiter, and of the nymph Taygeta, married Sparta, daughter of Eurotas, king of the Leleges, succeeded his father-in-law on the throne, and gave the country his own name. calling the city by that of his wife. He was probably a Hellenic prince, and one of the leaders of the Achæan colony, which Archander and Architeles led into Laconia, after their expulsion from Phthiotis. Here Lacedæmon, having persuaded the natives to receive the colony, gave his own name to the united people. Among the most celebrated of the early kings was Tyndarus, with whose sons Castor and Pollux the male line of Lacedæmon became extinct. Menelaus, between whom and Lacedæmon five kings had reigned, married Helen the daughter of Tyndarus, and thus acquired the throne. Orestes, son of Agamemnon, who had married Hermione, the daughter of Menelaus, united Argos and Mycenæ with Lacedæmon. In the reign of his son and successor Tisamenes, it was conquered by the Heraclidæ about 1080, who established a dyarchy or double dynasty of two kings in Sparta. For, as neither the mother nor the Delphic oracle could decide which of the twin sons of Aristodemus, Eurysthenes and Procles, was first born, the province of Laconia was assigned to them in common; and it was determined that the descendants of both should succeed them. The Lacedæmonians, however, had little cause to rejoice at the arrival of the foreigners, whose fierce disputes, under seven rulers of both houses, distracted the country with civil feuds, while it was, at the same time, involved in constant wars with its neighbours, particularly the Argives. The royal authority was continually becoming feebler, and the popular power was increased by these divisions, until the government ended in an ochlocracy. At this time, Lycurgus was born, for the healing of the troubles. He was the only man in whom all parties confided; and, under the auspices of the gods whose oracle he consulted, he established a new constitution of government in Sparta (about 880 B. C.) and thus became the saviour of his country. (See *Lycurgus.*) Lacedæmon now acquired new vigour, which was manifested in her wars against her neighbours, particularly in the two long Messenian wars, which resulted in the subjugation of the Messenians (B. C. 668). The battle of Thermopylæ (B. C. 480), in which the Spartan king Leonidas, successfully resisted the Persian forces at the head of a small body of his countrymen, gave Sparta so much distinction among the Grecian states, that even Athens consented to yield the command of the confederated forces, by land and sea, to the Spartans. Pausanias, guardian of the infant son of Leonidas, gained the celebrated victory of Platææ over the Persians (B. C. 479), at the head of the allies. On the same day, the Grecian army and fleet, under the command of the Spartan king Leotychides, and the Athenian general Xanthippus, defeated the Persians, by land and sea, near Mycale. With the rise of the political importance of Sparta, the social organization of the nation was developed. The power of the kings was gradually limited, while that of the ephori was increased. After the Persians had been victoriously repelled, the Grecian states, having acquired warlike habits, carried on hostilities against each other. The jealousy of Sparta towards Athens rose to such a height that the Lacedæmonians, under pretence that the Persians, in case of a renewal of the war, would find a tenable position in Athens, opposed the rebuilding of its walls, and the fortification of the Piræus. Themistocles, discerning the real grounds of this proceeding, baffled the designs of Sparta by a stratagem, and thus contributed to increase the ill will of that state towards Athens. The tyrannical conduct of Pausanias alienated the other allies from Sparta; and most of them submitted to the command of Athens. But, while Sparta was learning moderation, Athens became so arrogant towards the confederates, that they again attached themselves to the former power, which now began to make preparations in secret for a new struggle. The Athenians, however, formally renounced the friendship of Sparta, and began hostilities (B. C. 431). This war, the Peloponnesian, ended in the ascendency of Sparta, and the entire humiliation of her rival (405). The rivalry of the Spartan general Lysander and the king Pausanias soon after produced a revolution, which delivered the Athenians from the Spartan yoke. The Spartans next became involved in a war with Persia, by joining Cyrus the Younger in his rebellion against his brother Artaxerxes Mnemon. The Persian throne was shaken by the victories of Agesilaus; but Athens, Thebes, Corinth, and some of the Peloponnesian states, were instigated by Persian gold to declare war against the Lacedæmonians, who found it necessary to recall Agesilaus. The latter defeated the Thebans at Coronæa; but, on the other hand, the Athenian commander, Conon, gained a victory over the Spartan fleet at Cnidus, and took fifty galleys. This war, known as the Bœotian or Corinthian war, lasted eight years, and increased the reputation and power of Athens, by the successes of her admiral, Conon, and her fortunate expeditions against the Spartan coasts and the islands of the Ægean. The arrogance of Athens again involved her in hostilities with Persia; and Antalcidas (B. C. 388) concluded the peace which bears his name, and which, though highly advantageous to Persia, delivered Sparta from her enemies. The ambitious designs of Sparta in concluding this peace soon became apparent: she continued to oppress her allies, and to sow dissensions in every quarter, that she might have an opportunity of acting as umpire. Besides other outrages, she occupied, without provocation, the city of Thebes, and introduced an aristocratical constitution there. Pelopidas delivered Thebes, and the celebrated Theban war followed, in which Athens took part, at first against Sparta, but afterwards in her favour. The latter was so much enfeebled by the war, that she thenceforward ceased to act a distinguished part in Greece. No state was strong enough to take the lead, and the Macedonian king Philip at last made himself master of all Greece. Agis, king of Sparta, one of the bravest and noblest of its princes, ventured to maintain a struggle for the liberties of Greece; but he lost his life in the battle of Megalopolis against Antipater. Archi-

damus IV. was attacked by Demetrius Poliorcetes, and Sparta was saved with difficulty. New troubles soon arose: Cleonymus, nephew of the king Areus, invited Pyrrhus into the country in aid of his ambitious projects, which were frustrated, partly by the negligence of Pyrrhus, and partly by the courage of the Spartans. Luxury and licentiousness were continually growing more and more prevalent, and, though several succeeding kings attempted to restore the constitution of Lycurgus, and restrain the power of the ephori, it was without success. Cleomenes, indeed, accomplished a reform; but it was not permanent. After an obstinate and unfortunate war against the Achæans and Antigonus, king of Macedonia, Cleomenes fled to Egypt, where he died. The state remained three years without a head, and was then ruled by the tyrants Machanidas and Nabis, by the latter of whom the most atrocious cruelties were committed. The Romans and the Achæan league effected the final fall of the state, which had been upheld for a short time by Nabis. Sparta was obliged to join the Achæan league, with which it afterwards passed under the dominion of the Romans.

Sparta, or Lacedæmon, the capital of Laconia and of the Spartan state, lay on the west bank of the river Eurotas, and embraced a circuit of forty-eight stadia, or six miles. The ruins are still seen nearly a league to the east of Misitra, and are known by the name of *Palæopolis* (Ancient City). Sparta was irregularly built, and consisted of five separate quarters, which, as late as the 120th Olympiad, were not enclosed by any common wall. Among other remarkable objects enumerated by Pausanius are the following: the market-place (ἀγορά), containing the public buildings, in which the most distinguished magistrates held their meetings, and the principal ornament of which was the *Persice*, a celebrated colonnade, built from the spoils taken from the Persians; its roof was supported by statues of Persians; the *chorus*, or place in which the ephebi executed their dances, in the gymnopædia, adorned with statues of Apollo, Diana, and Latona; the *Baroneta*, or residence of the kings of the family of Eurysthenes, in the street Aphetai, so called because the people bought it of the widow of Polydorus for a herd of cattle: the *Leschai*, or halls in which the popular assemblies were held, and of which there were two, the *Lesche* of the Crotanes, near the tombs of the Agides, and the *Lesche Pœcile:* the temple of Minerva Poliouchos (Chalcioeca), on the Acropolis, &c.

The Spartans were distinguished among the people of Greece by their manners, customs, and constitution. Their kings ruled only through the popular will, as they had no other privileges than those of giving their opinion first in the popular assemblies, acting as umpires in disputes, and of commanding the army; their only other advantages were a considerable landed estate, a large share of the spoils, and the chief seats in assemblies and at meals. The Spartans, that is, the descendants of the Dorians, who acquired possession of Laconia under the Heraclidæ, were occupied only with war and the chase, and left the agricultural labours to the Helots; but the Lacedæmonians, or Periœci (the ancient inhabitants of the country), engaged in commerce, navigation, and manufactures. Although the Spartan conquerors were superior in refinement and cultivation to the Lacedæmonians, the arts of industry flourished only among the latter. They gradually intermingled with the Spartans, whom they exceeded in number, and formed one people. Herodotus states the number of Spartans at only 8000. Both people constituted one state, with a national assembly, to which the towns sent deputies. The military contributions in money and troops formed the principal tribute of the free Lacedæmonians to the Spartans (Dorians). The former were sometimes divided by jealousy from the latter, and in the Theban war, several towns withdrew their troops from the Spartans, and joined Epaminondas. The distinguishing traits of the Spartans were severity, resolution, and perseverance. Defeat and reverse never discouraged them. But they were faithless and crafty, as appears from their conduct in the Messenian wars, in which they not only bribed the Arcadian king, Aristocrates, to the basest treachery towards the Messenians, but also corrupted the Delphic oracle, of which they made use to the prejudice of the Messenians. The age at which marriage might be contracted was fixed by Lycurgus at thirty for men and twenty for women. When a Spartan woman was pregnant, it was required that pictures of the handsomest young men should be hung up in her chamber, for the purpose of producing a favourable effect on the fruit of her womb. The child was brought forth, it is said, upon a shield, and, if a male, was laid, without swaddling clothes (to leave him the free use of his limbs), in a shield, with the words Ἀ τᾶν ἀσπίδα τᾶν (Either with this or upon this). The other Greeks washed the new-born infants with water, and afterwards rubbed them over with oil; but the Spartans bathed them in wine, to try the strength of their constitutions. They had a notion that a wine bath produced convulsions or even death in weakly children, but confirmed the health of the strong. If the infant proved vigorous and sound, the state received it into the number of citizens; otherwise it was thrown into a cave on mount Taygetus. In the other Grecian states, the exposition of children was a matter of custom: in Sparta it was forbidden by law. If we may trust to Homer, it was at an early period, a custom among the Spartan women to employ nurses in order to preserve the beauty of their breasts. The nurses were treated as part of the family. The Spartan children were early inured to hardships and accustomed to freedom. Stays, which were in use among the other Grecians, were unknown to the Spartans. To accustom the children to endure hunger, they gave them but little food; and, if they stood in need of more, they were obliged to steal it; and, if discovered, they were severely punished, not for the theft, but for their awkwardness. Every ten days, they were required to present themselves before the ephori, and whoever was found to be too fat, received a flogging. Wine was not generally given to girls in Greece, but was commonly allowed to boys from earliest childhood. In Sparta, the boys were obliged to wear the hair short, until they attained the age of manhood, when it was suffered to grow. They usually ran naked, and were generally dirty, as they did not bathe and anoint themselves, like the other Greeks. They took pride in having the body covered with marks of bruises and wounds. They wore no outer garment, except in bad weather, and no shoes at any time. They were obliged to make their beds of rushes from the Eurotas. Till the seventh year, the child was kept in the gynæceum, under the care of the women; from that age to the eighteenth year, they

were called *boys* (παιδες), and thence to the age of thirty, *youths* (ἐφηβοι). In the thirtieth year the Spartan entered the period of manhood, and enjoyed the full rights of a citizen. At the age of seven, the boy was withdrawn from the paternal care, and educated under the public eye, in company with others of the same age, without distinction of rank or fortune. If any person withheld his son from the care of the state, he forfeited his civil rights. The principal object of attention, during the periods of boyhood and youth, was the physical education, which consisted in the practice of various gymnastic exercises—running, leaping, throwing the discus, wrestling, boxing, the chase, and the *pancratium*. These exercises were performed naked, in certain buildings called *gymnasia*. Besides gymnastics, dancing and the military exercises were practised. A singular custom was the flogging of boys (*diamastigosis*) on the annual festival of Diana Orthia, for the purpose of inuring them to bear pain with firmness: the priestess stood by with a small, light, wooden image of Diana, and if she observed that any boy was spared, she called out that the image of the goddess was so heavy, that she could not support it, and the blows were then redoubled. The men who were present exhorted their sons to fortitude, while the boys endeavoured to surpass each other in firmness. Whoever uttered the least cry during the scourging, which was so severe as sometimes to prove fatal, was considered as disgraced, while he who bore it without shrinking was crowned, and received the praises of the whole city. According to some, this usage was established by Lycurgus; others refer it to the period of the battle of Platææ. To teach the youth cunning, vigilance, and activity, they were encouraged, as has been already mentioned, to practise theft in certain cases; but if detected, they were flogged, or obliged to go without food, or compelled to dance round an altar, singing songs in ridicule of themselves. The fear of the shame of being discovered sometimes led to the most extraordinary acts. Thus it is related that a boy who had stolen a young fox, and concealed it under his clothes, suffered it to gnaw out his bowels, rather than reveal the theft by suffering the fox to escape. Swimming was considered among the Spartans to be so indispensable, that it was a proverb among them, to intimate that a man was good for nothing—He cannot even swim. Modesty of deportment was also particularly attended to; and conciseness of language was so much studied, that the term *laconic* is employed to signify a short, pithy manner of speaking. The Spartans were the only people of Greece who avowedly despised learning, and excluded it from the education of youth. Their whole instruction consisted in learning obedience to their superiors, the endurance of all hardships, and to conquer or die in war. The youth were, however, carefully instructed in a knowledge of the laws, which, not being reduced to writing, were taught orally. The education of the females was entirely different from that of the Athenians. Instead of remaining at home, as in Athens, spinning, &c., they danced in public, wrestled with each other, ran on the course, threw the discus, &c. This was not only done in public, but in a half-naked state. The object of this training of the women was to give a vigorous constitution to their children.—See Müller's *History and Antiquities of the Doric Race*, translated, with additions, from the German (London, 1830). The Mainots have been supposed to be the descendants of the ancient Spartans. See *Mainots*.

SPARTACUS; a Thracian gladiator, the instigator of the servile war or revolt of the slaves in Italy. He had been compelled, like other barbarians, to serve in the Roman army, from which he had deserted, and, at the head of a body of chosen companions, had carried on a partisan war against the conquerors. Being made prisoner, Spartacus was sold as a slave; and his strength and size caused him to be reserved as a gladiator. He was placed in a gladiatorial school at Capua, with two hundred other Thracian, German and Gaulish slaves, among whom a conspiracy was formed (B. C. 71) for effecting their escape. Their plot was discovered; but a small body, under Spartacus, broke out, and, having procured arms, and gained some advantages over the Roman forces sent against them, they were soon joined by the slaves and peasantry of the neighbourhood, and their numbers amounted to 10,000 men. By the courage and skill of Spartacus, several considerable battles were gained; but his authority was insufficient to restrain the ferocity and licentiousness of his followers, and the cities of the south of Italy were pillaged with the most revolting atrocities. In a few months, Spartacus found himself at the head of 60,000 men; and the consuls were now sent, with two legions, against the revolted slaves. Mutual jealousies divided the leaders of the latter, and the Gauls and Germans formed a separate body under their own leaders, while the Thracians and Lucanians adhered to Spartacus. The former were defeated; but Spartacus skilfully covered their retreat, and successively defeated the two consuls. Flushed with success, his followers demanded to be led against Rome; and the city trembled before the servile forces. In this crisis, Licinius Crassus, who was afterwards a triumvir, was placed at the head of the army. His lieutenant, Mummius, whom he despatched with two legions to watch the motions of the enemy, was defeated by a superior force, and slain. Crassus, after having made an example of the defeated legions, by executing every tenth man, surrounded Spartacus, near Rhegium, with a ditch six miles in length. Spartacus broke through the enemy by night; but Crassus, who did not doubt that he would march upon Rome, pursued him, and defeated a considerable part of his forces, who had abandoned their general from disaffection. Spartacus now retreated; but his followers compelled him to lead them against the Romans. His soldiers fought with a courage deserving success; but they were overcome, after an obstinate conflict, and Spartacus himself fell fighting on his knees, upon a heap of his slain enemies. According to the Roman statements, 60,000 rebels fell in this battle (A. D. 71). 6000 were made prisoners, and crucified on the Appian way. A considerable number escaped, and continued the war, but were finally destroyed by Pompey.

SPASMODIC CHOLERA. See *Cholera*.

SPAWNING OF FISH. In the oviparous fishes, with distinct sexes, the eggs are impregnated externally, and arrive at maturity without the aid of the mother. The spawn being deposited by the female, the male then pours upon it the impregnating fluid. In the ovoviviparous fishes, sexual intercourse takes place, and the eggs are hatched in the uterus. In the oviparous fishes, which are hermaphrodite, the spawn is impregnated previous to de-

position by the same individual which deposits the eggs. Fishes exhibit a great variety in regard to the number of their eggs. In some, the number is small; while in the spawn of a codfish 3,686,760 eggs have been found; in that of the flounder, 1,357,400, and in that of the mackerel, 546,681. The season of spawning varies according to the species and even the habits of the individual. In general, before spawning, fish forsake the deep water, and approach the shore, that, the roe, being placed in shallow water, may be vivified by the influence of the solar ray. At that season, some fish forsake the salt water, and ascend the rivers, and, after spawning, return again to the ocean. The eggs of various species of fish are used as articles of food, sometimes in a recent state, and sometimes salted, as in the well-known article of trade, caviar.

SPEAKER. The lord-chancellor is, *ex-officio*, the speaker of the British house of lords, and may, if a lord of parliament, as in practice is always the case, give his opinion and argue any question before the house. The speaker of the house of commons is a member of the house, elected by a majority of the votes, to act as chairman or president in putting questions, reading briefs or bills, keeping order, reprimanding the refractory, adjourning the house, &c. The first thing done by the commons, upon the meeting of a parliament, is to choose a speaker, who is to be approved of by the king, and who, upon his admission, begs his majesty that the commons, during their sitting, may have free access to his majesty, freedom of speech in their own house, and security from arrests. The speaker is not allowed to persuade or dissuade in passing a bill, except in committee, but only to make a short and plain narrative; nor to vote, unless the house be equally divided, when he has a casting vote. He receives a salary of £6000 a year. (See *Parliament.*) The presiding officer of the French chamber of deputies is styled *président*, and is chosen by the chamber itself. The chancellor of France presides in the house of peers. In the senate of the United States of America, the presiding officer is styled *president*; and the constitution (i. 3.) provides that the vice-president shall be president of the senate, and shall have no vote, unless the votes of the senators are equally divided. In his absence, or in case he exercises the office of president of the United States, the senate chooses a president *pro tempore*. The speaker of the house of representatives is chosen (*Const.* i. 2.) by the house itself.

SPECIFIC GRAVITY. See *Gravity.*

SPECIFICS, in medicine; such articles in the *materia medica* as have the special power of curing particular diseases in all persons and under all circumstances. Multitudes of such medicines are continually announced by quacks: but men of science and sense do not now believe in the existence of any specific, in the full sense of the word. Peruvian bark was formerly supposed to be a certain cure for intermittents and agues; but it is now known to fail in many cases, and not to be more efficacious than some other tonic medicines. The two medicines which approach nearest the character of specifics, are sulphur as an antidote to the itch, and mercury to venereal poison. Yet there are cases of disease not distinguishable from lues venerea, which are cured without the aid of mercury; and the power of sulphur in curing the itch is considerably augmented by the addition of other substances.

SPECTACLES are of two sorts, according as they are intended to assist short-sighted or far-sighted persons. In the former case they must be concave, in the latter convex; concave to diminish the excessive refraction of the rays of light by the humours of the eye, convex to increase the refraction. In both cases care should be taken to adapt the degree of concavity or convexity to the condition of the eye; for since the eye gradually accustoms itself to glasses continually used, the defect in the vision will be increased by the use of such as are too powerful, while it may be diminished, or, at least, prevented from increasing, by those of an opposite character. In addition to this, it ought to be considered, that, with most persons, the field of vision in one eye is greater than that in the other. But if a person, in the selection of spectacles, suffers himself to be guided merely by the first impression, he will commonly choose glasses that are too powerful, and seldom be able to adapt them to both eyes. Opticians have a contrivance for determining the degree of short or far sightedness, and the glasses are numbered according to their degree of convexity or concavity, so that suitable ones may be more readily selected. Those persons who are far-sighted should refrain, as long as they conveniently can, from increasing the power of the glasses. To afford the means of seeing distinctly, and to be used without injury, spectacles should be regularly formed; that is to say, the concavity or convexity should be uniform. Moreover, the glasses should be perfectly transparent, and entirely destitute of colour. Green spectacles are to be recommended only to such persons as have very sensitive eyes, or to such as are exposed for a long time to a glittering white surface (for instance, snow in bright sunshine). Spectacles are also used to cure squinting. These have no glasses, but consist merely of a thin plate of some substance. In the middle, opposite the axis of the eye, there is a small opening, to which the pupil must turn, in order to see any thing. In this way it gradually becomes accustomed to the proper direction. The ancient Greeks and Romans were entirely unacquainted with the use of spectacles. In the twelfth century, we find a discovery mentioned by an Arabic writer, Alhazen, which might have led to the invention of spectacles. At the close of the thirteenth century, Roger Bacon speaks of them. The common spectacles must have been invented early (1280—1311). In Germany, a kind of spectacles were known in 1270. For further information, see the article *Optics.*

SPECTRUM, PRISMATIC. See *Colours, Doctrine of;* also *Optics.*

SPEECH, ORGANS OF. See *Voice.*

SPELMAN, Sir Henry, a celebrated English antiquary and philologist, born in 1562, was sent, at the age of fifteen, to Trinity college, Cambridge, and entered as a law student at Lincoln's Inn; but he seems to have paid little attention to legal science at this period, and within three years he settled on his estate in the country. At length embarrassments, partly arising from a numerous family, aroused him to the exertion of his talents. He went to Ireland in 1607, as member of a board of commissioners for settling the titles to lands and manors in that kingdom; and he was afterwards employed to investigate the subject of the exaction of fees by the civil and ecclesiastical courts. On this occasion, he drew up his treatise *De Sepultura*, in which he demonstrates the flagrant abuses which had occurred to his notice. His services were rewarded with the honour of knighthood. In 1612,

he settled in London, devoting his leisure to the study of the juridical antiquities of his native country. Having purchased the lands which had belonged to two suppressed monasteries, and meeting with obstacles to the quiet enjoyment of the property, he began to entertain scruples of conscience relative to the alienation of church lands, and wrote on the subject his work entitled *De non temerandis Ecclesiis*. On the revival of the society of antiquaries in 1614, Sir H. Spelman became a member, and produced a Discourse concerning the Original of the four Law-terms of the Year. In his researches into legal archæology, he found it necessary to study the Saxon language; and this led to the composition of his great work, the Archæological Glossary. He printed a specimen in 1621, and in 1626 appeared the first part, entitled *Archæologus in Modum Glossarii ad Rem Antiquam posteriorem* (folio). Before he had completed the glossary, he engaged in preparing a History of English Councils, of which the first part, to the Norman conquest, appeared in 1639; and two additional volumes were subsequently published, partly from the papers of Spelman, by Sir W. Dugdale. In 1639, likewise, appeared his last work, entitled the History of Tenures by Knights' Service in England. His death took place in 1641, and his body was interred in Westminster abbey. Besides the works already noticed, he was the author of a History of the Civil Affairs of the Kingdom from the conquest to the Grant of the Magna Charta; a Treatise concerning Tithes; a History of Sacrilege; Aspilogia; &c. His English works were published, collectively in a folio volume, in 1727.

SPELTER. See *Solder*.

SPENCE, Joseph, a critic, was born in 1698, and received his education at Oxford, where he obtained a fellowship. In 1727 appeared his Essay on Pope's Translation of the Odyssey, which led to an intimate friendship with the poet. In 1728, he was elected professor of poetry at Oxford; and he afterwards travelled abroad with the earl of Lincoln. On his return, he obtained a living in Buckinghamshire, and, in 1754, was promoted to a prebendal stall in Durham cathedral. After the death of his friend, Mr Rudge, in 1763, he resided much with the widow of that gentleman, who usually spent the summer months at Weybridge, in Surrey. On the morning of August 20, 1768, Mr Spence was found, by a servant, lying on his face in a shallow piece of water, into which it appeared that he had fallen, and, being unable to extricate himself, he was unfortunately drowned. His principal work is entitled *Polymetis*, or an Enquiry into the Agreement between the Works of the Roman Poets and the Remains of ancient Artists (1747, fol.). In 1819 appeared Anecdotes, and Characters of Books and Men, collected from the Conversations of Mr Pope, and of other Persons, from a manuscript of Mr Spence, with his life, &c. by S. W. Singer (8vo.).

SPENCER, George John, earl, was of the second branch of the Spencer family, the elder possessing the title of duke of Marlborough. His father, in 1761, was created baron Spencer, and, in 1764, viscount Althorpe and earl Spencer. George John was born in 1758, and was educated at Harrow, and afterwards had for his tutor the celebrated Sir William Jones. From Harrow he removed to Trinity college, Cambridge. When he had completed his education, he travelled, and on his return was elected member of parliament for the county of Northampton. In 1789, by his father's death, he became earl Spencer. In the house of lords, he voted with the whigs, till the period of the French revolution, when, with some others of the party, he joined the administration, and held the place of first lord of the admiralty. In 1801, he retired with Mr Pitt, but afterwards again joined his old friends, and, when they came into place, in 1805, he was appointed secretary of state for the home department. He died at his seat of Althorp, in Northamptonshire, on the 10th November, 1834. Earl Spencer was one of the principal members of the Roxburgh club, and possessed the largest and richest private library in the world: the foundation of it was laid in 1789, by the purchase of count Rewiczki's collection, for an annuity of £500 sterling. This he increased, at a great expense, by collecting books in all parts of Europe. The greater part of the library is at Althorp, and consists of 45,000 volumes: the rest is at London. A catalogue of the rarest and most costly works of the collection has been prepared by Dibdin—*Bibliotheca Spenceriana*, or a descriptive Catalogue of the Books printed in the fifteenth century, and of many valuable first Editions (4 vols., 1814). It contains engravings, wood cuts and fac similes illustrative of 1004 incunabula.—Earl Spencer's eldest son, John Charles, known as viscount Althorp, chancellor of the exchequer, during the period in which the Reform Bill was enacted, and therefore ministerial leader in the house of commons, was born in 1782, educated at Cambridge, entered parliament in 1803, was one of the lords of the treasury during Fox's short administration (1806), and was soon after returned for Northamptonshire, which he continued to represent until, by the death of his father, he became earl Spencer, and was removed to the house of peers.

SPENER, Philip Jacob, a celebrated divine of the Lutheran church in the seventeenth century, was born in 1635, at Rappolsweiler, in Upper Alsace. His piety was early awakened by his patroness, the countess of Rappolstein, and was confirmed by witnessing, at the age of fourteen years, her preparation for death. In 1651, he commenced his theological studies at Strasburg, became, in 1654, tutor of the princess of the Palatinate, and delivered lectures on philosophy and history. From 1659 to 1662, he travelled in Germany, Switzerland and France, where he became acquainted with the Jesuit Menestrier, celebrated for his knowledge of heraldry, and, having been thus led to study this science, wrote several works on heraldry, still much esteemed. In 1664, he was made doctor of theology at Strasburg, and, in 1666, he received the first place among the clergy at Frankfort on the Maine. His practical sermons, which deviated entirely from the dogmatico-polemic method then universal, were received with much applause. In 1670, he instituted his celebrated *collegia pietatis*, which, against his will, became the origin of *pietism*. From this time, Spener's history is wholly connected with this remarkable change in the religious state of Protestant Germany, as it was chiefly owing to his example and the spirit of his writings. The Lutheran church, at that time, was fast sinking into a lifeless dogmatism. Doctrines, forms and polemics were confounded with a religious life. Spener, in his *Pia Desideria* and other treatises, exposed the evils of this state of things, and showed how the important office of the ministry had become alienated from its proper purpose—that of instructing the people in true religion, correcting

their faults, and alleviating their afflictions. He was violently opposed by the clergy, who reproached him with not making any difference between practical and theoretical theology. But posterity acknowledges his services in the restoration of catechetical instruction, which had been almost entirely forgotten. From 1686 to 1691, he was preacher to the court in Dresden, and even then occupied himself with the religious teaching of children. A representation which he made to the elector in writing, respecting his faults, brought him into disgrace. He went, in 1691, to Berlin, where he took an active part in the foundation of the university of Halle. In 1698, the court of Dresden invited him to return; but he preferred to remain in Berlin, where he was in the possession of high appointments. He died in that city, in 1705. In his letters, reports, opinions, &c., a truly Christian benevolence and zeal for the cause of goodness is perceptible. Spener may be compared with Fenelon.

SPENSER, EDMUND, a celebrated English poet, was born in London, near the Tower, about 1553. It is not known where he received his early education, but he was admitted as a sizar of Pembroke hall, Cambridge, in 1569, and graduated M. A. in 1576. On leaving the university, he took up his residence with some relations in the north of England, probably as a tutor, where he unsuccessfully wooed a lady, whom he records in his Shepherd's Calendar, under the name of Rosaline, which was his first publication, and appeared in 1576. The year preceding, he had been advised by his friend Gabriel Harvey to remove to London, where he was introduced to Sir Philip Sidney, to whom he dedicated the Shepherd's Calendar. In 1580, he accompanied lord Grey de Wilton, lord lieutenant of Ireland, as his secretary. He returned, in 1582, with lord Grey, who, in conjunction with the earl of Leicester and Sir Philip Sidney, procured for him, in 1586, a grant of 3028 acres in the county of Cork, out of the forfeited lands of the earl of Desmond; on which, however, by the terms of the gift, he was obliged to become resident. He accordingly fixed his residence at Kilcolman, in the county of Cork, where he was visited by Sir Walter Raleigh, who became his patron in lieu of Sir Philip Sidney, then deceased, and whom he celebrates under the title of the Shepherd of the Ocean. He was then engaged in the composition of the Faery Queen, of which he had written the first three books. With these he accompanied Raleigh, the next year, to England, where they were published, with a dedication to queen Elizabeth, and an introductory letter to Raleigh, explaining the nature of the poem. Raleigh also gained him the favour of the queen, who rewarded his poetry and dedication with a pension of fifty pounds per annum. In 1591, he returned to Ireland; and, the succeeding year, his rising reputation induced his bookseller to collect and print his smaller pieces. He then passed an interval of two or three years in Ireland, where, in 1594, he married, being then in his forty-first year. His happiness was disquieted by the disturbances excited by the earl of Tyrone, which were probably the cause of his revisiting England the following year. Here he printed some poems, and drew up his View of the State of Ireland; which, in consequence, it is supposed, of the severity of some of its suggestions, lay in MS. until printed, in 1633, by Sir James Ware, who bestows much applause on the information and judgment displayed in it. In 1596, he published a new edition of his Faery Queen, with three additional books. Of the remaining six, which were to complete the original design, two imperfect cantos of Mutabilitie only have been recovered, which were introduced into the folio edition of 1609, as a part of the lost book, entitled the Legend of Constancy. There has been much controversy in respect to the presumed loss of the remainder of these six books on the poet's flight from Ireland: the most probable conclusion, from the investigation, is, that they were never finished, but that some parts of them were lost on that melancholy occasion. In 1597, he returned to Ireland, and, in September, 1598, was recommended to be sheriff of Cork. The rebellion of Tyrone, however, took place in October, and with such fury as to compel Spenser and his family to quit Kilcolman in so much confusion that an infant child was left behind, and burnt with his house. The unfortunate poet arrived in England with a heart broken by these misfortunes, and died the 16th of the following January, 1599, in the forty-sixth year of his age. It is asserted that he terminated his life in great distress; but it has been contended that the poverty referred to by Camden and several of his poetical contemporaries, applies rather to his loss of property generally than to absolute personal suffering. This inference seems the more probable, as he was interred in Westminster abbey at the expense of the earl of Essex, who would scarcely have allowed the man to starve whom he thus honoured. A monument was afterwards erected over his remains by the celebrated Anne, countess of Dorset. Of the personal character of Spenser there is no direct testimony; but the friendships which he formed are favourable to its respectability, which is also to be implied from the purity, devotion, and exalted morality of his writings. Neither, although he paid assiduous court to the great, was he guilty of the mean adulation so common in his time, except, indeed, to queen Elizabeth, by whom, both as a sovereign and a woman, it was levied as a kind of tax. As a poet, although his minor works contain many beauties, Spenser will be judged chiefly from the Faery Queen, the predominant excellencies of which are imagery, feeling, and melody of versification. With all its defects, it furnishes admirable examples of the noblest graces of poety, sublimity, pathos, unrivalled fertility of conception, and exquisite vividness of description. Its great length and want of interest, as a fable, added to the real and affected obsoleteness of the language, may, indeed, deter readers in general from a complete perusal; but it will always be resorted to by the genuine lovers of poetry as a rich store-house of invention. The stanza which Spenser has adopted in the Faery Queen, is usually called the *Spenserian*, either because he invented it, or was the first to apply it to extensive use. It consists of a strophe of eight decasyllabic verses, and an Alexandrine, and has a three-fold rhyme,—the first and third verses forming one, the second, fourth, fifth, and seventh another, and the sixth, eighth, and ninth the third. It is susceptible of great variety of expression, and admits equally of the most different kinds of composition—the droll or pathetic, descriptive or sentimental, tender or satirical. The best editions of Spenser's works are those of Hughes and Todd (8 vols., 8vo., 1805, with notes and a life). See Warton's *Observations on the Faery Queen*.

SPERMACETI, SPERM OIL. See *Fat*, and *Whale*.

SPESSART; a woody, mountainous chain of Germany, in the Bavarian circle of the Lower Maine, extending along the right bank of the Maine, by which it is nearly surrounded. The highest summit is Geyersberg, 2000 feet high. There are about 300,000 acres (*morgen*) of forest, belonging principally to the crown of Bavaria, and consisting chiefly of oak and beech. Cobalt, copper, and iron are obtained in the Spessart. Aschaffenburg, on the south-western edge, is the principal place.

SPEYER, OR SPEIER. See *Spire*.

SPEZIALE, member of the junta of government, instituted in 1799, at Naples, was the son of a peasant of Borgetto, not far from Palermo. His servile deportment procured him a place in the *corte prætoriana e capitanale* at Palermo. When the court of Naples fled to Sicily, he showed a bitter hatred towards the French, and violently persecuted the suspected, so that the chevalier Acton appointed him to try the persons accused of having taken part in the revolution. Even before the French had left Naples, he began to exercise his office on the island of Procida, which was protected by Nelson. He surrounded himself with gibbets and executioners, and every day was marked with executions. The cruelty of his character now became manifest. No sex, age, or class was spared. No defence was allowed. Hardly was the cardinal Ruffo in possession of the capital, when Speziale received orders to transfer his bloody court thither. He even deceived his own friends, and allured them to their destruction. This monster followed the court to Palermo in 1806, became insane soon after, and died distracted, in 1813, loaded with the curses of the nation.

SPEZZIA. See *Hydra*.

SPHAGNUM; a very natural genus of mosses, easily recognised when once known, and remarkable for the whitish colour of the leaves. These plants are soft, flaccid, and, when moistened, absorb water like a sponge, but become friable in drying. They grow in moist places, and are usually saturated with water, often occupying, exclusively, considerable tracts of marshy ground. The formation of peat, in such situations, is often owing, in a great measure, to the presence of these plants. They are found in all parts of the globe, from the equator to the polar regions, and to the summits of the highest mountains. They are excellent for enveloping the roots of plants intended for distant transportation.

SPHERE; a solid, every point of the surface of which is equally distant from a certain point within the same, called its *centre*. It is generated by the rotation of a circle upon one of its diameters as an axis. Any circle described on the sphere, and whose centre is that of the sphere, is called a *great circle*. The solid contents of a sphere are to those of a cylinder (q. v.) of equal base and altitude, (the diameter of the base of the cylinder being equal to that of the sphere) in the proportion of two to three; to those of a cone of equal base and altitude as two to one. These proportions were discovered by Archimedes. Nature, from the egg of the smallest worm, and from the drop of dew to the largest body in the universe, strives after the form of the sphere. Therefore, in antiquity, when the spiritual was represented by the sensible, many philosophers conceived of God under the form of a sphere.

SPHEROID; a solid, generated by the entire rotation of a semi-ellipse, or other curve not differing much from it, upon its axis. As our earth has the form of a sphere, flattened at the poles, it belongs to the spheroids. Telescopes show a similar form in Jupiter and Saturn; and there are sufficient grounds for ascribing the same form to all the heavenly bodies which have a rotation on their axis. See *Earth*.

SPHINX; a fabulous monster, which figures both in the Grecian and Egyptian mythologies, and was probably of Egyptian origin. The sphinx of the Greeks is distinguished for cruelty as well as wisdom. Juno, says the fable, provoked with the Thebans, sent the sphinx, the daughter of Typhon and Echidna, to punish them. It laid this part of Bœotia under continual alarms by proposing enigmas, and devouring the inhabitants if unable to explain them. The Thebans were told by the oracle that the sphinx would destroy herself as soon as one of the enigmas she proposed was explained. In this enigma, the question proposed was, what animal walked on four legs in the morning, two at noon, and three in the evening. Upon this, Creon, king of Thebes, promised his crown and his sister Jocasta in marriage to him who should deliver his country from the monster by a successful explanation of the enigma. It was, at last, happily explained by Œdipus, who observed that man walked on his hands and feet when young, or in the morning of life; at the noon of life he walked erect; and in the evening of his days, he supported his infirmities upon a stick. (See *Œdipus*.) The sphinx no sooner heard this explanation than she threw herself from a rock, and immediately expired. The Egyptian sphinx does not appear to have been distinguished by the same traits of character. It is formed with a human head on the body of a lion; is always in a recumbent posture, with the fore-paws stretched forward, and a head-dress resembling an old-fashioned wig. The features are like those of the ancient Egyptians, found in the ancient ruins. The colossal sphinx, near the group of pyramids at Gize, has recently been uncovered by Caviglia. It is about 150 feet long and sixty-three feet high: the body is monolithic; but the paws, which are thrown out fifty feet in front, are constructed of masonry. The sphinx of Sais, formed of a block of red granite twenty-two feet long, is now in the Egyptian museum in the Louvre. There has been much speculation concerning the signification of these figures. Winckelmann observes that they have the head of a female, and the other parts of a male, which has led to the conjecture that they are intended as emblems of the generative powers of nature, which the old mythologies are accustomed to indicate by the mystic union of the two sexes in one individual.

SPHRAGISTICS (from σφραγις, a seal); a branch of diplomatics which teaches the history of seals and the means which they afford of determining the genuineness of the documents to which they are attached. Originally, only persons of rank, churches, convents, or corporations, had the right to use seals. The old seals represented the persons to whom they belonged either on foot (*sigilla pedestria*) or on horseback (*sigilla equestria*), or had figures emblematical of their dignity. They are round or oval, impressed in gold, silver, lead, but generally in wax of various colours. The difference in the colour of the wax indicated different degrees of dignity, &c. In the sixteenth century,

sealing-wax came into use. (See *Seal.*) Sphragistics, as a science, dates from the great work of Heineccius on seals, in 1709 (new edition 1719, folio, Leipsic). See also Ficoroni's *I Piombi Antichi* (Rome, 1740, 4to.); Manni's *Osservazioni istoriche sopra i Sigilli antiche de' Secoli Bassi* (Florence, 1739—86, 30 vols., 4to.); and Ph. W. Gercken's *Ammerkungen über die Siegel zum Nutzen der Diplomatik* (Augsburg, 1781; Stend., 1786).

SPICE ISLANDS. See *Moluccas.*

SPIDER (*aranea*). These well-known animals are among the most interesting of the insect world, from their habits and mode of life. They differ essentially, in their internal structure, from insects proper, and their external form is so peculiar that they are easily recognised. The body is composed of two pieces only, the head being united with the thorax; and the feet are always eight in number; the jaws consist of two cylindrical, horny pieces, each having a palp, or feeler, at base, and terminated by a movable hook; the eyes are six or eight, variously disposed in the different genera, but always simple. They do not undergo metamorphoses; all envelope their eggs in a cocoon of silk, varying, however, in form and texture. The spiders are now arranged under numerous genera, differing, not only in anatomical characters, but very generally in their habits and the form of the web which they construct. The most familiar form of a web is that of a wheel, perpendicular or slightly inclined, having its radii or spokes crossed by numerous concentric circles; in the centre of this the spider remains immovable, or more frequently in a little cell, at some distance from the web, but connected with it by threads. The struggles of an entangled insect communicate an undulatory motion to the whole web, which gives notice to the spider, who immediately sallies forth, and, if his victim be small, seizes it at once, and immediately sucks its blood: if, however, it be too large to be thus disposed of, the spider rolls it with his hinder feet, encircling it with a new thread at every turn, until, sometimes, the insect is completely coated, when it may be devoured at pleasure. Other spiders spin an irregular web, consisting of threads intersecting each other at every angle. Others, again, make a horizontal, closely-matted web, having a funnel-shaped retreat, into which they convey their prey. Others make only a retreat by binding a few leaves together, from which they sally forth and seize insects which approach them. Some of these seem to be extremely venomous; for it is observed that no insect that has been once bitten by them, ever recovers, even though it be many times larger and more powerful than its adversary. Some are aquatic, and spin a cup-like web, which answers the purpose of a diving-bell, under which they disengage the air they bring down from the surface, and pass their lives feeding on aquatic insects. Some spiders spin no web, but take their prey by running; others, by approaching quietly till within a certain distance, when they suddenly leap upon their prey. Other spiders form cylindrical and perpendicular holes in the ground, into which they retreat on the approach of danger.

SPINAGE (*spinacia oleracea*). This plant is a native of Persia, and has been cultivated in Europe, as an esculent, for about two centuries. The root is annual; the stem herbaceous, smooth, upright, a foot or more high, and somewhat branching; the leaves alternate, petiolate, and arrow-shaped; the flowers small and greenish, disposed in several little bunches, in the axils of the superior leaves, and dicœcious: in short, the whole plant much resembles some of the species of goose foot (*chenopodium*), to which genus it is allied in its botanical characters. It is eaten sometimes in salads, but more frequently, cooked in various manners. It is a wholesome and agreeable aliment, but contains little nutriment, and is not suitable for delicate stomachs. The plant is of the easiest culture, and may be procured nearly all the year round, by sowing at intervals of time. It requires a rich soil, and frequent watering in dry weather.

SPINE (from *spina*, thorn, so called from the shape of the processes of the vertebræ), in anatomy the vertebral or spinal column, the *back-bone* in common language, is the articulated bony pillar at the back of the trunk, forming the foundation or basis of support and connexion to all the other parts of the frame. It is placed perpendicularly in the body, supporting the head on its upper extremity, while the lower end rests on the pelvis. The bones of the chest, to which the upper extremities are attached, are fixed to its sides, while the *ossa innominata*, or the great bones to which the lower limbs are articulated, are immovably united to it below. It is the point of attachment and support in front for the viscera of the thorax and abdomen, and for the great trunks of the blood-vessels. We may thus regard it as the central and most essential piece of the skeleton, as the centre of motion for the head and limbs, and the basis of support for all the great internal organs. Again, the bones which compose it give attachment to the principal muscles moving the head, the shoulders and the arms, to those which act on the trunk, and to some part of the abdominal muscles, and of those which move the lower limbs. Further, it constitutes a canal, which receives and protects the spinal marrow, and gives issue to the various nerves proceeding from that organ to the trunk and limbs. The importance of the spine is so great that it modifies all the details of the organization of the animals which possess it. It is formed of twenty-nine pieces of bone, strongly articulated into each other, and placed in succession from above downwards. The twenty-four upper ones are called *vertebræ*.

Distortions of the Spine are the unnatural inflections of the spine, which gave a more or less deformed figure to the trunk, and even to the limbs; hence wry neck, high shoulders, humpback, uneven hips, lameness, &c., are very frequent among the higher classes of our time, particularly among females, and generally owing to want of care or judgment in those who have charge of children, or to the injudicious habits of the persons afflicted, and frequently aggravated or made permanent by improper means used for remedying them. The beauty of the whole body depends chiefly upon the natural formation of the spine. This column of vertebræ ought not permanently to deviate from the straight line to the right or left; but it has naturally some slight curvatures forwards and backwards. In the region of the loins, it is bent a little forward; in the region of the chest, a little backward, and, at the neck, again, somewhat forward. This regular formation of the spine is produced by the character of the vertebræ, the cartilages which unite them, and the muscles of the back, which support and move them. If the vertebræ themselves suffer from disease, as, for instance, in case of rickets, the spine is not capable of supporting the head and

keeping the body straight, it becomes curved, and, if remedies are not applied in season, this unnatural curvature increases daily, and permanent distortion at length takes place. If the cartilages and ligatures suffer relaxation, as in case of a debilitated state of the body, the spine cannot, after every motion, resume its proper position, and it may easily happen that some vertebræ become partially dislocated, and thus a disposition to distortion takes place, because the part of the spine over these vertebræ is deprived of its proper support, and must incline to one side. The muscles of the back, situated on both sides of the spine, equal in number and form, and destined not only to execute the manifold movements of the trunk, but also to maintain, by the equilibrium of their power, the straight direction of the spine, frequently occasion distortions, by losing their vigour; for the spine, in this case, wanting its natural support, inclines sideways or backwards. The same effect may be produced by too frequent or too continued use of one set of muscles in a particular way; for the spine becomes at last permanently fixed in the posture which it has been compelled to assume during the exercise. This survey shows us the various causes of distortions, and the proper means for preventing them. The causes may be reduced to diseases and injudicious habits. The diseases of children which may occasion distortions of the spine are chiefly scrofula and rickets, so often connected with it, and general debility. These diseases may be best prevented by the use of food easily digestible by pure air, hard beds not too warm, frequent exercise, great cleanliness, frequent bathing, washing and rubbing the skin, and similar requisites of a good physical education. The muscles of the back are often debilitated by compelling children, particularly weakly ones, to sit up in a constrained posture, which distresses the spine, and produces a sinking and bending in search or relief, or by allowing children too little free movement and exercise, and obliging them continually to sit still and read—the surest mode of producing physical and intellectual cripples. The use of corsets also contributes much to the weakness of the dorsal muscles, and consequently to distortion of the spine. If the shoulders are continually supported artificially by a corset, the dorsal muscles, destined by nature to keep the spine straight, remain inactive, and lose their power, the body becomes unable to support itself without the corset, and a sinking and bending take place as soon as it is removed. If to this is added the continual command, perhaps accompanied by threats, to sit straight, which has become actually impossible to the child, its exertions result in nothing but a curvature of the spine, which is therefore so frequent in girls of the higher classes, but in boys of the same families, who are neither tormented with corsets, nor admonished so repeatedly to sit straight, is much rarer. The second cause of distortions—injudicious habits—deserves particular attention, because much may be done to prevent them. The habit of many nurses to carry children always on the same arm, accustoms the child to incline always towards one side, and to sleep in one position, from which a distortion of the spine naturally arises in the course of time. The bad position of the body in some amusements and occupations; for instance, the manner in which young people sit in writing, reading, drawing, sewing, embroidering, playing on the flute, violin, harp and guitar; the habit of crossing the feet in standing, or of standing on one foot; the habit of lying crooked in bed, and even the habit of girls to spend a long time in a constrained position dressing their own hair,—may occasion distortion of the spine. Every one-sided motion, often repeated, may produce a tendency to such distortion, and, the tendency once existing, the evil increases every day. This distortion, besides disfiguring the body, and unfitting the subject for certain avocations, also tends to produce inflammation of the lungs, dropsy of the chest, pulmonary consumption and apoplexy, a general disturbance of the health, and early death. With women, it often gives rise to painful labours, and sometimes makes a natural delivery impossible. The proper means of guarding against distortion we have already suggested in the directions respecting food, air, exercise and cleanliness, the prevention of ill habits on the part of nurses, and of the children themselves, and in the important rule, not to compel a straight carriage of the body by the wearing of corsets, nor by the continual injunction to stand and sit straight, as both tend directly to produce the evil intended to be prevented. It is important to detect a distortion of the spine as early as possible. It is therefore the duty of mothers and governesses to examine often the body of children. The child should be undressed, and placed in such a way (not lying down) that the entire back may be seen. The head must be held straight, the face directed forwards; the arms must hang down, and the whole position must be as easy as possible. Then the vertebræ must be struck slightly with the hand, to discover if there is a prominence or a sensation of pain in any place. The examiner should then proceed to the parts of the body on each side of the spine, which ought to be perfectly equal. The neck, the shoulders, and the hips, are to be looked at: if the latter are uneven, the hip joints and feet must be also tried. The examiner should also see whether the breast-bone be precisely in the middle of the breast, and whether it forms a straight line, whether the clavicles are uniform, whether the ribs lie even. With grown girls, the unevenness of the breasts often furnishes the earliest sign of distortion of the spine. These examinations ought to be made once or twice a week, and in the case of girls, even after they have arrived at maturity, because the years immediately succeeding the period of puberty are are those in which distortions are most frequently manifested in the female sex, and because a cure can be hardly expected much after the twentieth year. Attention to distortion ought not to be delayed until a high shoulder or hip shows itself; these are only proofs of a distortion which has already long existed. If, however, any thing like distortion is perceived, do not resort to the means so often recommended of suspension by the arms, or the use of plasters, which can avail nothing, and do not expect that the dancing-master can remedy the evil, which will only increase under his lessons. Assistance can be rendered only by a physician familiar with these deformities, and who has made himself acquainted with the general state of body of his patient by a careful examination. The cure must not be expected too soon; and the orders of the physician must be scrupulously obeyed. Too much reliance is not to be placed on machines.—See Wenzel, *On the Diseases of the Spine* (with engravings, Bamberg, 1824, folio); see, also, *Orthopædic Institutes*.

SPINELLAN. See *Sodalite*.

SPINELLE (*Spinelle Ruby* and *Pleonaste*). The

primary form of this species is the regular octahedron; and this is the figure under which it generally occurs. It is rarely modified by the truncation or the bevelment of its edges, and sometimes presents itself in hemitrope crystals. Its crystals vary in dimensions, though they are usually not above the size of a pea. Their cleavage is very difficult; fracture conchoidal; lustre vitreous; colour red, passing into blue and green, also into yellow, brown and black; transparent to opaque; hardness above that of quartz; specific gravity 3·5. The red varieties of spinelle are called, by jewellers, *spinelle ruby*, while those possessed of a darker colour are called *Ceylonite* or *Cleonaste*. The following analyses—the first of which is by Berzelius, the second by Klaproth, and the third by Descotils—exhibit the chemical composition of the species:

	1. Blue Spinelle.	2. Spinelle Ruby.	3. Pleonaste.
Alumine,	72·25	74·50	68·00
Silex,	5·45	15·50	2·00
Magnesia,	14·63	8·25	12·00
Oxide of Iron,	4·26	1·50	16·00
Lime,	0·00	0·75	0·00
	96·59	100·50	98·00

The red varieties, exposed to the heat of the blowpipe, become black and opaque; on cooling, they appear first green, then almost colourless, and at last re-assume their red colour. They are with difficulty fused with the aid of borax—melting, however, a little more easily with salt of phosphorus. Pleonaste yields a deep green colour to the globule. The original depositaries of this species are white limestone and a drusy volcanic rock. It is often found, however, in more recent deposits, formed by diluvial or alluvial action, along with crystals of corundum and zircon. The isolated crystals chiefly come from Ceylon. In Südermannland, in Sweden, bluish and pearl-gray varieties occur, imbedded in granular limestone. Crystals of a green colour are found imbedded in the drusy cavities of rocks ejected by Vesuvius. But the United States surpass the rest of the world, both as to the number of the localities of spinelle, and the dimensions of its crystals. It abounds particularly in the towns of Amity and Edenville, in Orange county, New York; at which places it occurs in a highly crystalline, white limestone, and likewise loose in the soil, in crystals varying from the size of a pea and under, to those whose smallest diameter is four inches. Their colours are either black, or dark greenish, or bluish black, though it is rarely of a pale pink, or reddish-brown. These crystals are associated with hornblende, mica, augite, idocrase and scapolite. Spinelle of a rich green colour is also found in the county of Sussex, New Jersey. The crystals from this spot are highly modified in their figure, and are sometimes nearly transparent. Green and blue spinelle is also found in Massachusetts. Clear and finely-coloured red varieties of the present species are highly prized as ornamental stones in jewelry. They go generally by the name of *spinelle ruby*, or *balas ruby*.

SPINET: a stringed instrument, formerly much in use, but now superseded by the pianoforte, somewhat similar to the harpsichord, and, like that consisting of a case, sounding-board, keys, jacks, and a bridge. The difference between the spinet and the harpsichord is, that the latter is larger, and contains two or three sets of jacks and strings so disposed and tuned as to admit of a variety of stops, while the former has one set of jacks and strings, and consequently only one stop. When the spinet was first brought into use, though its invention was certainly anterior to that of the harpsichord, is not exactly known. But that it is derived from the harp is evident, from its character as well as construction, internal and external; and, indeed, it was originally called the *couched harp*, since denominated *spinet*, from its quills, which resemble thorns, called in Latin *spinæ*.

SPINNING. When the fibres of cotton, wool, or flax, are intended to be woven, they are reduced to fine threads, of uniform size, by the well known process of spinning. Previously to the middle of the last century, this process was performed by hand, with the aid of the common spinning wheel. Locks of cotton or wool, previously carded, were attached to a rapidly revolving spindle, driven by a large wheel, and were stretched or drawn out by the hand, at the same time that they were twisted by the spindle, upon which they were afterwards wound. Flax, the fibres of which are longer and more parallel, was loosely wound upon a distaff, from which the fibres were selected and drawn out by the thumb and finger, and at the same time were twisted by flyers, and wound upon a bobbin, which revolved with a velocity somewhat less than that of the flyers. The manufacture of flexible stuffs by means of machinery, operating on a large scale, is an invention of the last century. Although of recent date, it has given birth to some of the most elaborate and wonderful combinations of mechanism, and already constitutes, especially in Britain, an important source of national wealth and prosperity. See *Cotton Manufacture* and *Woollen Manufacture*.

SPINOLA, Ambrose, marquis of, one of the most distinguished generals of his age, was born at Genoa, in 1569. His brother Frederic, who had been appointed to the command of the Spanish fleet on the coast of the Netherlands, induced him to join the Spanish forces in the Low Countries, with 9000 Italian and Spanish veterans. After the manner of the old Italian *condottieri*, or leaders, who collected forces on their own account, and then served at their head in the pay of the Italian states, he was permitted to pay his troops himself, and to receive his compensation from the Spanish treasury. This circumstance, at a time when the conduct of wars depended so much upon the troops being paid regularly, and the best concerted expeditions failed for want of money, assured him of the success which soon rendered him so celebrated. While mutiny and insubordination prevailed in the rest of the army, his 9000 Walloons were models of discipline and order. The archduke, Albert of Austria, whom Philip II. had appointed governor of the Netherlands, employed Spinola in the capture of Ostend, which had been so long besieged by the Spanish troops, that Albert despaired of reducing it. Spinola was more successful: it fell into his hands in 1604, after having sustained a siege of three years and two months. He obtained possession of a mere heap of ruins, but his reputation was at once spread over all Europe, in which every eye was fixed upon this siege. Spinola hastened to Madrid, to give the feeble Philip information of the state of his troops, and received full powers to suppress their disorders. He was named commander-in-chief of all the Spanish and Italian forces in the Netherlands. On his way back to the theatre of war, he had a conversation with Henry IV., at Paris, who inquired of him his plan for the next campaign. Spinola explained to him all his designs without reserve; but Henry supposing that this was a mere feint,

and that he would follow exactly a contrary course, communicated his suspicions to prince Maurice, and both of them were thus completely duped. "Others," said Henry, "deceive their enemies by falsehood, Spinola by the truth." Maurice at length discerned the artifice, but was able to gain no decisive advantage over his adversary. The two generals ably availed themselves of the fortresses and nature of the ground, to keep each other in check. A decisive naval action near Gibraltar, in which the whole Spanish fleet was destroyed by the Dutch admiral Heemskerk (1607), induced the Spanish court to propose an armistice, which was concluded between Spinola and Maurice for twelve years (1609). The neighbourhood of Juliers-Cleves-Berg had tempted the Dutch to take part in the dispute concerning the succession to that duchy, (see *League*), and Spain, instigated by hatred of Protestantism, by her connection with the house of Austria, and the hope of recovering her lost dominion over Holland, entered into the war (1621). Cleves fell into the hands of Spinola, Breda was invested by the Spanish forces, and Maurice perished in his efforts to compel the enemy to raise the siege. Spinola himself was made sick by the noxious air of the marshy soil; but the gates were finally opened to him after a ten months' siege (May 1625). This was his last achievement; his health obliged him to resign the command, although he once more appeared in the field, in Italy (1630). but chagrin at the ill-treatment of the Spanish court, hastened his death, which took place in 1630, too soon for Spain, but not too soon for his fame, which, perhaps like that of Tilly, would have suffered, had he lived to encounter Gustavus Adolphus. His rival Maurice, when asked who was the greatest captain of the age, said "Spinola is the second."

SPINOZA, BARUCH, or as he translated his name, BENEDICT, was born in 1632, at Amsterdam, of a Jewish Portuguese family, and early gave proof of a reflecting mind and an independent spirit, which a scanty education only excited to new efforts. He was early dissatisfied with the instructions of the rabbins, and determined to examine for himself. The goodness of his disposition could not preserve him from persecution when his mode of thinking was discovered. He was calumniated and accused before the synagogue. He refuted the accusations with calmness, in spite of menaces on one hand, and zealous attempts to convert him on the other, but was at length excommunicated. He received the sentence with equanimity, and thenceforth joined no particular religious denomination. After this event Spinoza learned Latin and Greek of Van den Ende, a Dutch physician, and fell in love with his daughter; but a rival succeeded in winning her affections, and Spinoza remained unmarried. The Jews still persecuted him, and even attempted to assassinate him. Meanwhile he continued his investigations, at first following the doctrines of Descartes, as his Principles of the Cartesian Philosophy show, and for support, employed himself in grinding optical glasses. See Siegwart *On the Connexion of Spinozism with the Cartesian Philosophy* (Tub., 1816); and Ritter *On the Influence of the Philosophy of Descartes* (Leipsic, 1816). Through the intrigues of the Jews, he was banished from Amsterdam by the magistrates for several months, and retired quietly to the house of a friend. He then went to Rynsburgh, in the vicinity of Leyden, and to Voorburg, near the Hague, where he devoted himself, for three or four years, to philosophical investigations; and at length, in compliance with the solicitations of several friends, he settled permanently at the Hague. Here he published his two principal works. Even his enemies allow that he was very temperate, regular and frugal; in the intercourse of life, he was kind and gentle, always affable and equable, patient, diligently employed in writing or making telescopes, so that he would remain at home for three months together, seeking his chief recreation in a pipe of tobacco, or in observing the contests of flies with spiders. His disinterestedness appears from the circumstance that he refused a gift of 2000 florins and a valuable legacy from his friend Van Vries, who then bequeathed to him an annuity of 500 florins, which Spinoza reduced again to 300. To his avaricious sisters he gave up all his patrimony, which was legally adjudged to him, except a single bed, that he might assert his right. He had many distinguished friends with whom he corresponded. The prince of Condé invited him to visit him, in 1672, at Utrecht, and sent him a passport. Spinoza accepted the invitation, but missed seeing the prince, who had been obliged by business to leave the city. The elector palatine was anxious to draw him to Heidelberg as professor of philosophy, with liberty to lecture as he should see fit; but Spinoza refused. For more than twenty years he had a tendency to consumption, and for this reason, he observed the strictest temperance; but owing to the clearness of his mind, and the usual kindness of nature to those who labour under this disease, he was calm and cheerful. He died in 1677. Several different authors have written his life, especially Diez (Dessau, 1783) and Philipson (Brunswick, 1790). His works in the Latin language are, 1. the Principles of the Philosophy of Descartes, with an appendix, containing metaphysical opinions (Amsterdam, 1663, 4to.); 2. a Treatise, political and theological, in which it is shown not only that freedom of thought can exist without endangering the public peace and virtue, but that it must necessarily stand or fall with them (1670, 4to.); 3. Posthumous Works (Amsterdam, 1677, 4to.); to wit, *a*. Ethics, demonstrated geometrically; *b*. a Treatise on Politics; *c*. an unfinished work on the Improvement of the Mind; *d* an unfinished Hebrew Grammar; and *e*. Letters. H. E. G. Paulus published these works of Spinoza in two volumes (Jena, 1802—3). His system is principally laid down in his Ethics, though valuable information is also to be obtained respecting it from his Letters.

Spinoza felt like every other philosopher, the longing to elevate himself to a point at which the struggle between matter and mind, liberty and necessity, &c., is done alway, and all discord ceases. This led him to the idea of an original substance embracing all existence. Substance, of course, in this sense, means something very different from what we usually understand by the word. (See *Substance*.) This original substance, in which all contradictions cease, all subjects of finite consciousness disappear, he called God; by which he understood that which has an independent existence, and the understanding of which requires not the idea of any thing else. This substance, according to him, is infinite, and nought else exists; it is incapable of creating any thing material or intellectual, for all matter and mind are comprehended in itself; its attributes are infinite thought and infinite extension. God, this all-embracing being, can act only in accordance with the established order, for otherwise we must suppose him capable of a change of nature, or that there

exists a nature different from his own. Thought and extension, spirit and matter, finite and infinite, motion and repose, good and evil, causes and effects, are attributes of this sole substance, which produces nothing but modifications of itself. All that exists is only a necessary succession of modes of being in a substance for ever the same. It is impossible to give, in a work like the present, a satisfactory sketch of this system, which is very liable to be misunderstood, as it often has been. We can only refer the reader to the works mentioned below. The morality of Spinoza is founded mainly on force and utility.—See Jacobi's Work, *The Doctrines of Spinoza, in Letters to Mendelsshon* (Berlin, 1785; 2d ed., 1789); Moses Mendelsshon's *Morning Hours* (Berlin, 2d ed., 1786); and *To the Friends of Lessing, an Appendix to the Correspondence of Jacobi* (Berlin, 1786); also *God and Nature, according to the System of Spinoza*, by G. K. Heydenreich (Leipsic, 1789), with his *Animadversiones in Mosis Mendelii Filii Refutationem, etc.* (Leipsic, 1786); also Franke *On the modern Fate of Spinozism and its Influence on Philosophy generally* (Sleswic, 1812).

SPIRAL. Geometry usually considers two curves, under the name of *spirals*—the logarithmic and that of Archimedes. The latter is generally defined to be a curve of the circular kind, which in its progress recedes from its centre. But it is easily perceived that this definition is not mathematically satisfactory. The spiral may be imagined to be thus generated: If a right line has one end fixed while the other describes the periphery of a circle, and at the same time a point is conceived to advance continually on the right line from the fixed towards the moveable end, this point, with its double motion, will describe a spiral curve. The spiral spring of a watch gives a good idea of this curve.

SPIRE, OR SPEYER (anciently *Noviomagus*, and *Nemetes*); a city of Bavaria, capital of the circle of the Rhine, formerly the capital of a bishopric of the same name; 12 miles south-west of Heidelberg; lon. 8° 26′ E.; lat. 49° 19′ N.; population, 7700, chiefly Lutherans. It contains an old cathedral, in the Lombard or Byzantine style of architecture, begun by Conrad, in 1030, and finished by Henry IV., in 1061, and a gymnasium. It was frequently the seat of the German diet, and it was in the diet held here in 1529, that a *protest*, entered against certain proceedings of the emperor, procured for the reformers the name of *Protestants*. The Bishopric of Spire, in the circle of the Upper Rhine, contained about 55,000 inhabitants, on 594 square miles. Much of it is mountainous, and covered with forests. It was secularized in 1802, and now belongs partly to Bavaria and partly to Baden.

SPIRITUALES; the officers who superintended the observance of piety and good morals in the seminaries of the Catholic bishops, and direct the religious exercises; also a branch of the Franciscans.

SPIRITUALISM; that hypothesis in philosophy, according to which, 1. every thing is spirit; 2. the physical proceeds from the spiritual, and can be explained from it; 3. the human soul, in particular, is opposed to matter, or the physical phenomena can be explained from the soul. Spiritualism is opposed to materialism, and therefore may be called *immaterialism*. (See *Matter*.) The system of Des Cartes had the character of spiritualism.

SPIRITUOUS LIQUORS. See the article *Temperance*.

SPITHEAD; a noted roadstead for shipping in the British channel, situated between Portsmouth and the Isle of Weight, directly facing Portsmouth harbour. It is about twenty miles in extent, and is said to be capable of holding 1000 vessels in great security.

SPITTLE. See *Saliva*.

SPITTLER, LOUIS TIMOTHY, baron von, a distinguished German historian, was born at Stuttgart, in 1752. He showed, at a very early age, a disposition for historical and critical research. From 1771 to 1775 he studied at Tübingen. In 1777, he was an instructer in the theological seminary at Tübingen. Here he produced his Critical Inquiry into the 6th Loadicean Canon (Bremen, 1777); History of the Cup in the Lord's Supper; History of the Canon Law to the Times of the spurious Isidore (Halle, 1778), all in German; and was appointed *professor ordinarius* of philosophy at Göttingen. In 1797, he was made a privy counsellor in his native country. In 1806, he was appointed a minister of the Würtemberg government, and curator of the university of Tübingen. He died in 1810. His chief works are Sketch of the History of the Christian Church; History of Würtemberg under the Counts and Dukes (Göttingen, 1782); History of Würtemberg (ibid., 1783); History of the Principality of Hanover (1786); and Outlines of the History of the European States (3d ed., 1823) continued by Sartorius. He also wrote a History of the Danish Revolution of 1660 (1796), and many articles in the Göttingen Historical Magazine, which he edited in connexion with Meiners. All his works are in German. They are full of research, erudition, and just reflection, concise, yet complete. He never colours; the facts speak for themselves. His style is not free from negligence. His complete works were published by Wächer (Stuttgart, 1827). Plank, Heeren, Hugo and Woltmann have borne testimony to his merit.

SPITZBERGEN, OR EAST GREENLAND; a group of islands, in the Frozen sea, supposed to have been first discovered by Sir Hugh Willoughby, in the year 1553. They received their name from their mountainous and rocky appearance. The sun never sets for three months—June, July and August: for the rest of the year, it is hardly seen, light being chiefly produced by the Aurora Borealis. In the month of June it freezes; in July the heat is violent; the cold returns in August. On the coasts are found whales, sea-dogs, sea-cows and sea-lions, with other marine and amphibious animals. These islands are uninhabited. Eight British sailors, accidentally left there by a whale-fishing ship, survived the winter, and were brought home the next season. The Dutch attempted to settle a colony there, but the settlers perished. Schemeerenburg is the best harbour (in lon. 9° 51′ E.; lat. 79° 44′ N.) in the later season of the whale fishery. Lon. 6° to 16° E.; lat. 76° 30′ to 79° 40′ N. See the article *North Polar Expeditions;* and Scoresby's work on the *Arctic Regions*.

SPIX, JOHN BAPTIST von, a distinguished German naturalist, was born at Höchstadt, in Bavaria, in 1781, and, after devoting two years to the study of theology, was led, by his taste for natural science, to apply himself to medicine. In 1808, the Bavarian government provided him with the means of visiting Paris for the purpose of studying comparative anatomy; and soon after his return appeared his History of all Zoölogical Systems, from the time of Aristotle (in German). In 1815, he published his *Cephalogenesis, seu Capitis ossei Structura per*

omnes Animalium Classes, &c., tracing the human head, in its gradual development, from those of insects, up through all classes of animals. In 1817, doctor Spix was appointed by the government, with doctor Martius, to make a scientific expedition to Brazil. The travellers landed at Rio de Janeiro, July 14, and, after exploring the eastern parts of the empire, embarked on the Amazons, July, 1819, which they ascended, and returned to Europe in 1820. Doctor Spix died in 1826. The results of the expedition to Brazil have been given in the following works; Travels in Brazil (from the German, London, 1824); Spix's *Simiæ, Serpentes, Testudines et Ranæ, Aves, Lacertæ Brasilienses;* and Martius's *Genera et Species Plantarum*, &c., (Munich, 1824—26), *Nova Genera et Species Plantarum* &c., (3d vol., folio, 1829, and *Icones selectæ Plantarum cryptogamicarum Brasiliensium* (1829, folio).

SPLANCHNOLOGY (from σπλαγχνον, an intestine); a branch of anatomy, which treats of the viscera, including not only the viscera of the abdomen, but all the organs contained in the other cavities of the body, as the brain, lungs, &c.

SPLEEN, OR MILT (Greek σπλην, Latin *lien*); a spongy viscus, varying much in form and size, situated on the left side, between the eleventh and twelfth false ribs, and covered with a simple, firm membrane, arising from the peritonæum. (See *Stomach.*) It is of an oval form, and about one fifth smaller than the liver. Its upper surface is connected with the diaphragm, and its interior with the stomach. It is convex towards the ribs, and concave internally, and of a livid colour. The splenic artery is very large in proportion to the size of the organ, and is divided into numerous small branches penetrating the substance of the spleen. The splenic vein is larger than the artery in the proportion of five to one, and, by its junction with the mesenteric, constitutes the trunk of the *vena portæ*, which carries the blood into the substance of the liver. From this splenic artery, several branches (called *vasa brevia*) go off to the stomach, which they supply with blood. The uses of the spleen are entirely unknown; but they appear to have some connexion with the process of digestion. The spleen is subject to inflammation (*splenitis*), and, as often happens after agues, the inflammation sometimes becomes chronic. The tumour is then commonly called the *ague-cake*, though that name is also given to a tumour of the liver succeeding intermittents. It is also in some cases too feeble in its action, and then the digestion suffers. Spleen is also sometimes used to signify the *hypochondriasis.* (q. v.)

SPLICING, among seamen, to join the two ends of a rope together, or to unite the end of a rope to any part thereof, by interweaving the strands in a regular manner. There are several methods of splicing, according to the services for which it is intended; all of which are distinguished by particular epithets. The term is also used in architecture.

SPLINTERS; the pieces of a ship's side, masts, decks, &c., which, being knocked off by a shot, acquire great velocity, and frequently do more damage among the men than the shot itself.

SPLINTER-NETTING; sinnet made into nets, and nailed upon the inner part of the ship's sides, to lessen the effect of the splinters.

SPODUMENE is a mineral found massive, in large cleavable individuals, whose primary form is an oblique rhombic prism of 93°. Its cleavage, parallel with the lateral planes of this figure, is easily effected; but its terminal cleavages are obscure; lustre pearly; colour various shades of grayish-green, passing into greenish-white; streak white; translucent; brittle; hardness nearly equal to that of quartz; specific gravity 3·17. It consists of

Silex,	66·40
Alumine,	25·30
Lithia,	6·85
Oxide of iron,	1·45
	102·00

If exposed to a red heat, it loses its transparency and colour. Before the blow-pipe, it exfoliates, intumesces, and then melts into a nearly colourless, transparent glass. It occurs in primitive rocks, usually associated with quartz and feldspar. It was first discovered in Sweden, at Utoe, afterwards at Sterzingen, in the Tyrol, and was considered a rare mineral until within a few years, during which period it has been found in the greatest abundance in Massachusetts.

SPOHN, FREDERIC AUGUSTUS WILLIAM, a distinguished German philologer, was born at Dortmund, in 1792, studied at Wittenberg, and became professor of the Greek and Latin languages at Leipsic in 1819. Notwithstanding his early death in 1824, he had published several works, which show his learning and industry. Among them are a dissertation *De Agro Trojano* (1814); *Commentarius de extrema Odysseæ Parte; Nicephori Blemmidæ duo Opuscula geographica; Lectiones Theocriteæ* (1822 and 1823). The last years of his life were devoted to Egyptian studies; and an account of his system of hieroglyphics will be found under that head. His friend Seyffarth has edited some of his papers on this subject.

SPOLETO; a delegation, formerly a duchy, of the ecclesiastical states, comprising the great part of ancient Umbria; population, 102,053.

SPOLETO, the capital of the delegation, with a population of 6000, is a bishop's see, and lies fifty-three miles north of Rome; lon. 12° 36′ E.; lat. 42° 45′ N.; on an eminence near the small river Mareggia. It was once the residence of some of the Gothic kings. It contains twenty-two churches, twenty-one convents, and seventeen hermitages, and several ruins of Roman antiquities, the chief of which are a triumphal arch, an aqueduct, and an amphitheatre. The cathedral is built almost entirely of marble, and contains some good pictures.

SPONDEE, in prosody; a foot consisting of two long syllables, as *omnes.* See *Rhythm.*

SPONGE (*spongia*); a marine production, generally to be met with in the shops in pieces only. Its texture is cavernous and porous. Its great elasticity, and its property of imbibing, and as readily parting with a large quantity of water, renders it useful. Sponge is to be chosen as light as possible, perfectly clean, and free from stone, of as pale a colour as may be, with small holes, and fine, and soft to the touch. It grows in the Archipelago, at considerable depths, on the rocks, about some of the islands there; and multitudes of people make a trade of diving for it. It is also common in the Mediterranean and many other seas, though in general browner or yellower, and not so fine as that of the Archipelago. It adheres in large masses to rocks and stones, sometimes to large shells, and is either round, flat, or hollow, like a funnel. There has been much dispute among naturalists concerning the real nature of the sponge; nor is it yet satisfactorily decided whether it belongs to the animal or vegetable kingdom. But it appears to

be destitute of irritability as well as of any locomotive power; and some recent writers have maintained that it is during a part of its existence a vegetable, and during the rest an animal. The opinion that sponge is, like coral, the work of a polype, is erroneous.

SPONSOR. (See *Godfather*.) To the remarks contained in that article we will only add that, when the person baptized is an adult, the sponsor answers for his religious belief. Some suppose that sponsors came into use in the first centuries of Christianity, when the assurance of a Christian of known character, that those who presented themselves for baptism were worthy of it, was considered requisite. This surety was also to answer for their further instruction. But Neander, in his excellent General History of the Christian Religion and Church (Hamburg, 1826, vol. i., part 2), says that sponsors were probably introduced with the baptism of infants, in order to make a profession of the Christian faith in their name, and to guarantee their religious education. Tertullian, who opposed the baptism of infants, mentions the case of the sponsors as one of the objections, because they must take upon themselves an obligation, which they may be prevented from fulfilling by death or the sinfulness of the godchild. The Roman and Greek Catholic churches consider the relation of the sponsor to the godchild a kind of adoption, and therefore forbid marriage between them. Between the sponsors themselves, they do not allow marriage to take place. The Catholics sometimes take a sponsor for confirmation.

SPONTANEOUS COMBUSTION. The phenomenon of combustion, it is well known, is often produced by friction, fermentation, and other causes, without the application of fire. Forests have sometimes been set on fire by the friction of dry wood; and it is well known that moist wool, hay, corn, madder, meal, malt, hemp and flax, and linseed-oil, and other animal and vegetable substances, take fire of themselves. In the latter case, the combustion is the result of a chemical action, being produced by the decomposition of the substance inflamed, and a new combination of its component parts, or by some other chemical change, attended with the evolution of heat. (See *Combustion* and *Oxygen*.) A similar phenomenon is exhibited on sprinkling new-burnt lime with water, which is rapidly absorbed with the evolution of heat and light. The heat, in this instance, proceeds from the consolidation of the liquid water into the lime, and the consequent developement of the latent caloric which always attends the conversion of a liquid into a solid. (See *Caloric*.) There have also been instances of spontaneous combustion taking place in living bodies, by which they have been reduced to ashes. It has been observed that persons who have suffered in this way were addicted to the excessive use of ardent spirits.

SPORADES; the general name for nineteen islands in the Archipelago (q. v.), lying to the east of the Cyclades. The principal are Scio, or Chios, Samos, Cos, Rhodes and Lesbos (see the articles). Patmos, or Pathmos, a small rocky island of the Sporades, is celebrated as the place of St John's exile. The grotto in which he is said to have written the Apocalypse is still shown, and a monastery, called the *monastery of the Apocalypse*, has been erected in commemoration of the event. The name *Sporades* is derived from the Greek σπειρω, to sow, indicating the scattered position of the islands: hence the medical phrase *sporadic diseases*, in opposition to *epidemic*, signifying those which seize a few persons at any time or season.

SPORTS. The national amusements and pastimes of a people form an important feature in the national character. Taking their tone from the manners, habits and condition of the age or country in which they prevail, they lead us behind the scene on which the great drama of public life is exhibited, to the daily and familiar customs and events of popular life. The sports of a nation are of a religious or martial spirit, gay and mild, or dark and fierce, rude or refined, bodily or intellectual, as they are tinged by its habits and character, on which they reciprocally exercise a powerful influence. Besides numerous local holidays and sports, such as the harvest-home, in honour of Ceres and Bacchus, the panathenæa, celebrated in honour of Minerva by all the people of Attica, &c., there were four great national festivals among the Greeks, open to all people of the Grecian name. The Olympic, Pythian, Nemæan and Isthmian games (see the articles), were great public festivals, which inspired that polished people with a love of the arts, and imbued them with the spirit of social life. In these games, which were at once religious festivals and commercial fairs, the gymnastic and musical contests were exhibited in union (see *Music*); and the productions of genius, poems and histories, were rehearsed before all that was choice and learned of Greece, surrounded by the masterpieces of statuary, painting and architecture. The public amusements of the Romans were of a fierce and sanguinary, or of a coarse and rude character. Their triumphs, their gladiatorial fights, their combats of wild beasts, their religious festivities, which were scenes of boisterous revelry, showed how much behind the Greeks they were in refinement and taste. (See *Circus*, *Gladiators*, and *Triumph*.) In the middle ages, religion and war were the chief elements of the social life, and the amusements were chiefly of a religious or military character. (See *Festivals*, *Chivalry*, and *Tournament*.) Many of the modern popular sports originated from religious festivals; such are morris-dances, theatrical shows (see *Mysteries*, and *Moralities*), &c. Bull-fights continue to form the national amusement of the Spaniards, though the baiting of beasts has nearly gone out of use in England. Cock-fighting, horse-racing, and boxing, national dances, and the field sports of hunting, hawking or archery, are the favourite amusements of some people. But, in some countries, the progress of industry, the habits of domestic life, and the general diffusion of books, have in a great measure superseded the pastimes which were formerly so universal. (See Strutt's *Sports and Pastimes of the People of England*; Brand's *Popular Antiquities*; and Smith's *Festivals, Games and Amusements*.) Among the amusements of most nations, games of chance hold an important place, and are undoubtedly of very ancient origin. Those in which the fingers are the instruments, as in the Italian *mora* (q. v.), are probably the oldest. The invention of dice (q. v.) is attributed to the Greek Palamedes; that of chess (q. v.) to the people of India. Both games were known to the Greeks and Romans. The games of mixed chance and skill are also of early origin. These were known to the Romans, but they were principally attached to games of chance (*aleæ*), although they were prohibited by law, and the players reputed infamous. The ancient Germans, according to the

description of Tacitus, were passionately devoted to gaming. "They addict themselves," says he, "to dice when sober, and as a serious employment, with such a mad desire of winning or losing, that, when stripped of every thing else, they will at last stake their liberty and their very selves. The loser suffers himself to be bound and sold." Cards (q. v.) are of modern invention; and the games at cards are some of them purely games of chance, others of chance and skill combined. The laws of some countries, as of England, prohibit gaming. France, up to the 1st Jan., 1838, when the system was abolished, had licensed gaming-houses, from which a considerable revenue was drawn. Henry VIII. of England issued a proclamation against unlawful games, in consequence of which dice, cards, tables and bowls, were seized and destroyed in many places, though he himself was a great gambler; and we read of his losing much of the plunder of the suppressed abbeys at games of chance. Suspected gamesters, in England, may be brought before magistrates, and required to find sureties not to play or bet during twelve months, to the amount of twenty shillings, and, in default of sureties, may be imprisoned.

SPOTTED FEVER. An epidemic disease, now generally recognised by the name of *spotted fever*, prevailed extensively in many parts of New England, and in some parts of several of the other American states, at different times between the years 1806 and 1815. A few cases of the disease occurred in Medfield, Massachusetts, about thirty miles south-west of Boston, in March, 1806. The number was small, however, not exceeding twenty, and the disease did not extend itself so as to attract general attention until the following year. In March and April, 1807, it appeared in Hartford, Connecticut, and in several other places on the Connecticut river: and also in Williamstown, in the north-western part of Massachusetts, on the Green mountain range. It disappeared during the summer, but returned the following winter, visiting, in some instances, the same places, besides many others in the same neighbourhoods and similar situations, and also attacking other and detached parts of New England. The disease followed a similar course for several succeeding years. It disappeared during the summer, and recurred with the return of winter; and for several years, until 1813, it became, each year, more extensive and more destructive. In some of these years, it also prevailed extensively in the interior of the states of New York and Pennsylvania. In 1812, the troops of the United States' army suffered by it severely at various places in New York and Vermont. After 1813, the disease rapidly diminished, although it still remained destructive, especially in some parts of Maine. It finally ceased in the spring of 1815. The last place visited by it, so far as our information extends, was Berwick, and Maine. There have, indeed, been occasional reports of the prevalence of a similar disease, at different times since that period; but it may well be doubted whether any of them actually refer to the true spotted fever as it prevailed from 1807 to 1815. This concise sketch of the progress of the epidemic shows that it prevailed much less in summer than in winter. In fact, it was only during a part of the colder season of the year that the disease raged the most severely. Unlike the ordinary typhus fever, it was much less frequent through the autumn and the early part of winter than during the later months of winter and the first months of spring.

It is worthy of remark, that the disease, in a great measure, avoided the large towns on the seacoast. Although it pervaded, at different times, almost the whole of the interior of New England, Boston and the other large towns were only slightly visited by it. In the interior also, the epidemic was not more prevalent, perhaps even less so, in the larger and more crowded villages, than among the more scattered population. This is the more remarkable since those persons whose modes of life render them peculiarly susceptible to disease of every kind are more frequently collected in the larger towns and villages. But this epidemic seemed scarcely to regard peculiar susceptibilities of any kind. The man whose constitution was exhausted by excesses, undoubtedly yielded more readily if attacked, and fell a more certain victim, than the man of temperate and regular habits. But it does not appear that such were more frequently attacked than others. On the contrary, the disease seemed rather to select the healthy and vigorous. Although its range embraced persons in every period of life, from childhood to old age, yet the proportion of cases and of deaths was much greater among adults of mature age, of firm health, and of habits every way calculated to resist ordinary disease.

Of the extent of the mortality produced by the spotted fever, there are no means of obtaining accurate knowledge. Except in the larger towns, no returns are preserved of the number of deaths, or their causes. There are, therefore, no data upon which to found an estimate of the destruction of life caused by this epidemic. It was, however, very great, and from the character and relative station of many of its victims, peculiarly afflicting. The visitation, too, was sudden, and, therefore, produced the greater alarm and distress. In some instances, the disease visited a place twice, or even three times. But, in general, its work was accomplished in a single visitation of a few weeks' duration. Dr Gallup remarks of the epidemic in Vermont, that "There are but few towns whose surviving inhabitants will not long, with grief, remember the winter of 1812—13, for the loss of twenty, forty or eighty of their most valuable citizens—most valuable to society on account of their being adult persons, and at the acme of human life."*

Of the causes of spotted fever, no satisfactory account can be given. There was nothing in the habits of the disease, or the manner in which it proceeded from place to place, to countenance the supposition of contagion; and such an opinion, we believe, has never been suggested. It is difficult to reconcile the phenomena of this disease to any of the other theories by which the progress of epidemics has been explained. If we attribute it to some secret atmospheric influence, it is not easy to account for the irregular and fitful manner in which it lighted upon detached and distant places almost at the same moment, while intermediate places were passed by for the time, only to be the subjects of a future visitation. It is still more improbable that exhalations from the surface of the earth could have been the cause, for the favourite season of the disease was when the whole surface of the earth was fast locked up by the frost. For a time, many physicians were inclined to suppose that ergot in the rye, which is much used in New England,

* Epidemics of Vermont.

might have contributed to produce the disease. But it has never been shown that ergot was more abundant in those years in which the epidemic prevailed, than in others; and what is more conclusive, the disease was not confined to those districts in which rye was used for bread. We must, therefore, regard the peculiar causes of spotted fever as altogether unknown.

There were two leading forms of the disease. One was a simple fever of a peculiar character. The other was complicated by local inflammation, but still retaining the same general character as the other. The more simple form began, like most other fevers, with coldness, not generally with distinct shivering; pain in the head and back, and especially in the limbs; prostration of strength, &c. In the milder cases, this was followed, as in other fevers, with some degree of reaction, manifested by heat, and afterwards by sweating; but, unless aided by proper remedies, the reaction was very imperfect; the coldness soon returned, with a peculiar want of action over the whole system. The surface of the body lost its peculiar elasticity, and had, in its stead, a torpid, half-œdematous, doughy feeling. Near the close of life, it was covered with a profuse perspiration. The stomach early became irritable, and rejected whatever was put into it, though without much vomiting of any thing else. The prostration increased, and was accompanied by violent pains in the back or limbs, which frequently changed from place to place, but without spasms of any kind. In many cases delirium came on very early. In most, as the strength of the patient failed, the mind became obscured, and he died comatose. In the more severe form of the disease, this comatose state followed the first attack, without any intervention of a stage of reaction: the patient became insensible, and died in a few hours. It was generally in the severe form that the spots, or *petechiæ*, appeared, which gave the name of *spotted* fever to the epidemic. They were not, however, confined to the more violent, or to the fatal cases, but were occasionally found in those which were comparatively mild. Neither, on the other hand, were they, by any means, general in the severer cases. In the earlier periods of the epidemic, they were much more common than towards the close of its progress. When they did appear, the spots were generally small blotches, caused by blood extravasated into the cellular membrane under the skin, of a dark purple colour. In many other cases there was a slight eruption of a very different character, which seemed to be caused by the excited state of the skin, where the diaphoretic and stimulating mode of treatment was carried to a great extent.

About the beginning of the year 1812, the spotted fever first began to aseume a new form, in many cases, by becoming complicated with some local inflammation. This inflammation was sometimes in the throat, producing a species of cynanche; but its more common seat was some one or more of the textures of the lungs. The fever, however, still retained the same general character as before; and in most of the places where this form of the disease prevailed, frequent cases of the more simple form were intermingled with it. The cases with inflammation were ushered in, rather more frequently than the others, with a distinct chill; and this was oftener, perhaps, followed by a distinct reaction; but the general disease did not in these, any more than in the others, retain an inflammatory character. On the contrary, it ran speedily into a state of great depression; and when death ensued, it seemed to be less from the influence of the pulmonic symptoms, than from the violence of the general disease. There was pain in the chest, cough, and bloody expectoration; but these symptoms, although sometimes severe in the commencement of the disease, rarely retained their prominence so long as to appear to exert a very important influence upon the course of the disease, or to demand much consideration in the treatment, beyond what was necessary to give relief to the symptoms themselves. There were many other varieties in the modifications of the spotted fever, for it assumed a greater diversity of forms and appearances than most diseases. It was not always sudden and abrupt in its attack, as we have here described it, but sometimes crept on silently, slowly converting a slight indisposition into a severe and often fatal disorder. In whatever form it appeared, however, it preserved the same general character of great prostration and debility.

Little is known of its pathological character, except what is learned by inferences from its description and history. Only a few examinations after death were made, and these have done little to enlighten us in regard to the essential character of the disease. Had they been more numerous, the result would probably have been no more conclusive, than that of similar observations, in respect to the nature of fever in general. The blood was found to remain fluid for some hours after death. It consequently flowed to the depending parts, giving a dark colour to the skin in those parts, which was often mistaken by careless observers for putrefaction. But putrefaction did not begin early after death. The vessels of the brain, as might be expected from the comatose state which preceded most of the deaths, were found to be turgid with blood, and there was more or less effusion of serum into the ventricles, and sometimes of lymph under the arachnoid. In the chest, the heart sometimes exhibited marks of disease; its vessels being peculiarly injected with blood. The lungs, in the cases of simple spotted fever, were healthy. We have seen few accounts of dissections in the pneumonic form of the disease. In some cases, ulcerations, of a peculiar character, with black, gangrenous edges, were found in the pleura of the lungs, extending deep into the substance of the organ. This appearance can hardly have existed except in the severest form of pneumonic affection. But we do not remember any description of marks of inflammation in the lungs, which did not involve the serous membrane, although, from the symptoms, it can hardly be doubted that many such cases existed. The abdominal viscera were generally healthy. The gall bladder and the urinary bladder were filled with their appropriate fluids, showing that the secretions had been carried on until death. The result of our pathological observations is, that this disease was a fever, having a peculiar tendency to run rapidly into a state of great prostration and debility, and often more or less complicated with local inflammation of an erysipelatous character.

The practice which had previously been applied to ordinary fevers, was so entirely unsuccessful in the treatment of spotted fever, that many of the practitioners on whom the management of the disease at first devolved, seem early to have lost all confidence, not only in such a course of practice, but also in the resources of professional skill and science, and for a time to have abandoned them-

selves and their patients to empirical experiments. A respectable writer gives the credit to a worthy matron, of the first discovery of a successful treatment. This consisted in exciting a profuse perspiration, by drinking large quantities of a decoction of the leaves and twigs of the ground hemlock, or dwarf yew, aided by a rude sort of vapour bath, made by boiling billets of wood (of the hemlock, if to be obtained), and laying them, wrapped in cloths, into bed with the patient, who was, at the same time, to be kept highly stimulated with brandy, and other diffusible stimulants. But the more judicious and scientific part of the profession were not long in adopting their treatment to the true state of the disease. Adopting a hint, perhaps, from the effects of the empirical sweating and stimulating, which soon became common, they were able to pursue a course of diaphoretics and stimulants, which, while it avoided the dangers of empirical excess, was eminently successful in arresting the fatal tendency of the disease. Such diaphoretics were selected, as while they act promptly and surely, have the least tendency to induce debility. A moist heat, applied externally, added much to the efficacy of internal diaphoretics. A combination of ipecacuanha, opium, and camphor, sometimes with the addition of calomel, was much used, and with the best effects. It was necessary that a gentle diaphoresis should be constantly preserved, always with great care avoiding profuse sweating. The true measure of the use of stimulants, was the preservation of a healthful temperature and an equable pulse. In some cases, the tendency to coldness and prostration was so great, that large quantities of the most powerful kind were necessary—brandy, in hot water, tincture of cinnamon, tincture of opium, with tinctures of peppermint and lavender, were among the best; and these must be used, not so much in reference to the quantities given, as to the effects produced. Very early in the disease, almost as soon as a diaphoresis was established, tonics of a more permanent character were employed. The cinchona, in its different modes of administration, was chiefly relied upon. A favourite mode of using it, by many physicians, was in a fermented decoction, with orange peel and serpentaria. A nutritious and rather stimulating liquid diet was directed also quite early in the disease. Emetics were avoided, or used only when there were manifest symptoms of decided derangement of the stomach; and cathartics were only used to remove costiveness, and then none but the mildest laxatives were admissible. In the pulmonic form of the disease, blisters and expectorants were added to the other means. It was sometimes necessary, on account of the cough, &c., to defer a little the use of the cinchona and other tonics; but this did not often happen, and it never appeared safe to wait for a decided convalescence before resorting to them.

This is a mere outline of the treatment adopted by a large proportion of the most successful practitioners in this singular and formidable disease. It of course admitted and required great diversity in its application to the many varieties of form and symptoms which the disease assumed in different places and in the several cases. There were a few physicians, however, who objected to such a stimulating practice, and insisted upon the necessity of blood-letting and other evacuants, and who still contend, that an anti-phlogistic course of treatment was the most successful. It may be said, indeed, that the prostration and debility must have been produced by some active disease, and if that disease could be arrested by early bleeding, and other means, much of the prostration would be prevented. But, however true this may be in general, in the present instance, the good effects which generally followed a judicious course of stimulants, sufficiently showed that no such disorganization was produced by the disease, which was supposed to cause the debility, as to render it unsafe to trust to them to remove it. If the bleeding recommended had failed to prevent the sinking by arresting the disease, it must have increased the exhaustion, and consequently added to the difficulty of the cure; and to perceive accurately when it would be liable to do this, would have required a nicety of discrimination greater than belongs to most practitioners of medicine, if, indeed, it can ever be attained.

The results of the treatment were very various in different places. In many places, the disease, though violent and severe, yielded to remedies with a docility truly remarkable. At the same time, it required unceasing vigilance and care to prevent fatal relapses. In such places, most of the deaths seemed to result more from accidental imprudences or neglect, than from the incurable nature of the disease itself. In other places, the disease was speedily fatal to a large proportion of those attacked. In some small districts, twenty or thirty died in rapid succession, before any recovered. Much of this inequality is doubtless to be attributed to differences in the virulence of the epidemic itself. But there are many facts which go to show, that something must be ascribed to diversities of treatment. The comparison here intended, is not between the diaphoric and stimulating practice on the one hand, and the anti-phlogistic on the other, so much as between either of these and an awkward attempt to engraft either upon a routine of earlier days, which many men found it difficult to abandon. To our minds, the stimulating treatment, properly regulated, was incomparably preferable in its effects to the bleeding; but either was immeasurably better than the hesitating, inefficient practice to which we have alluded. Many instances occurred in which a change of practice was followed by a change of results, in the same neighbourhood, and often in the same families, so immediate and so striking, as to render it difficult to attribute the difference to any thing but the change of treatment.

SPRAT, OR SARDINE (*clupea sprattus*); a small fish, hardly distinguishable, at first sight, from the herring, but smaller and more slender. It is found in the North Atlantic and Mediterranean, and keeps usually in the depths of the ocean; but during the autumn approaches the shore in vast numbers, for the purpose of depositing its spawn. The fishery is very lucrative, and has become an important branch of commerce in many parts of Europe. Sprats are taken in the same manner as herrings, except that the nets have smaller meshes; but it is necessary to salt them before bringing them to land.

SPRAT, THOMAS, bishop of Rochester, was born in 1636, and received his academical education at Wadham college, Oxford, of which he was elected a fellow in 1657. Upon the death of Cromwell, he composed an Ode to the Memory of the late Lord Protector, abounding with the most high-flown adulation, and of the irregular class then termed *Pindaric*. Another, On the Plague of

Athens, followed in the same style. On the restoration, he showed an equal excess in the contrary direction, and, taking orders, was recommended by Cowley to the duke of Buckingham, who made him his chaplain, and whom he assisted in the composition of the Rehearsal. Being introduced by that nobleman to the king, the latter nominated him one of his chaplains. His intimacy with bishop Wilkins caused him to be chosen one of the fellows of the new royal society, of which, in 1667, he wrote the history. In 1668, he edited the Latin poems of Cowley, to which he added a life of the author. His reputation and talents for society rapidly advanced him in the career of preferment, and he became, in 1686, bishop of Rochester, probably as a reward for drawing up an account of the Rye-house plot. The manner in which he accomplished this task, undertaken, as he asserts, at the king's command, rendered it expedient for him, after the revolution, to print an apology. He was nominated by James II. one of the commissioners for ecclesiastical affairs, in the execution of which office he exhibited compliances, in expectation, it is said, of the archbishopric of York, which produced general censure, that was only partially alleviated by his withdrawing from the commission, in 1688. When James retired, Sprat spoke in his favour in the great conference on the vacancy of the crown, but submitted to the new government, and was left unmolested. In 1692, he was involved, with Sancroft, Marlborough, and others, in a pretended conspiracy. He detected the infamous practices of the informers, and cleared himself from the charge, but was so affected by the danger, that he commemorated his deliverance by an annual thanksgiving. He died in 1713. His writings are little esteemed at present.

SPREE, a river of Germany, which rises in Upper Lusatia, intersects the Spree forest, in Lower Lusatia, with more than a hundred arms, becomes navigable at Kossenblatt, forms at Berlin, an island, on which lies Köln (see *Berlin*), and falls, below Spandau, into the Havel.

SPRING. This season begins when the sun, in its ascent, crosses the equator, and ends when it reaches its highest position in the heavens at midday. In this country, February, March, and April are reckoned the spring months of the year; but the variableness of the climate renders the period of the real approach of spring a matter of great uncertainty. In the southern hemisphere, the astronomical spring begins September 23, and ends December 21; thus it falls about the time of our autumn. Under the equator, and, in general, in the torrid zone, the seasons of the year are not divided in the same manner as in the temperate. They are distinguished into the dry and wet seasons. See *Seasons*.

SPRING, among sailors, implies a crack running transversely or obliquely through any part of a mast or yard, so as to render it unsafe to carry the usual quantity of sail thereon. *Spring* is also a rope passed out of a ship's stern, and attached to a cable proceeding from her bow, when she lies at anchor. It is usually employed to bring the ship's broadside, or battery of cannon, to bear upon some object, as another ship, a fortress, &c. When a ship rides by anchors which are only attached to one end, she will move according to the direction of the wind or tide. Now, if a rope be extended from the other end to the same anchor, it is evident that, by slackening one of these ropes, and keeping the other fast, her side will lie more or less obliquely to the wind or tide, as occasion may require, so as to be opposed to any distant object to the right or left. *Spring* is likewise a rope extending diagonally from the stern of one ship to the head of another which lies abreast of her at a short distance, and is used to make one of the ships sheer off to a greater distance from the other. Springs of this kind are occasionally applied to a wharf or pier for the same purposes. *To spring a mast, yard*, &c. is to crack it transversely or obliquely.

SPRING TIDE; the periodical excess of the elevation and depression of the tide, which happens soon after the new and full moon. See *Tide*.

SPRINGS. The origin of the numerous springs that break forth from beneath the earth's surface cannot be referred to one exclusive cause. The internal reservoirs by which they are supplied are, in many cases, derived from the water which the earth absorbs from rains and melted snow; from these reservoirs, wherever there is uneven or mountainous ground, the water flows out by minute fissures in the sides of the hills. But when we see springs rising up in plains, it is evident that they must have ascended, that is, travelled in a direction contrary to that produced by the force of gravity, in order to reach the surface. This, no doubt, is sometimes to be attributed to water flowing under ground from distant elevations, and to the natural tendency of a liquid to find its level. But the rising up of springs in plains cannot always be accounted for in this manner; and it has, therefore, been supposed, that the earth contains capillary tubes. (q. v.) It is also evident that such springs as suffer no diminution even from the longest continued dry weather, must be derived from a source quite independent of rains, and other external means of supply. They must, therefore, proceed from some vast body of water within the earth: and it has, with apparent reason, been concluded, that many springs arise from the ocean, filtering through the pores of the earth, the salt particles being lost in the passage. Springs which have their waters combined with mineral substances, and are, from that circumstance, called *mineral*, are very numerous, and of various kinds. (See *Mineral Waters*.) Warm and hot springs are also common, especially in volcanic countries, where they are sometimes distinguished by violent ebullitions. Iceland is noted for these curious phenomena: its celebrated boiling fountain, the great Geyser, frequently throws out its contents to the height of more than a hundred feet; sometimes to twice that elevation. Periodical or intermittent springs are those which differ periodically in the quantity of water which they deliver; or even cease to flow entirely for a time. The spring of Fonsanche, near Nismes, flows daily for a little more than seven hours, and cease five hours; that of Colmars, in Provence, ceases to flow every seven minutes. In 1755, the great earthquake which destroyed Lisbon rendered it a perpetual fountain; but in 1763, it again became intermittent. This phenomenon is explained with much probability by the supposition, that there are cavities or basins under the earth, filled from above, and emptied by siphons. These empty the basin to the level of the point where the legs meet, then cease to flow until the leg connected with the basin is again filled to its highest point. (See *Siphon*.) If the siphon conducts the water to a distance, it may flow in dry weather and cease in wet.

SPRIT; a small boom, or pole, which crosses

the sail of a boat diagonally from the mast to the upper aftmost corner, which it is used to extend and elevate. These sails are accordingly called *sprit-sails*. *Sprit-sail* is also a sail attached to a yard which hangs under the bowsprit.

SPRUCE (*abies.*) The spruces are more strictly confined to the north than the pines, and their deep, gloomy forests form a striking feature in the vegetation of the colder parts of North America, Asia, and Europe. They are distinguished from the pines by their habit, and by their solitary evergreen leaves, deprived of a sheath at the base.

The black or double spruce (*A. nigar*) is very abundant in Lower Canada, Newfoundland, New Brunswick, Nova Scotia, Maine, and the upper parts of New Hampshire and Vermont. It grows to the height of seventy or eighty feet, with a trunk a foot or a foot and a half in diameter; and, as the summit has a regular pyramidal form, a solitary tree makes a beautiful appearance. The timber is distinguished for lightness, strength, and elasticity, and furnishes most of the spars used for vessels in the United States. These spars are exported to the West Indies and to Britain, where they are preferred to those of the Norway spruce; but they are not sufficiently large for the yards of ships of war. Knees for vessels, made from the base of the trunk and one of the principal roots, are much used in Maine, and sometimes also at Boston. The timber is, besides, extensively sawed into boards, which are sold one fourth cheaper than those of the white pine, and are exported to the West Indies and to England.

The red spruce is a mere variety of this timber, produced by a difference in soil. It is chiefly with the young branches of this species that the wholesome drink called *spruce beer* is prepared.

The white or single spruce (*A. alba*) inhabits the same districts, but is less abundant. It is a smaller tree, rarely exceeding fifty feet in height, and twelve or sixteen inches in diameter at the base of the trunk. The wood is employed for the same purposes as the preceding, but is inferior in quality. The fibres of the roots are very flexible and tough, and after maceration in water are used in Canada to stitch together the birch-bark canoes. It is distinguished from the preceding by its less crowded leaves, and their pale green colour, and the longer and more cylindrical form of its cones. It is much esteemed in Europe as an ornamental tree, and is frequently cultivated in parks and gardens.

The American silver fir (*A. balsamea*) is still less than the white spruce, and rarely exceeds forty feet in height. It is a beautiful tree, having the leaves longer than those of the black spruce, and silvery beneath. The cones are four or five inches in length, cylindrical, obtuse, and violaceous. The wood is light, but slightly resinous, and is little used. A few bottles of the turpentine are collected and sold under the improper name of *balm of Gilead*; and this remedy has acquired some celebrity in England, in certain stages of the pulmonary consumption.

The hemlock spruce (*A. Canadensis*) is readily distinguished by having the leaves distichous, or disposed in two ranks, and the cones terminal. It is particularly valuable for the properties of the bark.

SPUNGE. See *Sponge*.

SPUNGE; an instrument used to clean the cannon after firing, and to extinguish any sparks that may remain behind. They are sometimes made of bristles, resembling a round brush, but more generally of sheep-skin, with the wool outwards, nailed upon a block of wood nearly as large as the calibre of the piece. The block is either fixed upon a long wooden staff, or upon a thick piece of rope, well stiffened by serving it with spun-yarn. This latter is much more convenient on board of ships, on account of its flexibility, and generally has a block at the upper end, to use as a rammer. *To spunge a gun* is to clean it out with the spunge.

SPUN-YARN; a small line, or cord, formed of two, three, or more rope-yarns, twisted together by a winch; the yarns are usually drawn out of the strands of old cables, and knotted together. Spun-yarn is used for various purposes, as serving ropes, weaving mats, &c.

SPURRED RYE. See *Ergot*.

SPURZHEIM, GASPARD, doctor, a celebrated physiologist, was born near Treves, in 1776, and received his medical education at Vienna, where he became acquainted with doctor Gall, the founder of the science of craniology. To this science Spurzheim became exceedingly partial; and he soon joined doctor Gall in making inquiries into the anatomy of the brain. They quitted Vienna, in 1805, to travel, and went, in 1807, to Paris. From that period, doctor Spurzheim travelled and lectured in England, Scotland and Ireland, and, in conjunction with doctor Gall, published the result of his inquiries into the Anatomy and Physiology of the Nervous System; Inquiry into the Nervous System in general, and that of the Brain in particular; Physiognomical System of Doctors Gall and Spurzheim, &c.; an Examination of the Objections urged, in England, against the Doctrines of Gall and Spurzheim; Observations, &c., &c., on Mental Derangements; and Observations on Phrenology. In August, 1832, he visited the United States of America, and began his lectures in Boston, but death interrupted his labours, on the 10th of Nov., in the same year. See the article *Phrenology*.

SQUARE, in geometry; a quadrilateral figure, both equilateral and equiangular, or, in other words, a figure with four equal sides and equal angles, which geometry proves must be right angles. It holds the first place among the parallelograms. The height and width of a square are equal: all squares are geometrically similar, and the diagonal line, or the line through two opposite vertices, divides the square into two equal and similar triangles. On account of its perfect regularity, the square is of great importance both in pure and applied mathematics. In the measurement of surface, it is the form to which all others are reduced. From the rules for calculating the superficial contents of parallelograms in general (to multiply the base by the perpendicular height), and from the nature of the square, it appears that it is only necessary to multiply one side by itself to have the area of the square, because each of the sides may be considered as the basis, or as the perpendicular height. Thus a square, the sides of which measure four feet, is equal to sixteen square feet: i. e. sixteen squares each a foot high and a foot long. The area of countries is generally given in square miles. Sometimes a great mistake is made by using square miles for miles square: 300 square miles is an area of 300 squares, each of which measures one mile in length and breadth, whilst 300 miles square is a square each side of which measures

300 miles—hence the whole square contains 90,000 square miles. To square a figure (e. g. a polygon) is to reduce the surface to a square by mathematical means. It has often been attempted to square the circle, but as yet without success. (See *Circle.*) To obtain the square of a number, the number is multiplied by itself (see *Power*); and to extract the square root of a number is to find that magnitude which, multiplied by itself, gives the magnitude from which we have to extract the root. See *Root.*

Square, in tactics, is the figure formed by infantry to resist most effectually an attack of cavalry in the open field. It can be formed in different ways; and it was once customary to spend much time in drilling troops to execute all the varieties of squares and other figures having the same object; but experience has shown that the so called solid square is the best, on account of its moveability and simplicity, as well as its power of resistance, though it is, perhaps more exposed to the effects of artillery. In some armies (e. g. the Prussian), all other squares are abandoned. A column, being of a square shape, can be thrown into a solid square immediately by making the men face to each of the four sides. (See the article *Column.*) If a solid square is broken, the parts again form squares by facing to the four sides.

Magic Squares are square tables with divisions, like a chess board, filled with numbers in the natural series, or any other arithmetical progression, in such a way that the numbers in the horizontal and vertical lines, and sometimes, also, those in the diagonal lines, yield equal sums if added together; for instance,

1	15	14	4
12	6	7	9
8	10	11	5
13	3	2	16

Euler, Kircher, Franklin and others have made investigations respecting this subject.—See, among other works, Mollweide's *Commentat. de Quadratis Magicis* (Leipsic, 1816). In India, in which country these tables were probably invented, they are used as talismans.

Square-rigged vessels are contradistinguished to all whose sails are extended by stays, lateen, or lug-sail yards, or by gaffs and booms, the usual situation of which is nearly in a plane with the keel.

Square-sail is any sail extended to a yard suspended by the middle, and hanging parallel to the horizon, as distinguished from sails extended obliquely.

SQUATTERS. See *Public Lands.*

SQUILL. The officinal squill (*scilla maritima* of Linnæus) is now referred to the genus *ornithogalum.* This plant is allied to the onion, which it somewhat resembles: there are six stamens and a single style; the calyx is wanting, and the corolla is deeply divided into six segments: the root is a bulb almost as large as a man's head, and similar in form and structure to that of the onion; the stem upright, cylindrical, terminated by a long raceme of white flowers: the leaves appear after the flowers, and are all radical, very large, oval-lanceolate and fleshy. It grows on the sandy coasts of the Mediterranean. The bulb has a nauseous, bitter and acrid taste, but is destitute of any perceptible odour. It is poisonous to several animals, and, if much handled, produces ulcers on the skin. In large doses, it occasions vomiting, strangury, inflammation of the stomach and bowels, &c.; but in small doses, acts simply as an expectorant and diuretic. It has been much esteemed from antiquity, and its various preparations are much used in medicine.

SQUINTING. See *Optics.*

SQUIRREL (*sciurus*); a genus of quadrupeds, belonging to the *rodentia*, or gnawers, distinguished from most animals of the tribe by the compressed form of the lower incisors. The upper lip is cleft; the fur soft and silky; the molar teeth are four on each side of the lower jaw, and five in the upper, the first of which is only a small tubercle, often shed with age; the incisors are two in each jaw; the toes are armed with hooked nails, by means of which these animals are enabled to climb trees, among the branches of which they pass their lives, feeding on the fruit. Their light and graceful motions, their beauty and extreme neatness, have made them general favourites. When on the ground, they move by successive leaps, with the tail extended and undulating; but the forest is their home, and they display wonderful activity in leaping from branch to branch, sometimes stopping to listen, sitting erect upon their hinder limbs, with the tail elevated like a plume. In the same posture they take their food, using their fore-feet like hands. The hardest nuts serve them for nutriment, and the facility with which they cut through the shell is remarkable. They build nests of sticks and leaves, in the tops of trees, or sometimes in hollow trunks. Previous to the approach of winter, they lay up large hoards of nuts and grain for future use. When in captivity, they permit themselves to be handled, without ever appearing to distinguish the person who takes care of them, or experiencing any real attachment for him. In some districts, they multiply so exceedingly as to become a pest to the farmers, literally laying waste the cornfields: the woods and fields seem then to be alive with them, and sometimes they make partial migrations, during which, vast numbers are drowned in crossing rivers.

The fox squirrel (*S. vulpinus*) inhabits, exclusively, the pine forests of the Southern States of America, and is the largest species. The body is fourteen inches in length, and the tail sixteen. The colour is gray and black, or mottled, &c. *S. capistratus* is a variety having the nose white.

The cat squirrel (*S. cinereus*) is distinguished by its size and by the fur being less coarse in its texture. The length of the body is twelve inches, and of the tail fourteen; the colour cinereous above, and white beneath; the tail is less distichous than in the others, and stripped with black. There are four molar teeth only on each side of the upper jaw.

The gray squirrel (*S. Carolinensis*) is very common in most parts of the United States, especially in oak, hickory, and chestnut forests. Formerly, it was so abundant in many districts as to become a scourge to the inhabitants. It is remarkable for its beauty and activity, and, when kept in confinement, is exceedingly playful and mischievous. It is much smaller than the two preceding; the colour is usually fine bluish-gray, mixed with a slight tinge of orange, and the tail is edged with white. These three species often occur entirely black, and in this state have been described as a distinct species.

The great-tailed squirrel (*S. macrourus*) is the

most common species on the Missouri. It is a large species, of a ferruginous colour, and has the tail larger than the others.

The red squirrel, chick-a-ree, or Hudson's bay squirrel (*S. Hudsonius*), is a beautiful species, very common in the Northern States. The ears are distinctly tufted; the colour is reddish-brown above, pale beneath, with a pretty distinct black line on each flank. It is smaller than the gray squirrel.

S. quadrivittatus is a very small species, inhabiting the vicinity of the Rocky mountains, about the head waters of the Platte and Arkansas. The general colour is reddish above, mixed with black, and whitish beneath, with four broad white lines on the back. It has not been observed to ascend trees, but nestles in holes, or on the edges of rocks; and the nest is composed of a most extraordinary quantity of different vegetable substances, sometimes sufficient to fill a cart. Its principal food seems to consist of the seeds of the pine.

The ground squirrel (*tamias lysteri*) has been separated from *sciurus*, on account of the presence of cheek-pouches; it differs also, somewhat, in its habits, as it makes a burrow, generally, about the roots of trees, or along fences and walls, often of considerable extent, and having several branches, and always two openings. It is one of the most familiar animals in the United States, and is usually seen running along fences and walls; but it occasionally ascends trees. On the back are five longitudinal black bands, separated on each side by two white ones. It is a very pretty and lively animal.

The common flying squirrel (*pteromys volucella*) differs from *sciurus* in having the skin on the sides very loose, and capable of being spread out when the limbs are extended, with the assistance of an additional bone articulated with the wrist. By means of this structure, the flying squirrels are enabled to make surprising leaps: taking advantage of the wind, they launch into the air, buoyed up as by a parachute, and sail swiftly and obliquely downwards. It is an exceedingly beautiful animal, very common in many parts of the United States. Another and larger species is found in Canada and about the Rocky mountains.

STAAL, MADAME DE, an ingenious French writer, first known as mademoiselle de Launai, was the daughter of a painter of Paris, where she was born, towards the close of the seventeenth century. Her father, being obliged to quit the kingdom, left her in great indigence; but some female recommendation procured her a good education at a priory in Rouen. Her patroness dying, she was compelled to hire herself as bed-chamber woman to the duchess of Maine. Unfit, however, for the duties of such an office, she was about to quit it, when a singular event rescued her from obscurity. A beautiful girl of Paris, named Tétard, was induced by her mother to counterfeit being possessed; and all Paris, including the court, flocking to witness this wonder, mademoiselle de Launai wrote a very witty letter on the occasion to M. de Fontenelle, which was universally admired. The duchess of Maine, having discovered the writer in the person of her waiting-woman, employed her, from that time, in all her entertainments given at Sceaux, and treated her as a *confidante*. Thus encouraged, she wrote verses for some of the pieces acted at Sceaux, drew up the plans of others, and was consulted in all. She was involved in the disgrace incurred by the duchess, her patroness, during the regency, and was kept two years a prisoner in the Bastile. On her release, the duchess found her a husband in M. de Staal, lieutenant in the Swiss guard, having previously refused the learned, but then too aged, Dacier. She died in 1750; and some Memoirs of her Life, written by herself, were soon after published in 3 vols., 12mo. They contain nothing of much importance, but are composed in a pure and elegant style, and are very entertaining. A fourth volume has since appeared, consisting of two comedies acted at Sceaux, entitled *L'Engouement*, and *La Mode*. This lady, who, even by her own description, did not abound in personal attractions, was, nevertheless, engaged in various gallantries or amours more or less sentimental. Being asked how she would treat such matters in her Life, "I will paint myself *en buste*," was the reply. Her Memoirs have been poorly translated into English.

STAAL, MADAME DE. See *Staël-Holstein*.

STABAT MATER; a celebrated Latin church song, in terzines, which is sung in the Catholic church, particularly on the festival of the Seven Sorrows of Mary, and generally during the services in Lent. Some consider one of the popes (John XXII., or one of the Gregories) as its author; but, according to the most probable opinion, it was written by the Minorite Jacobus de Benedictis, generally called Jacoponus, who lived in the thirteenth century, a learned jurist, whom the death of his wife induced to enter, in 1268, the order of the Tertiarii, and to give himself up to the severest penances, which terminated in insanity. He died in 1306. The words have received several changes. The best composers of church music have employed their talents upon it. The best compositions are those of Palestrina (for eight voices), of Pergolesi (for two voices, with an accompaniment) and Astorga. Among the later composers of this beautiful piece are Haydn, Winter, Neukomm, and Stunz (a very excellent composition). The *Stabat Mater* is one of those Latin songs of the early church which breathe a truly poetical and sacred enthusiasm, and cannot be generally known in this country. We, therefore, give it at length, as we have done the *Dies Iræ*.

Stabat mater dolorosa,
Juxta crucem lacrymosa,
Dum pendebat filius;
Cujus animam gementem,
Contristatam et dolentem
Pertransivit gladius.

O! quam tristis et afflicta,
Fuit illa benedicta
Mater Unigeniti.
Quæ mœrebat et dolebat
Et tremebat, cum videbat
Nati pœnas inclyti.

Quis est homo qui non fleret
Christi matrem si videret,
In tanto supplicio?
Quis posset non contristari,
Piam matrem contemplari
Dolentem cum filio.

Pro peccatis suæ gentis,
Videt Jesum in tormentis,
Et flagellis subditum;
Vidit suum dulcem natum,
Morientem, desolatum,
Dum emisit spiritum.

Eia mater, fons amoris!
Me sentire vim doloris
Fac, ut tecum lugeam.
Fac ut ardeat cor meum
In amando Christum Deum
Ut illi complaceam.

Sancta mater! istud agas,
Crucifixi fige plagas
Cordi meo valide.
Tui nati vulnerati,
Tam dignati pro me pati,
Pœnas mecum divide.

Fac me vere tecum flere.
Crucifixo condolere,
Donec ego vixero.
Juxta crucem tecum stare,
Te libenter sociare,
In planctu desidero.

Virgo virginum præclara!
Mihi jam non sis amara,
Fac me tecum plangere;
Fac ut portem Christi mortem,
Passionis ejus sortem,
Et plagas recolere.

Fac me plagis vulnerari,
Cruce hac inebriari,
Ob amorem filii.
Inflammatus et accensus,
Per te, virgo! sim defensus
In die judicii.

Fac me cruce custodiri,
Morte Christi præmuniri,
Confoveri gratia.
Quando corpus morietur,
Fac ut animæ donetur,
Paradisi gloria.

STABIÆ. See *Herculaneum*.

STACCATO (Italian, *separated*), in music, is designated by a few small dots or dashes over the notes, which are then to be played more or less abruptly, and unconnected with each other.

STADIUM; an ancient measure of length, about equal to a furlong, or the eighth of a mile. It was six hundred feet in length; but, as the foot was different, the stadium, also, differed exceedingly. The most known measures of this name were the little stadium of Aristotle, of 19⅓; the stadium of Cleomedes, of 13·91; the Pythian or Delphian, of 12·79; the stadium of Eratosthenes, of 11·64; that of Herodotus, or the nautical or Persian stadium, of 11·12; the Olympic, of 10·1; the Phileterian, of 9; and the great stadium (called, also, the Alexandrian or the Egyptian), of 8·35 to a geographical mile. The race-course of a gymnasium was, originally, called *stadium*, and was of a certain length, whence was derived the name of the measure. It consisted of an oblong causeway, open at one end, and terminated at the other by a semicircle. The two sides, running parallel with each other, were, likewise, enclosed: and from these three enclosed sides the seats of the spectators rose step-wise.

STADT; the German word for *town* and *city:* hence many geographical names are compounds of this word or *stad*.

STADTHOLDER, in the republic of the United Netherlands; the commander-in-chief of the military forces (Dutch, *stadhouder*, governor). The title was derived from the period when Spain and Burgundy had dominion in that country. The United Netherlands were then under a governor-general, and the separate provinces had particular governors. After becoming independent, the republic retained the office of stadtholder, partly from gratitude to the house of Nassau-Orange, but chiefly to secure the obedience of the people, which would not have been rendered to the states while their authority was new, and not yet confirmed. Philip II., on leaving the Netherlands, had intrusted the government of Holland, Zealand, and Utrecht, to William I., prince of Orange; but, when the duke of Alva arrived in the Netherlands, in 1567, at the head of the Spanish forces, with the purpose of spreading the Catholic faith by fire and sword, William retired to Germany to escape the threatening danger. But, being proceeded against during his absence, he took up arms to deliver the Netherlands from the tyranny of Alva. The first attempt failed; but, after the capture of Briel, in 1572, by the Gueux, fortune favoured the Dutch arms. Most of the cities of Holland and Zealand joined the prince against the Spaniards, and he was once more acknowledged royal stadtholder in Holland, Zealand, and Utrecht. Two years afterwards, the two first of these provinces committed the government to him during the war. But the powers of this government were extremely indefinite: orders were issued at one time in the name of the king of Spain; at another, in that of the gentry and cities; sometimes in the name of the prince of Orange and of the gentry and cities; and sometimes in the name of the prince alone. This fluctuation continued even after the accession of Utrecht (1579), till the authority of the king of Spain was wholly shaken off, in 1581. In 1582, the powers previously intrusted to the prince were renewed without restriction, and all public decrees and ordinances were issued in his name alone. At length, Holland and Zealand were on the point of formally investing him with the supreme authority, when he was assassinated, at the instigation of the Spaniards, in 1584. After the death of William, the states-general declared the earl of Leicester (who was sent with a body of troops by Elizabeth, queen of England, to aid them against the Spaniards) stadtholder. The states of Holland and Zealand, however, had conferred the government of their provinces on prince Maurice, second son of the murdered prince of Orange; and he was the first stadtholder who had been appointed by the separate provinces. When Leicester resigned the stadtholderate, Maurice was chosen, in 1590, stadtholder of Guelders, Utrecht, and Overyssel. He was succeeded by his brother Frederic Henry and his son William II., in the government of the five above-mentioned provinces. William Louis, count of Nassau, a son of the count of Nassau-Dillenburg, the younger brother of William I., was stadtholder of Friesland, and afterwards of Gröningen. He was succeeded in Friesland, after his death, by his brother Ernest Casimir, count of Nassau-Dietz; but Gröningen, and the province of Drenthe, elected prince Maurice, so that he was now governor of six provinces. After his decease, count Ernest Casimir was also elected by Gröningen and Drenthe. The next stadtholder in Friesland and Gröningen was his son Henry Casimir; and, after his decease, Frederic Henry, prince of Orange, attempted to unite the stadtholderate of these provinces with that of Holland, Zealand, Utrecht, Overyssel, and Guelders, which he already enjoyed. But he only acquired Gröningen, to which his son William II. succeeded. In Friesland, William Frederic, brother of count Henry Casimir, was made stadtholder; and, on the early death of William II. prince of Orange, he was likewise elected stadtholder of Gröningen. The government of both these provinces thenceforward devolved on the male posterity of William Frederic. In the five remaining provinces—Guelders, Holland, Zealand, Utrecht, and Overyssel—after the death of William II., the stadtholderate ceased. By his disputes with the states of Holland, he had made himself many enemies; and, by the artifices of John de Witt, grand pensionary of Holland, his son William III. was excluded from the

stadtholderate by the act of exclusion agreed to by the province of Holland, in a treaty with Cromwell, in 1654, and in 1667 by the *perpetual edict*, as it was called. But, in 1672, when Louis XIV. attacked the united Netherlands, the Magistrates of the Dutch cities were forced, by popular insurrections, to repeal the perpetual edict, and to declare William III., prince of Orange, stadtholder. The same scene was acted over again in Zealand, Guelders, Utrecht and Overyssel; and, in these five provinces, the stadtholdership was declared to be hereditary in the male line of William III. He retained his authority after he was made king of England, in 1688. But, as he died without children, in 1702, the place was vacant for many years. In 1722, William Charles Henry Friso (a son of John William Friso, prince of Nassau and Orange, and stadtholder of Friesland and Gröningen) was elected stadtholder by the province of Guelders, Holland, Zealand, Utrecht and Overyssel retained their former government till 1747, when France invaded the lands of the generalty. The states of Zealand and Holland were now compelled, by a general insurrection, to appoint the above-named prince, William Charles Henry Friso, stadtholder, and Friesland and Overyssel soon followed the example. William IV. was thus the first stadtholder of all the seven provinces. The dignity was declared hereditary both in the male and female lines; but kings and electors, and all persons out of the pale of the Reformed church, were excluded, whether male or female. In case the stadtholderate should devolve upon a minor, the mother was to preside, under the title of *governess*, as long as she remained a widow and a resident of the states; and, in case of war, she was to have the privilege of nominating a general to the states. If the mother were absent, or not living, the states were to have the right of electing a guardian. On the death of William IV. he was succeeded by his son William V., then three years old, under the guardianship of his mother, a daughter of George II. of England, who, on the day of her husband's death, assumed the office of governess. She died in 1759, and Louis, prince of Brunswick, who had been, from 1750, field-marshal-general in the Dutch service, was chosen guardian of the young prince; and, in 1766, at the age of eighteen years, William took upon himself the discharge of his office.

The authority of the stadtholder was not the same in all the provinces; for he was appointed by each province separately, and received from them more or fewer privileges. With the general stadtholderate was connected the dignity of captain-general and admiral of the state; and his authority consisted in the exercise of sundry high privileges with regard to the affairs of government, and the military and naval forces. In regard to the former, he might appoint from a certain number of persons nominated by the states of a province various judicial and other officers, and could appoint and remove the magistrates of some cities, according to circumstances. This right he exercised, particularly in the provinces of Utrecht, Guelders and Overyssel, because they were excluded from the union in 1672, on account of their feeble opposition to the French, and, in 1674, were readmitted only on condition that the civil magistrates should be appointed by the stadtholder. In Holland, he had the right of advising in regard to the persons proper to be appointed to office. He presided, by virtue of his office, over the states-general and provincial assemblies, and had an important influence on the legislation. He administered, likewise, those parts of the executive government which most concerned the general interests. He had the right of pardoning criminals not guilty of murder or any heinous crime. By the terms of the union of Utrecht, he was also made umpire of all disputes between the provinces. It was his duty to defend the rights and immunities of the provinces and cities, to execute the laws and ordinances of the states, and to maintain peace and good order in the provinces. The military force was under his direction; for, as captain-general, he was commander-in-chief of the troops; and they were required to swear allegiance to the stadtholder as well as to the states-general and the provincial estates. He appointed all officers up to the colonel, and from a list presented to him, selected the governors of the forts. When at the head of the army, he might often appoint a general absolutely: but he could not undertake any campaign, or other military enterprise, without the consent of the states-general; and they often sent commissioners to the army, whose assent was requisite to every movement. He could station the troops, however, in the provinces and fortifications, wherever he pleased. As high-admiral, he commanded the naval force of the state, and presided over the college of admiralty, where he nominated his deputies, and performed many duties connected with the naval service. The tenth part of the spoil gained in naval actions belonged to his office; and, formerly, this was exceedingly valuable. These important rights, which, in many respects, amounted to sovereignty, were made still greater in 1747, by the institution of the general hereditary stadtholdership.

In 1748, William IV. was appointed by the states-general captain-general and admiral of the lands of the generalty. The East India company elected him their president—an office which no stadtholder had ever before enjoyed; and the West India company soon after chose him to a similar office. This gave him great influence in both, and the authority of the stadtholder became greater than ever before. His revenue was derived from numerous sources, and was very great; his court exhibited a royal splendour. In the war between France and Britain, in 1778 (the American war), in which the republic of the Netherlands became involved, the people grew dissatisfied with William V.; and he was accused of not protecting the Dutch ships from the violences of the British, of neglecting to use the navy of the republic to the best advantage during the war, and of encouraging and promoting its inactivity. The party which opposed him, and was made up of merchants and magistrates, attributed his conduct to the restrictions of the stadtholder's power. As William V. had married a niece of Frederick the Great, the court of Berlin advocated the rights of the stadtholder with the greatest zeal, and the Prussian ambassador at the Hague was instructed to provide expresly against their diminution. But the states, notwithstanding, stripped the stadtholder of his authority in the Hague, and suspended him from his office as captain-general. By the aid of Prussian troops, the contest at length turned in favour of the stadtholder. He recovered the rights and privileges which had been taken from him, and obtained the power of making such changes in the governments of the Dutch cities as secured him a majority. In 1788, the stadtholderate, with all its rights, was declared

to be an essential part of the government of each province and of the whole republic of the Netherlands. The stadtholder and his wife took advantage to the utmost of the power thus put into their hands, and declared the brightest ornaments of the opposite party, the *patriots* (so called), incapable of holding any office. These measures induced many to leave the country, and filled those that remained with dissatisfaction. At the period of the revolution, France profited by this state of things. It declared war, not against the republic, but against the stadtholder; and, in 1794, after a slight resistance, Holland was occupied by the French, under Pichegru, and the hereditary dignity of general-stadtholder was abolished for ever. By the decree of the imperial deputation, in 1803, the hereditary stadtholder received indemnification in Germany; but, by the war of 1806 and 1807, he lost it again, and lived as a private man till 1813, when he was recalled, and, by a decree of the congress of Vienna, received the title of king. See *Nassau*, and *Netherlands*.

STAEL-HOLSTEIN, Anna Louisa Germaine Necker, Baroness de, a highly gifted woman, who has been called the greatest female writer of all ages and countries, and who was certainly the most distinguished for talents among the women of her age. Since Rousseau and Voltaire, no French writer has displayed equal power. The favourable circumstances of her early life gave full developement to her mind. She was born at Paris, in 1766, and the elevation of her father (see *Necker*) to the ministry of finance, in 1777, brought him into close connexion with the most brilliant circles of the capital. Her mother, the daughter of a Swiss clergyman, a pious and sensible woman, somewhat given to metaphysical speculations, and rather stiff in her manners, directed at first the education of the lively girl, who early acquired habits of diligent application, and was accustomed to hear conversations above the comprehension of her age. Necker's house was the resort of the most distinguished men of the capital; and, like other ladies of the day, who made pretensions to literary taste, Mad. Necker assembled around her celebrated scholars, e. g., Raynal, Marmontel and Thomas. The encouragement to converse, which the young girl received in this society, and the various excitements which it furnished to her faculties, had an important influence on the formation of her mind. To these she owed that rare conversational power for which she was so remarkable, and her taste for intellectual contests, with an inclination to ingenious, brilliant and striking theories, which appears in her earlier works. Her lively spirit found much more satisfaction in the society of her father than in that of her mother. His character, in fact, was much more like her own, and he better understood how to act on her mind. His affection for her was mingled with a father's pride, and she was enthusiastically fond of him, while her respect for him bordered on veneration. Necker, however, never encouraged her to write, as he disliked female writers, and had forbidden his wife to occupy herself in that way, because the idea of disturbing her pursuits when he entered her chamber was disagreeable to him. To escape a similar prohibition, his daughter who early began to write, accustomed herself to bear interruptions without impatience, and to write standing, so that she might not appear to be disturbed in a serious occupation by his approach. When her father's *compte rendu* was published, in 1781, she wrote him an anonymous letter on the subject, which he recognised, by the style of thought, to be hers. In her fifteenth year, she made abstracts from Montesquieu's Spirit of Laws, accompanied with remarks: and at this time Raynal wished her to furnish a treatise on the revocation of the edict of Nantes, for his work on the Colonies and Commerce of the Europeans in the two Indies. Her earliest productions were Sophia, a comedy, written in 1786, and two tragedies, Lady Jane Grey, and Montmorency. Her *Lettres sur les Ouvrages et le Caractère de J. J. Rousseau*, which were printed in 1788, first attracted the public notice. In 1786, she was married to the baron de Staël-Holstein, Swedish ambassador at the French court, a man much older than herself, whose suit was favoured by Mad. Necker's desire that her daughter should marry a Protestant, and by the promise of his king to continue him in his post several years. Her heart, however, appears to have been given to the viscount de Montmorency, with whom she maintained a friendship during her life.

The breaking out of the revolution (1789) necessarily exercised a powerful influence, both on her mind and fate. She was early accustomed to take an interest in public affairs. Her youth was passed amid great events, which, although occurring in another hemisphere, hastened the crisis of the European states. The first period of her father's service in the ministry (1777—81) brought his family into connexion with the great world and public affairs, and political topics formed the chief subjects of conversation, even in the coteries of the ladies. Familiar with the views of her father, and with the liberal principles of several of the most distinguished French writers of the day, she was inspired with an enthusiastic love of liberty, and had expressed her feelings in her work upon Rousseau. "Neither her disposition nor her situation," says Mad. Necker de Saussure, a near relation and intimate friend of Mad. de Staël, "would allow her to be indifferent to the general agitation; since she was placed in the focus of its influence. She admired the constitution of Britain, as much as she loved France; and the thought of seeing Frenchmen as free as Britons, equal in all that was necessary to secure the rights and maintain the dignity of men, was her ardent wish; and with these views was connected the hope that her father would aid in this great work, and earn gratitude for his services; so that we need not wonder at her enthusiasm." She has related at length her share in the events of the time, in her posthumous work. Her father's banishment, in 1787, and his triumphant return, in 1788, deeply affected her; and when the storm became too fierce for him, and he was obliged to retire from public life, she saw with grief all her hopes disappointed. During Robespierre's ascendency, she exerted herself, even at the hazard of her life, to save the victims, and published a powerful and eloquent Defence of the Queen, who had always shown a dislike to her. After the insurrection of August 10, she delayed her departure from day to day, unwilling to provide merely for her own safety, while so many of her friends were in danger. On September 2, when the tocsin called the populace to riot and murder, she attempted to leave Paris, but was detained, and escaped the popular fury only by a remarkable concurrence of circumstances. She arrived safely at her father's house, which now became the refuge of the unhappy fugitives from the tyranny which preyed upon France.

When Sweden recognised the French republic, her husband was again sent as ambassador to Paris, whither she also returned, in 1795. The quiet which was restored with the government of the directory, gave her an opportunity of effecting the recall of some of the emigrants. Barras became her friend: and she acquired so much influence, that, on Talleyrand's return from America, in 1796, she obtained, through Barras, his appointment to the ministry of foreign affairs. To this period also belong two political pamphlets, *Sur la Paix*, and *Sur la Paix intérieure*, which contain her views respecting the situation of France in 1795, and express the remarkable opinion that France could arrive at limited monarchy only through military despotism. In 1796 appeared her work *De l'Influence des Passions sur le Bonheur des Individus et des Nations* (1796), which, though characterized by deep thought and enlightened views, does not contain any complete exposition of the subject.

Her domestic relations at this time were not happy. Her connexion with her husband, whose tastes were different, and whose talents were inferior to her own, had been, from the first, marked by coldness; and, when she became desirous of securing the property of their children from the effects of his lavish habits, a separation took place; but, his infirmities rendering the services of his friends necessary to him, she again joined him. He died in 1798, while on the way, in company with her, to her father's residence. The man who exercised so fatal an influence upon the rest of her life—Bonaparte—she had seen, for the first time, in 1797, on his return to Paris, after the peace of Campo-Formio. His brilliant reputation, which had inflamed the lively imagination of the French, also excited her admiration; but this sentiment soon gave way to fear and aversion. She formed the design of gaining him over to the cause of Swiss independence, when an invasion of Switzerland was in contemplation, for the purpose of raising money for the Egyptian expedition; but she soon saw that her plan could not succeed. The danger which threatened Switzerland led her to Coppet, where a French guard under Suchet was posted; but when Geneva was incorporated with France, she hastened back to Paris, to cause her father's name to be struck from the list of emigrants. Necker now seemed likely to pass the remainder of his life undisturbed. Bonaparte visited him before his passage over the Great St Bernard, and made a favourable impression upon him during a long interview, in which he spoke of his future plans. But some observations of Necker in his *Dernières Vues de Politique et des Finances* (1802), in which he spoke with freedom of the consular constitution, and mentioned Bonaparte's design of establishing a monarchy, and surrounding himself with a new nobility, offended the first consul, who had no wish to see his plans prematurely announced, and therefore caused the work to be attacked in the journals. By his direction, the consul Lebrun wrote a sharp letter to Necker, advising him not to meddle any more with public affairs.

Mad. de Staël was banished from Paris, under pretence that she had given her father false information of the state of France. During her banishment, she lived with her father at Coppet, but spent much time in travelling, and once (in 1806) passed some days secretly in Paris. Her literary reputation was meanwhile increased by her *De la Littérature considérée dans ses Rapports avec les Institutions sociales* (2 vols., Paris, 1802), and her *Delphine* (1802). The former work attracted many assailants, among whom Fontanes was the ablest and acutest. She had, indeed, over-estimated the influence of literature upon the character and happiness of men, and pronounced too confidently upon its history and prospects. Her romance *Delphine* contained a faithful picture of herself, as she was in her youth—a creature separated from the multitude by genius and sensibility, and struggling against the restraints of custom and her sex. Mad. de Staël, who never otherwise reverted to her earlier writings, found herself obliged to defend the moral tendency of *Delphine*, in a particular essay. In 1803, she made a visit to Germany, whence her father's sickness recalled her to Switzerland; but he died before she reached home. She always retained the greatest attachment and veneration for his memory. His death rendered her religious feelings more lively, and in this state of mind she wrote an admirable account of his domestic life, (prefixed to the *Manuscrits de M. Necker publiés par sa Fille*, 1805), which gives us much insight into her own character. To dissipate her grief, Mad. de Staël paid a visit to Italy in 1805; and from that time A. W. Schlegel, with whom she had become acquainted in Berlin, was her constant companion. (See *Schlegel*.) The fruit of her journey to Italy was *Corinne ou l'Italie* (1807), the most perfect and brilliant of her works, combining in a happy manner the charms of romance with a faithful picture of Italy. In 1810, she went to Vienna to collect materials for a work upon the manners, literature and philosophy of Germany, which she had planned on her first visit to that country. Many passages had been struck out from the manuscript of this work by the censors of the press; and no sooner was the impression completed, than the whole edition was seized by Savary, minister of police. It first appeared entire at London, in 1813, and was printed at Paris in 1814. This work is rich in acute and ingenious ideas, but has been justly criticised as containing many erroneous views. Mad. de Staël was now persecuted with more bitterness, and her exile from Paris was extended to banishment from France.

During her residence on her father's estate, she formed a new connexion about this time, which strongly illustrates the peculiarity of her character. A young officer from the south of France, by the name of de Rocca, who had distinguished himself by his bravery in Spain, rendered infirm by his wounds, came to reside at Geneva. Some expressions of sympathy which fell from Mad. de Staël made a deep impression upon him, and inflamed his heart and his imagination. "I will love her so passionately," said he, "that she will marry me at last." Circumstances favoured his wishes; Mad. de Staël, in the midst of her sufferings, had cherished the hope of consolation in a new union, and accepted the hand of the officer. The marriage, however, remained a secret till her death. While she wished to leave a place where she feared to involve others in her fate, she saw the dangers and difficulties of a flight, watched by spies and informers, and was reluctant to abandon the graves of her parents and her second country, and wander, like a criminal, by land and sea. But in the spring of 1812, the last moment when flight was possible, she resolved upon departure, having been already threatened with imprisonment if she left her residence for a day. She hastened through Vienna to Moscow, and, on the

approach of the French army, went to Petersburg, and soon after, in the autumn of 1812, to Stockholm. Here appeared her work on suicide (*Reflexions sur le Suicide*), which she had just completed, and which points out to the unhappy the aids of religion and morality. In the beginning of the next year, she went to England, where she was received with the most flattering attention. After a long exile, the sufferings of which she has described in her *Dix Années d'Exil*, she landed at Calais, in 1814. The allied princes treated her with great distinction, and her influence contributed not a little to hasten the removal of the foreign troops from France. On the return of Napoleon, in 1815, she retired to Coppet. It is said that Napoleon invited her to return to Paris, that she might assist in the preparation of the new constitution, but that she refused, adding, "He has dispensed with the constitution and me for twelve years, and now he loves neither of us."

After the restoration, she received from the government public stock to the amount of two millions of francs, the sum which her father had left in the royal treasury, at the time of his dismission from office. Surrounded by a happy domestic circle—a beloved husband, an excellent son, and an amiable and highly accomplished daughter, who was united to a man of distinguished merit, the duke de Broglio—esteemed and courted by the most eminent men of the capital, and cheered with the hope of seeing her country's wounds healed by a free constitution, she lived in Paris, with the exception of a short absence, till her death. Until her last sickness, she was employed on her *Mémoires et Considérations sur les principaux Evénements de la Révolution Française* (Paris, 1819, 3 vols.) Few persons were more favourably situated than Mad. de Staël for appreciating the importance of the events of which she treated. She had three principal objects in this work—the justification of her father's public life, a faithful delineation of the course and character of the revolution, and a developement of the political principles, consonant to the spirit of the age. See the remarks on it in Bailleul's *Examen* (2 vols., 1819). The completion of this work was interrupted by her death. She had suffered much since the beginning of 1817, and in the summer of that year her disease took a decided character. Although reluctant to leave her friends, and dreading, as she said to her physician, the thought of the dissolution of her body, she was not afraid to die. To the last moment she retained her tranquillity, and expressed her hope of again meeting her father. "I think," she said one day, as if awaking from a dream, "I think I know what the passage from life to death is, and I am convinced that the goodness of God makes it easy; our thoughts become confused, and the pain is not great." In the morning of July 14, 1817, she replied to the question of her nurse, whether she had slept, "Soundly and deeply." These were her last words. Her body was embalmed, and deposited in the family vault at Coppet.

See the *Notice sur le Caractère et les Ecrits de Mad. de Staël*, by Mad. Necker de Saussure, prefixed to the complete edition of her works, published at Paris, in 1821, in 17 vols.; and Schlosser's *Parallel between Mad. de Staël and Mad. Roland* (in German and French, 1830).

The taste of Mad. de Staël is not altogether correct; her style is irregular, and has too much pretension; her attempts at effect and her occasional tendency to exaggeration sometimes mislead her judgment, and cause her to give a false colouring to facts. But in all her works we find original and profound thought, great acuteness, a lively imagination, a philosophical insight into the human heart, and into the truths of politics and literature.

Her son *Augustus*, baron de Staël, born 1789, died 1827, is favourably known by his *Notice sur M. Necker* (1820), and his valuable *Lettres sur l'Angleterre*. He left a son, the only descendant of Mad. de Staël.

STAFF (from the staff formerly borne by officers in high command), in military affairs, means generally the officers whose command extends over several bodies of troops, of which each has its particular officers. Thus the general staff (in French, *état majeur général*) is composed of the general, the chief and the officers of the staff, the commanders of artillery, and of the corps of engineers, and the heads of the different departments of military administration. The staff of a division comprises a lieutenant-general, major-generals, and the officers of the staff, of the artillery, engineers and administration. The staff of a regiment comprises the colonel, the superior officers, adjutant-majors, quarter-masters, &c. In England, the chaplain and surgeon of the regiment also belong to it. The military divisions, fortified places, &c., have their staffs composed in a similar manner to those of the armies. Under the French empire, the staff of the emperor had quite a peculiar organization, originating in his always commanding in person, and directing, in time of peace, the whole military machine personally. In Prussia, the staff is employed in preparing the maps of the kingdom, and in similar duties. In time of peace, the officers of the staff are attached in part to the various divisions of the army. In Austria, the staff is employed in the military topography of the empire; trigonometrical and geodesical operations; the military, geographical and statistical description of the provinces; in fortifications; in the care of the archives, &c. The British army has a very good staff, which has produced an excellent military map of the part of England along the coast from Portsmouth to the Thames. The corps is under the command of the quarter-master-general of the British forces. The officers employed in it are examined, and go through a course of studies. See *Force Militaire de la Grande Bretagne*, by Charles Dupin

STAFF, BISHOP'S. See *Crosier*.

STAFFA; a small island of the Hebrides, belonging to Argyleshire, celebrated for its basaltic pillars and its natural caverns, particularly the cave of Fingal; seven miles north of Iona, five west of Mull. It is of an oval form, one and a half miles in circuit, presenting an uneven table-land, terminating nearly all round by cliffs of variable height. The greatest elevation is 144 feet. The surface is covered by a rich soil and luxuriant grass, affording excellent pasture for a herd of black cattle; but there is no house on the island. A considerable portion of the precipitous face of Staffa is in a columnar form: the highest point of this face is 112 feet above high-water mark. There are several

remarkable caves, as Great cave, 224 feet long; Boat cave, 150 feet long; Mackinmon's, or the Scart, or Cormorant's cave; and, above all, Fingal's cave, which is celebrated, by those who have visited it, in terms of high admiration. See *Fingal's Cave*, and *Hebrides*.

STAFFORD; the county-town of Staffordshire, England, is situated on the bank of the river Sow, six miles from its confluence with the Trent, 141 miles north-west by north from London. It is an ancient borough, having been incorporated by king John in the seventh year of his reign. Formerly it was surrounded by a wall, and defended by a castle, some remains of which still exist. The chief trade of Stafford consists in tanning leather and making shoes for exportation. The town is handsomely built, principally of stone. Population in 1831, 6,998.

STAFFORDSHIRE; a central county of England, bounded on the north by Cheshire and Derbyshire, on the east by Leicestershire, on the west by Shropshire, and on the south by Warwickshire and Worcestershire. Its length from north to south is about fifty-five miles, and its breadth from east to west about twenty-four. The northern part of Staffordshire, called the moorlands, is a rough mountainous tract, chiefly devoted to sheep pastures. The middle and southern parts are generally level and fertile. The principal rivers of the county are, the Trent, which is the third river in England, the Dove, the Stour, the Blythe, the Tame, and the Sow and the Penk, which last are all tributaries of the Trent. Navigable canals, forming branches of the Grand Trunk Canal, intersect the county. Coal abounds in various parts of Staffordshire, particularly in the Moorlands and the neighbourhood of Newcastle-under-Lyne, and from Cannock Heath the coal district extends southwards into Worcestershire. At Hanley is found a curious variety called peacock coal, from the irridescent colours on its surface. Other mineral products of Staffordshire are iron, lead, and copper ores, marble, limestone, freestone, potter's clay, alabaster, and red and yellow ochre; at Langley close a kind of carbonaceous matter or black chalk occurs in beds of gray marble; and near Himley Hall is procured a sort of reddish earth like French chalk.

The chief agricultural produce of this county consists of wheat, barley, oats, beans, and peas; buckwheat is sometimes cultivated, and also hemp and flax, but on a small scale; cabbages are grown extensively in some parts of the county, and also Swedish turnips. Near the river, and especially on the banks of the Trent, are fertile tracts of meadow-land, where cattle are fed for the dairy, and considerable quantities of cheese and butter are produced.

Staffordshire has long been famous for its potteries, which, owing to the great improvements in this branch of manufacture effected by Josiah Wedgwood, (see the articles *China* and *Wedgwood*) have vastly augmented the wealth and population of the district in which they are situated, and raised some formerly inconsiderable villages, as Hanley, and Stoke-upon-Trent, to the rank of market-towns. Some of the materials requisite for the prosecution of this manufacture are found here in abundance, as fire-clay, and coal, but the finer clays are procured from Purbeck in Dorsetshire, and other parts of that coast; and flints from the Kentish chalk-pits, and from Wales and Ireland. In the neighbourhood of Newcastle-under-Lyne are iron-works; Wolverhampton is noted for the manufacture of locks, edge-tools, and japanned ware; Walsall for sadler's ironmongery; various kinds of hardware are made at Pelsall, Sedgley, West Bromwick, and other places; and on the borders near Worcestershire are a number of large glass-houses. At Rocester, on the Dove, Fazeley, Tutbury, and elsewhere are considerable cotton-works; the manufacture of silk goods is carried on at Leek extensively; that of boots and shoes at Stafford; and the county is noted for the excellence of its ale, especially that which takes its name from the town of Burton-upon-Trent.

The county is divided into five hundreds, viz. Cuttlestone, Offlow, Pirehill, Seisdon, and Totmonslow. The only city is Lichfield; the boroughs are Stafford, Newcastle-under-Line, and Tamworth; and the market towns, Burslem, Burton-on-Trent, Cheadle, Eccleshall, Hanley, Lane-end, Leek, Longnor, Rugeley, Stoke-upon-Trent, Stone, Uttoxeter, Walsall, Wednesbury, and Wolverhampton; the markets of Abbot's Bromley and Penkridge have become obsolete. Population of Staffordshire in 1821, 341,040; in 1831, 410,485.

STAG. See *Deer*.

STAGGERS. See *Stomach Staggers*, and *Sturdy*.

STAHL, GEORGE ERNEST, a German physician and chemist, born at Anspach, in 1660, studied at Jena, under Wedelius; and, in 1687, became physician to the duke of Saxe-Weimar. In 1691, he was chosen second professor of medicine at Halle, and rendered his name famous over all Germany by his academical prelections and his publications. He was, in 1700, elected a member of the *Academia Curiosorum Naturæ*. His fame procured him the appointment of physician to the king of Prussia, in 1716; and, going to Berlin, he died there, in 1734. Stahl was one of the most illustrious medical philosophers of his age: his name marks the commencement of a new era in chemistry. He was the author of the doctrine which explains the principal chemical phenomena by the agency of phlogiston; and though his system was, in a great measure, overturned by the discoveries of Priestley, Lavoisier and others, it nevertheless displays powerfully the genius of the inventor. This theory maintained its ground for more than half a century, and was received and supported by some of the most eminent men which Europe had produced. (See *Chemistry*, and *Oxygen*.) He was also the proposer of a theory of medicine, founded on the principle of the dependence of the state of the body on the mind; in consequence of which he affirmed that every action of the muscles is a voluntary effort of the mind, whether attended with consciousness or not. His principal works are *Experimenta et Observationes Chymicæ et Physicæ* (1731, 8vo.); *Disputationes Medicæ* (2 vols., 4to.); *Theoria Medica vera* (1737); *Fundamenta Chymiæ dogmaticæ et experimentalis* (3 vols., 4to.).

STAINER, OR STEINER, JACOB; a famous maker of stringed instruments, near Hall, in Tyrol, about the middle of the seventeenth century, and a pupil of the famous violin maker Amati of Cremona. He made, principally, violins. They are rare, and bring 300 ducats apiece. He became insane towards the end of his life. He died in or before 1684.

STAIR, LORD. See *Dalrymple*.

STALACTITES are formed by the filtration of water, containing calcareous particles, through

pores or fissures in the roofs of those caverns which are frequent in limestone. The water, having percolated through the roofs, remains suspended in drops. Evaporation commences at the exterior of the drop, and the calcareous particles are deposited on the roof of the cavern in the form of a little ring, which extends by degrees till a small tube is produced. The bore of this tube is, in most cases, diminished by successive deposits, till it becomes entirely closed; and the stalactite then increases by concentric layers applied to the exterior. Thus cylinders or cones are produced, and sometimes so enlarged that they unite with each other. While the stalactite is forming, a part of the water drops from it on the floor of the cavern, or trickles down the sides, and thus produces those calcareous concretions called *stalagmites*. When large, they are called *alabaster*. On the floor, they often form large masses, sometimes rising till they meet the stalactites pendent from the roof, and extending in all directions. A great variety of imitative forms are produced; hence a lively imagination will perceive, in these caverns, representations of the most diverse objects, especially by the light of a candle. The colour of stalactites is seldom pure white; it more frequently presents shades of yellow, red, or brown. Among the more remarkable foreign localities of stalactites are the grotto of Antiparos, in the Archipelago; Baumann's cave, in the Hartz; Pool's hole, in Derbyshire; the caves of La Balme, in Savoy; and of Auxelle, in Franché Comté. Fine specimens of alabaster are found in Spain, near Grenada, &c., in Italy, Sicily and Sardinia. The most beautiful alabaster employed by the ancients, is supposed to have been found in Egypt, in mountains west of the Red sea.

STALL. See *Prebend.*

STAMBOL. See *Constantinople.*

STAMFORD; a town of England, in Lincolnshire, situated on the banks of the river Welland, eighty-nine miles north by west from London. It is said to derive its name from the Saxon *stean* and *forde*, there having been formerly a kind of causeway where the river Welland was forded. The town is built in the form of a cross, the houses being generally of freestone, covered with slate. It contains six parish churches, and two or three meeting-houses. The other public buildings are, a townhall, a theatre, and an assembly room. Stamford has several charitable establishments, the most opulent of which is that founded in the reign of Richard III., by William Brown. The trade of the place is principally in malt, coal, timber, and freestone. Population in 1831, 5837.

STAMMERING. See *Stuttering.*

STAMPED PAPER, for the purpose of raising a tax, is a Dutch invention. De Basville, or Baville, in his *Mémoires pour servir à l'Histoire de Languedoc*, affirms that stamped paper was introduced as early as the year 537, by the emperor Justinian; but Beckmann, in his History of Inventions, shows this opinion to be erroneous. The states of the United Provinces promised a reward for the invention of a new tax, which would press lightly on the subjects, and yet yield much to the government; and stamped paper was proposed. It was legally introduced, August 13, 1624, by the states, and was gradually imitated by other governments. In the year ending with 5th January, 1838, the stamps produced to the British government £6,432,153.

STANDARD, OR FLAG; originally, a signal, erected on a pole, spear or lance. Such signals were used for different purposes, and were known among the Hebrews as early as the time of Moses, and adorned with emblems. Ephraim carried a steer; Benjamin a wolf, &c. We find something similar among the Greeks; the Athenians had an owl, the Thebans a sphinx, on their standards, by the raising or lowering of which they gave the signal for attack or retreat. The standard of Romulus was a bundle of hay tied on a pole. In place of this, a hand, and, finally, an eagle, were substituted. The real standards, came first into use under the Roman emperors, who retained the eagle: they were also ornamented with dragons and silver balls. The standard of the cavalry consisted of a square piece of purple cloth, decorated with gold, on which the figure of a dragon was afterwards represented. The Germans fastened a streamer to a lance, which the duke carried in front of the army. From *band*, the name which this bore, comes our English word *banner* (*bandum*, *banderium*, *bandiera*). Afterwards, a large cloth was used, ornamented with emblems and inscriptions. The imperial French armies, in imitation of the Romans, had an eagle for an ensign, but of a different shape from the Roman eagle. See *Eagle.*

STANDARD OF MONEY; the degree of the purity or fineness of the metal contained in the coins of a particular country, and the quantity or weight of such metal contained in these coins. We have given a comparative view of the standard of money, in different countries, in the table contained in the article *Coins*, to which, and to the article *Circulating Medium*, we refer the reader. The alloy in coins is reckoned of no value: it is allowed to save the trouble and expense of refining the metals to the highest degree of purity, and to render the coins harder, and, therefore, less liable to be worn or rubbed. The standard is sometimes arbitrarily changed by governments, as a means of raising money, either by simply altering the denomination of the coins, without changing their weight or purity, or by issuing coins of baser metal, or by reducing the weight of the coin. But experience has taught that such changes are not only frauds upon the public creditor, and a source of confusion and distress to the people at large, but that they afford only a temporary relief to the public treasury, at the expense of new embarrassments. The present standard of the English coins has remained unchanged since the conquest, except for a period of sixteen years, from thirty-fourth of Henry VIII. to second of Elizabeth. That of the gold coins was changed in the eighteenth of Henry VIII.; previously to which the standard had been twenty-three carats three and a half grains fine, and one half grain alloy.* It was then fixed at twenty-two carats fine and two carats alloy. The former was called the old standard, the latter the new standard or crown gold, because crowns were first coined of

* The purity of gold is estimated by an Abyssinian weight called a *carat* (bean), which is subdivided into four parts, called *grains*. Gold of the highest purity is said to be twenty-four carats fine.

it. The practice of making gold coins of both these standards was continued, however, till 1633, since which all the gold coined has been of the new standard. The coins of the old standard remained in circulation until 1732, when they were withdrawn. But the standard has been degraded by the reduction of the weight of the coin, so that a pound weight of silver, which, at the time of the conquest, was coined into twenty shillings, was, in 1601, coined into sixty-two, and, in 1816, into sixty-six shillings. In other countries, the degradation of the coin has been still greater. But it would far exceed our limits to give a detailed statement of the facts, which are, however, of great importance to readers of history.

STANHOPE, James, first earl, was born in Herefordshire, in 1673, and accompanied his father, who was sent envoy extraordinary to the court of Spain early in William's reign. He continued in Spain some years, made the tour of France and Italy, served as a volunteer in Flanders, and received the commission of colonel at the age of twenty-two. He served as brigadier-general under the earl of Peterborough at the capture of Barcelona. In 1706, he was made major-general and commander-in-chief in Spain, and, the same year, he reduced the island of Minorca. In a subsequent campaign, in 1711, he was made prisoner, but was exchanged the following year. On the accession of George I., he was appointed one of the secretaries of state. In 1716, he attended the king to Hanover, where he was principally concerned in the formation of the alliance concluded with France and the States-general, which removed the pretender beyond the Alps. The next year, he was appointed first lord of the treasury and chancellor of the exchequer. In 1718, he became secretary of state, and was created earl Stanhope. He died in 1721.

STANHOPE, Philip Dormer. See *Chesterfield*.

STANHOPE, Charles, the third earl, was born in 1753. He received the early part of his education at Eton, and finished it at Geneva, where his genius led him to pay a close attention to the mathematics; and such was his progress that he obtained a prize from the society of Stockholm for a memoir on the pendulum. In 1774, he stood candidate for Westminster without success; but was introduced, by the earl of Shelburne, into parliament as a member for the borough of Wycombe, which he represented until 1786, when the death of his father called him to the house of peers. He was one of the many English politicians who regarded with pleasure the dawn of the French revolution; but, what was much more extraordinary in a peer by birth, he openly avowed republican sentiments, and went so far as to lay by the external ornaments of the peerage. He was also a frequent speaker against the war; and, although singular in many of his opinions, a strong vein of sense and humour often qualified his statements of peculiar views. As a man of science, he ranked high, both as an inventor and patron, and, among other things, was the author of a method for securing buildings from fire, an arithmetical machine, a new printing press, a monochord for tuning musical instruments, and a vessel to sail against wind and tide. He was twice married; first, to lady Hester Pitt, daughter of the first earl of Chatham, by whom he had three daughters; and, secondly, to Miss Grenville, by whom he had three sons. This scientific, ingenious, but eccentric nobleman, published several philosophical and a few political tracts. He died December 14, 1816.—Henry Philip Stanhope, the present earl, son of Charles, earl Stanhope, was born in the year 1781, and professed principles diametrically opposite to those of his father, against whom he even carried on a suit in equity. On the opening of parliament, in 1818, he made a speech, in which he recommended that France should be dismembered, to prevent her from troubling, in future, the tranquillity of Europe. In the investigation, with respect to the conduct of the late queen Caroline, his lordship voted against the bill of pains and penalties. His eldest son, known as viscount Mahon, is the author of a life of Belisarius, and of a History of the War for the Spanish Succession (1832).

STANHOPE, Lady Hester; an English lady, a niece of Pitt, famous for her singular mode of life. She has resided in Syria for about twenty years, living chiefly about eight miles from Sidon, at a villa of her own construction, called D'Joun. It is situated on a solitary mountain, remote from any village. Doctor Madden, who went to see her in 1827, gives the following account of his visit:—"Every thing without was wild and barbarous, and all within confessed the hand of taste. I was led from the court into a little garden, at the extremity of which there was a sort of kiosk, consisting of two rooms—a sitting room and a bed room—furnished, in the European style, with chairs and tables. The room into which I was ushered was in the Arab style; and at the farther corner I perceived a tall figure, in the male attire of the country, which was lady Hester herself. For seven hours there never was a pause in the conversation. Every subject connected with Oriental learning was discussed, and every observation of her ladyship's evinced a degree of genius that astonished me, and was couched in such forcible and energetic language as to impress me with the idea that I was conversing with a woman of no ordinary intellect. The peculiarity of her opinions in no wise detracted from the general profundity of her reflections; and, though I could not assent to many of her notions regarding astral influence and astrological science, I had no reason to alter my opinion of her exalted talents, though they were unfortunately directed to very speculative studies. Nothing is more difficult than to ascertain the point where eccentricity terminates and insanity begins: at all events, I am sure that whatever may be the eccentricity of lady Hester Stanhope, her mind is unimpaired, and that few women can boast of more real genius, and none of more active benevolence." Lady Hester showed doctor Madden a horse which she said was of the race of Solomon's favourite steed, saddled by the hand of God (there was an indentation in the back, resembling a Turkish saddle). The rich presents which she made to the Turkish pachas gave her a great influence over them for a time; but at the time of doctor Madden's visit, this was greatly diminished. The Bedouins, however, or wild Arabs, whom her wisdom and kindness had won, still continued to look up to her, not only as a benefactor, but as a being of a superior order. Her belief in magic and astrology may also have contributed to extend her influence. She is a woman of great personal bravery as well as moral courage, and has encountered the robbers of the desert at the head of her servants, sword in hand.

STANISLAUS I., king of Poland, was born at

Lemberg, in 1677. His family name was Leczinski, or Lesczinski, and his father held the important post of grand treasurer to the crown. He very early displayed indications of an amiable and estimable character, and at the age of twenty-two was intrusted with an embassy to the Ottoman court. In 1704, being then palatine of Posnania, and general of Great Poland, he was deputed by the assembly of the states at Warsaw to wait upon Charles XII. of Sweden, who had invaded the kingdom, with a view of dethroning Augustus of Saxony. (See *Augustus II.*) In a conference with the Swedish monarch, he so rapidly acquired his esteem, that Charles immediately resolved to raise him to the throne of Poland, which he effected at an election held, in the presence of the Swedish general, on the 27th of July, 1704, Stanislaus being then in his twenty-seventh year. He was, however, soon after driven from Warsaw by his rival Augustus; but another change brought him back to that capital, where he was crowned, with his wife, in October, 1705; and the next year Augustus was compelled solemnly to abdicate. (See *Charles XII.*) The fatal defeat of his patron Charles XII., at Pultowa, in 1709, again obliged him to retreat into Sweden, where he endeavoured to join Charles XII., at Bender, in disguise; but, being detected, he was held captive in that town until 1714. Being then suffered to depart, he repaired to Deux-Ponts, where he was joined by his family, and remained until the death of Charles XII., in 1719, when the court of France afforded him a retreat at Weissemburg, in Alsace. He remained in obscurity until 1725, when his daughter, the princess Mary, was unexpectedly selected as a wife by Louis XV. king of France. On the death of Augustus, in 1733, an attempt was made by the French court to replace Stanislaus on the throne of Poland; but, although he had a party who supported him and proclaimed him king, his competitor, the electoral prince of Saxony, being aided by the emperors of Germany and Russia, he was obliged to retire. (See *Poland*, and *Augustus III.*) He endured this, like every other reverse of fortune, with great resignation, and, at the peace of 1736, formally abdicated his claim to the kingdom of Poland, on condition of retaining the title of king, and being put in possession for life of the duchies of Lorraine and Bar. Thence forward he lived as the sovereign of a small country, which he rendered happy by the exercise of virtues which acquired him the appellation of "Stanislaus the Beneficent." He not only relieved his people from excessive imposts, but, by strict economy, was able to found many useful charitable establishments, and to patronise the arts and sciences. He was himself fond of literature, and wrote some treatises on philosophy, morals and politics, which were published under the title of *Œuvres du Philosophe bienfaisant* (4 vols., 8vo., 1765). He died in 1766.

STANISLAUS II., PONIATOWSKI, king of Poland. See *Poniatowski, Stanislaus.*

STANITZA (*village, place of encampment*); a word found in numerous Russian geographical names belonging to the regions inhabited by the Cossacs.

STANNARIES, COURT OF. See *Courts.*

STANZA (Italian, a *stand*); a strophe or number of verses connected with each other, terminating with a full point or pause, and forming one of the regular divisions of a poem. It was formerly sometimes used to denote an entire lyric poem of one strophe. Thus Dante speaks in his work *De vulgari Eloquentia* (book ii. chap. 3 et seq.) of *cantiones* (*canzoni*) and of *stantii* (*stanze*). Stanzas are said to have been first introduced from the Italian into French poetry, about the year 1580, and thence passed into English. The principal Italian stanza—the *ottava rima*—originated in Sicily, where poets made use of it even in the thirteenth century; thence it passed into Italy, and there received, in the fourteenth century, from Boccaccio, that regular form which it has ever since retained, as the standing division of the Italian epic. Boccaccio first made use of it in his *Theseide*. Politian improved it further. Trissino, in the sixteenth century, wrote a narrative poem in blank verse, but had no imitators. The *ottava rima*, or stanza of Boccaccio (as we may call it, in contradistinction to the Sicilian, which forms a continued chain of alternative rhymes, without the double rhyme in the two last lines), consists of eight iambic verses of eleven syllables each, with female rhymes, of which the six first are alternate, but the two last are successive, and thus give to the whole an agreeable conclusion. These two last lines, however, easily seduce the poet into attempts at pointed expression, unbecoming a serious epic, and from which even Tasso is not always free. Boiardo, and particularly Ariosto and Tasso, are the great masters of the *ottava rima*. Göthe, Schlegel, Tieck and others have used it with great success in German, with the change required by the genius of the German language, viz. that they employ male and female rhymes in the first six lines, but the two last always end with female rhymes. For the *Spenserian* stanza, see *Spenser.*

STANZE. See *Raphael*, and *Vatican.*

STAPLE; a public market, whither merchants are obliged to carry their goods for sale. Various derivations have been suggested; as, 1. staples, found in the Ripuarian laws, and signifying a place where justice is administered; 2. the German *stapelen*, to put in a heap: 3. *stabile emporium* used in the civil law style of former times, and signifying a fixed post. Formerly the merchants of England were obliged to carry their wool, cloth, lead, and other like staple commodities, to particular places, in order to utter the same by wholesale. *Merchants of the staple* was the denomination of the most ancient commercial society of England, from their exporting the staple wares of the kingdom. It is said to have originated in 1248. In 1336, the staple of wool was fixed in Brabant; in 1341, at Bruges: and, in 1348, at Calais. In 1353, it was removed from Bruges to several English and Irish towns. Calais, however, still remained a staple. In the staple towns courts of law-merchant were established for determining all mercantile disputes and for punishing offenders.

STAPSS, FREDERIC, born March 14, 1792, son of a Protestant clergyman at Naumburg, in Thuringia, undertook to assassinate the emperor Napoleon, because he supposed him to be the author of the misfortunes of Germany. With this design he went to Vienna, remained ten days, and on October 23, 1809, travelled to Schönbrunn, where Napoleon was reviewing his forces. The emperor stood between Berthier and Rapp when the youth advanced, and desired to speak with Napoleon. Rapp directed him to wait till after the muster. But, being struck with the look, the voice and the bearing of Stapss, he ordered him to be imprisoned in the castle. Here a large case-knife was found upon him, and the portrait of a young female. Rapp, who spoke German, asked him his name, and why he carried a

knife. "I can tell no one but Napoleon himself." "Do you intend to murder him with it?" "Yes, sir." "For what reason?" "I can answer this question to none but himself." The emperor then commanded the young man to be brought before him. Bernadotte, Berthier, Savary, Duroc and Rapp were present. With an air of calmness, and his hands bound behind his back, the youth came into the presence of the emperor, and respectfully bowed to him. Napoleon asked him, through Rapp, the following questions: "What is your place of residence?" "Naumburg." "Who is your father?" "A Protestant clergyman." "How old are you?" "Eighteen years." "What did you intend to do with your knife?" "To kill you." "You are beside yourself, young man: you are an Illumine." "I am not beside myself; I do not know what an Illumine is." "You are sick, then." "No, I am not; I am perfectly well." "Why did you mean to kill me?" "Because you have injured my country." "Have I ever wronged you?" "You have injured me in common with all the Germans." "Who sent you? Who urged you to this crime?" "No one: the conviction that I should do a great service to my country and to all Europe by putting you to death, was my motive." With the same calmness, Stapss replied to all the emperor's interrogatories. Corvisart, Napoleon's physician, was called to feel the pulse of the young man. "Is it not true, sir, that I am not sick?" "The young man is well," said Corvisart, addressing the emperor. "I said so," observed the youth. "Your head is disordered," continued the emperor; "you will make your family unhappy. I will spare your life, if you acknowledge your crime and ask my pardon." "I wish for no pardon. I deeply regret the failure of my plan." "Whose was the portrait found on you?" "It was that of a young person, whom I love." "She will be greatly afflicted by your enterprise." "She will be pained at its ill success. She hates you as much as I do." "If I pardon you, will you thank me for it?" "It shall not prevent my killing you, if an opportunity offers." Stapss was led away, and general Lauer appointed to question him further, to discover whether he had any associates. The youth firmly maintained that no one was acquainted with his undertaking. He was shot, October 27, at seven o'clock in the morning. He had taken no nourishment since the 24th. Food was offered him, but he refused to eat. He said that he was strong enough to go to the place of execution. See Rapp's *Memoirs*.

STAR. See *Fixed Stars*, *Constellations*, and *Planets*.

STAR, FALLING OR SHOOTING. See *Falling Stars*, *Fireballs*, and *Meteors*.

STAR OF BETHLEHEM (*ornithogalum umbellatum*). This plant is sometimes called *eleven o'clock*, from the circumstance of the flowers opening at about that time in the morning. It is allied to, and somewhat resembles, the onion. The root is a bulb; the leaves are linear, and all radical; the stem six or eight inches high, and terminated by a corymb of six or eight white and star-like flowers: these last are very evanescent, and close four or five hours after expansion. The plant grows wild in Europe, and is sometimes cultivated in gardens for ornament.

STAR-CHAMBER (*camera stellata*); a room in the house of lords, so called from having its ceiling adorned with gilded stars, or, according to some, because it was originally the place of deposit of the Jewish starrs (*starra*) or covenants. The despotic tribunal, which sat here, was also called the *star-chamber*. It was under the direction of the chancellor, and had jurisdiction of forgery, perjury, riots, maintenance, fraud, libel and conspiracy, and, in general, of every misdemeanour, especially those of public importance, for which the law had provided no sufficient punishment. It was this criminal jurisdiction (its civil having gone into disuse) that made it so powerful and odious an auxiliary of a despotic administration. Its process was summary, and often iniquitous, and the punishment which it inflicted, often arbitrary and cruel. It became particularly violent in the reign of Charles I.; and it was abolished, with the no less hateful high commission court, by the long parliament, in 1641. Its fall was an important step in the progress of English liberty.

STARBOARD; the right side of a ship, when the eye is directed forward.

STARCH is a white, insipid, vegetable substance, insoluble in cold water, but forming a jelly with boiling water. It exists chiefly in the white and brittle parts of vegetables, particularly in tube-rose roots, and the seeds of gramineous plants. It may be extracted by pounding these parts and agitating them in cold water, when the fibrous parts will first subside, after which the starch will gradually precipitate itself in a fine white powder; or the pounded or grated substance (as the roots of arum, potatoes, acorns, or horse-chestnuts, for instance) may be put into a hair-sieve, and the starch washed through with cold water, leaving the grosser matters behind. Farinaceous seeds may be ground and treated in a similar manner. Only seeds require to have the oil expressed from them before the farina is extracted. In starch-making, the farina ferments and becomes sour; but the starch that does not undergo fermentation is rendered more pure by this process. Some water, already soured, is mixed with the flour and water, which regulates the fermentation, and prevents the mixture from becoming putrid; and in this state it is left about ten days in summer, and fifteen in winter, before the scum is removed and the water poured off. The starch is then washed out from the bran, and dried, first in the open air, and finally in an oven. When starch is triturated with iodine, it forms combinations of various colours. When the proportions of iodine are small, these compounds are violet; when somewhat greater, blue; and when still greater, black. We can always obtain the finest blue colour by treating starch with an excess of iodine, dissolving the compound in liquid potash, and precipitating by a vegetable acid. The colour is manifested even at the instant of pouring water of iodine into a liquid which contains starch diffused through it. Hence iodine becomes an excellent test for detecting starch, and starch for detecting iodine. Starch is convertible into sugar by dilute sulphuric acid. To produce this change, we must take 2000 parts of starch, diffuse them in 8000 parts of water, containing forty parts of strong sulphuric acid, and boil the mixture for thirty-six hours in a basin of silver or lead, taking care to stir the materials with a wooden rod, during the first hour of ebullition. At the end of this time, the mass, having become liquid, does not require to be stirred, except at intervals. In proportion as the water evaporates, it ought to be replaced. When the liquor has been sufficiently boiled, chalk and animal charcoal are added, and it is clarified with white of egg. The whole is then filtered through a flock of

wool, and the clear liquid is concentrated, till it has acquired a sirupy consistence. After this, the basin is removed from the fire, in order, that, by cooling, its sulphate of lime may be precipitated. The pure sirup is now decanted, and evaporated to the proper dryness. It is found, also, that sugar may be obtained from starch without the use of sulphuric acid. It is obtained by leaving the starch, first brought to the pulpy state, to itself, either with or without the contact of the air, or by mixing it with dried gluten. At the same time, however, other products are obtained; viz. 1. a gum like that from roasted starch; 2. amydine, a body whose properties are intermediate between those of starch and gum; and, 3. an insoluble substance, like ligneous matter. Twelve parts of boiling water and one of starch, fermented by dry gluten, yielded,

	Without contact of air.	With contact of air.
Sugar,	47·4	49·7
Gum,	23·0	9·7
Amydine,	8·9	5·2
Amylaceous lignin,	10·3	9.2
Lignin with charcoal,	a trace	0·3
Undecomposed starch,	4·0	3·8

Potato starch differs considerably from that of wheat. It is more friable, is composed of much larger sized grains, forms a jelly with water at a lower temperature, and is less readily decomposed by spontaneous fermentation. Starch is composed of carbon 43·48, oxygen 49·45, hydrogen 7·06. Doctor Prout considers starch as sugar partly organized; for it has the same essential composition, but differs in containing minute portions of other matter, which, we may presume, prevent its constituent particles from arranging themselves in the crystalline form, and thus cause it to assume totally different sensible properties. When starch is roasted at a moderate heat in an oven, it is converted into a species of gum, employed by calico printers; potato starch answers best for this purpose. *Salop* is composed of a little gum, very little starch, and much of a kind of gum called *Bassorine*. *Sago* is an uniform substance, soluble in cold water, more so in hot, precipitated blue by iodine, and differing from common starch only in the first mentioned property. *Tapioca* seems to be identical with sago. *Arrow root* is nearly pure starch, agreeing in all respects with the starch of potato, which may be converted by heat into something similar to sago and tapioca.

STARLING (*sturnus*). The colour of the common European starling is blackish, with blue, purplish, or cupreous reflections, and each feather is marked at the extremity with a whitish speck. The beak is long, straight, entire, somewhat flattened and obtuse at the extremity; the tail shorter than in our blackbirds. It is found in almost all parts of Europe, and, except in the breeding season, lives in numerous flocks, retiring in the evening to marshes, to pass the night among the reeds. The flight of these birds is peculiar: they form a sort of vortex while advancing. During the day time, they disperse throughout the fields, and seem particularly fond of the company of cattle. They are often kept in cages, and learn to whistle some tunes, and even to pronounce words and sentences.

STAROSTS, in Poland; those noblemen who were reckoned among the dignitaries of the land (*dignitarii terrarum*), and who received a castle or landed estate from the crown domains (*mensa regia*). The starosty was granted only for the life of the occupant, on whose death, however, the king was obliged to grant it anew. Some of the starosts had civil and criminal jurisdiction over a certain district (*grod*); others (*tenuarii*) merely enjoyed the revenues of the starosty.

STATE (*respublica, civitas, societas civilis*); a body politic; an association of men for political ends, the object of which is well expressed in the term *common-wealth* (i. e. common good). Experience, as well as reason, shows that the isolated individual can attain but very imperfectly the ends of his being, and instinct early led men to form unions, for promoting the good of each by the power of all. Such a union is a state, and may be called the natural condition of man, because essential to the full development of his faculties. Separated from society, he remains a brute. So true is the ancient definition of man as being a political animal, though it may have been taken, when first used, in too narrow a sense. (See the beginning of the article *Slavery*.) The right of men to form states being thus obvious from their nature, the next questions which arise are, What is the historical origin of states? and what is the best state, or best government? History shows, that states have been formed in a great variety of ways, by the violence of one or many, by artifice, by contract, &c. (See the articles *Political Institutions, Sovereignty, Estate, Legitimacy;* also *Communities, Cities, Corporations, Land, property in.*) As to the other question, that state is the best, which is best adapted to promote the general good; so that the organization of such a state may, and must, differ according to circumstances. This fact is overlooked by those who treat the organization of a state merely as a matter of abstract speculation, and, on the other hand, is often used as a pretext for retaining abuses diametrically opposed to the true objects of political society. It should never be forgotten, that the form of government, important as it is, is merely a means of obtaining the great objects of the state; and the first objects to be provided for are security and good order, to which all forms must be made to yield. These terms include much more than the mere protection of individuals against violence on the part of each other—a sense to which none but despotic governments would limit the words.

STATE ADVOCATE. See *Advocate of the Crown.*

STATEN ISLAND is situated south of the city of New York, the centre of it being distant from the city eleven miles. It constitutes the county of Richmond, and is the most southern land belonging to New York. Its length is fourteen miles, and its greatest breadth eight miles. Its southern extremity is in lat. 40° 29′ N.; its western extremity is 18′ west longitude from New York; population in 1830, 7084.

STATES-GENERAL. See *Netherlands.*

STATES OF THE CHURCH. See *Church, States of the.*

STATICS. See *Dynamics*, and *Mechanics.*

STATISTICS. The past, in all its extension, belongs to history; the present to geography and statistics. Schlözer said with much truth, "History is statistics in a state of progression; statistics is history at a stand." The subject of statistics is the investigation and exposition of the actual condition of states and nations, in regard to their internal organisation and foreign relations. The description of the face of the country belongs to geography. Statistics is often considered in too

confined a view, as if it had to treat only of those particulars in the condition of a country which can be reduced to numerical calculation, and exhibited in tables, such as the number, employments and wealth of the people. The frequent reference to "statistical tables," and the frequent use of the phrase, may be in part the occasion of this.

A full, statistical view of the actual condition of a people requires the exhibition, 1. of the physical character of the country and the parts composing it, in regard to situation, boundaries, extent and soil, mountains, woods, rivers, climate; also of the numbers and national diversities of the people; their extraction, languages, &c.; the classes into which they are divided (nobility, free proprietors, bondsmen, slaves, officers, merchants, manufacturers, farmers, mechanics, soldiers, &c.); and their religious differences (the various sects, &c.): 2. of the degree of civilization shown in the state of the useful arts and occupations (agriculture, mechanical and manufacturing industry, commerce); in the institutions for the promotion of the fine arts; in the schools, universities, scientific academies, sale of books, &c.; in the manners of the people, and their conduct in all their important relations, moral, political and religious: 3. of the form of government, whether monarchical or republican, despotic or limited; whether there be a popular representation or an assembly of the estates whether the representation is in one or two chambers; whether the representatives take part in legislation, or merely in the imposition of taxes; whether there is a responsibility of the ministers, and none of the monarch, &c; also of the relations of church and state (whether any exist, and, if so, whether the hierarchical or territorial system prevails; whether there are concordates with Rome); likewise of the family of the monarch, where one exists, the age, religion, &c., of the members, the family laws of the ruling house, the court, and the laws relating to it, the military orders, &c.: 4. of the administration of the state (including all the temporal and spiritual authorities, &c., in particular the departments of justice, police, finances, the army and navy).

In treating of the foreign relations of the state, this science shows, 1. the standing of the particular state (if it be in Europe) as to the other members of the European family, whether it be a power of first, second, third or fourth rank, and particularly its relations to its immediate neighbours (thus, in treating of German states, it would show their relations to the whole confederacy; so likewise with the Helvetic cantons and the American states): 2. the reciprocal influence of its domestic and foreign politics: 3. of the existing treaties with foreign states, indicating the sources of information respecting them, their most important points, and their beneficial or injurious consequences. According to the example of some distinguished statistical writers (e. g. Hassel, in the statistics of Austria and Russia; Stein, in those of Prussia, and others), a view of the gradual increase or decrease of the state, in respect to extent, population, &c., may be given advantageously.

Statistics differ from geography in this respect, that, though many particular facts belong equally to both, yet geography arranges them always on the principle of locality, but statistics with reference to their effect on the general condition of the nation. Thus geography mentions the mountains, rivers, woods, in describing the districts where they are found, or speaks of their distribution, to give a view of the face of the country: statistics treats of them collectively, with a view to their political importance, as affecting the productiveness of the country, favouring or obstructing communication, &c. In a military description, the same subjects would be treated with particular reference to their military importance. Geography treats also of manufactures, commerce, trade, public authorities, universities, schools, seminaries, museums, &c., in describing the places in which they are situated; but statistics combines them, with a view to arrive at scientific results. Statistics, in modern times, has often been mixed with geography, in some cases advantageously to the immediate purposes in view, but in many to the disadvantage of science and sound knowledge.

Statistics was first scientifically treated in Germany: Achenwall gave it, in 1749, its name and systematic form. Since his time, it has become more and more separated from geography and history, and has been cultivated independently of them; but even before him, authors had scientifically combined statistical materials; for instance, some Italians, as Sansovino Botero; some Frenchmen, as d'Avity; and particularly Germans, as Conring, Oldenburger, who died in 1678, at Geneva, the author of *Thesaurus Rerum publicarum* (4 vols., Geneva, 1675); Gastel, in his *De Statu publico Europæ novissimo* (Nuremberg, 1675, folio); Von Zech, in his European Herald (3 vols., Leipsic, 1705, folio, in German), and several others; Dutchmen, as De Luca, in his *Descriptio Orbis*, &c. (Leyden, 1655); and Everhard Otto, in his *Primæ Lineæ Notitiæ Europæ Rerum publicarum* (Utrecht, 1762). Following Conring's example, Achenwall delivered university lectures on statistics. His *Staatsverfassung der Europäischen Reiche im Grundrisse*, passed through seven editions. Several other manuals appeared. To the department of the theory and history of statistics belong Gatterer's Idea of Universal Statistics (Göttingen, 1773); Schlözer's unfinished Theory of Statistics (Göttingen, 1804); Niemann's Sketch of Statistics, (Altona, 1807); and a vast number of other works. Among the statistical manuals are Hassel's Complete Manual of the most recent Geography and Statistics, and Stein's Manual of Geography and Statistics (4th ed., 1819). Among the living statistical writers of Italy are Balbi, Quadri and Melch. Gioja. The statistics of crime have been most attended to in France and England. The French writers have paid particular attention to comparative statistics; for example, baron Dupin, a statistical writer of the first order; also the Italian Gioja, in his *Filosofia della Statistica* (2 vols., 4to., Milan, 1826 et seq.). Meusel published a Literature of Statistics (2d edition, 2 vols., in German).

Statistical tables may lead, and have led, to incorrect notions, when the bare results are considered, without reference to the causes and accompanying circumstances, but when used with due caution, they are of the highest importance. The influence of the study of statistics has been incalculable: it is the test and the basis of the principles of political economy, and has mainly contributed to that knowledge of the condition and interests of nations which distinguishes our time. Every nation will find its interests essentially promoted by cultivating and making public its own statistics; and writers like Dupin are public benefactors.

Among the best statistical works are Hassel's Statistical Sketches of all the European States

(1805, 2 vols.); his Statistical Tables, comprising a view of all the European States, and some others; his General Geographico-Statistical Lexicon (Weimar, 1827); and his Genealogical, Historical and Statistical Almanac (an annual); Crome's works; Stäudlin's Ecclesiastical Geography and Statistics (2 vols., Tüb., 1804); Herbin and Peuchet's *Statistique de la France* (7 vols., Paris, 1803); Dupin's *Forces productives et commerciales de la France* (Paris, 2d vol., 4to., 1832); Colquhoun's Treatise on the Wealth, Power and Resources of the British Empire (London, 1814, 4to.); Sir John Sinclair's Statistical Account of Scotland, 21 vols., 8vo., vid. *Sinclair;* Dupin's *Voyages dans la Grande-Bretagne* (1820); Wichmann and Hassel's works on Russia; and J. H. Schnitzler's *Statistique et Itinéraire de la Russie* (Paris and Petersburg, 1829); Von Hammer and Lindner's works on Turkey; Bisinger's, Hassel's, Demian's, André's, on Austria; Schwartner's, on Hungary; Mirabeau's, Krug's, Demain's, Stein's, on Prussia; Thaarup's work on Denmark; Pölitz's, on Saxony.

STATIUS, PUBLIUS PAPINIUS; a Roman epic poet, born at Naples, in the reign of the emperor Domitian (A. D. 61), and educated by his father, a rhetorician. His principal productions are two epic poems, the *Thebais*, in twelve books, and the *Achilleis*, in two books. The last is unfinished. The style of Statius is bombastic and affected, often exhibiting the art of the declaimer rather than that of the poet; but he attracted general admiration in his own time, and even some modern critics have considered him as inferior only to Virgil. He wrote some shorter poems, called *Sylvæ*, which have been distributed into four books; and some of these compositions are eminently beautiful. Statius is supposed to have been destitute of fortune, as he is said to have supported himself by writing for the stage; but none of his dramatic compositions are extant. He died about the hundredth year of the Christian era. Among the best editions of the works of Statius are those of Barthius (1664, 2 vols., 4to.), and the Variorum, Lugd. Bat. (1671, 8vo.); of the *Thebais* separately, that of Warrington (1778, 2 vols., 12mo.), and of the *Sylvæ*, that of Markland (London, 1728, 4to.).

STATUE (from the Latin *statua*). Statues are divided into ideal and portrait statues (*statua iconica:* this term also signified a statue of the natural size). The former, in respect to invention, are much superior, and reach the highest point of the art, when, as in Greek antiquity, they represent divine beings, serene, and superior to all sensual impulses. The latter have all the qualities of portraits (q. v.) except colouring. In Greece, such statues were given to those who had been thrice victorious in the Olympic games. Portrait statues seem to have been first set up in Athens to the memory of Harmodius and Aristogiton, the avengers of liberty and destroyers of the Pisistratidæ. At first, the Greeks seem to have made no statues but those of the gods; but, in later times, and especially during the decline of the Roman republic, when servility and adulation became more and more common, a great number of portrait statues were produced. Gods and monarchs were originally represented of a colossal size; and, in general, the size of the statues, with the ancients, had a symbolical meaning. Originally, statues were coloured. The Romans called statues in Greek costume, *statuæ palliatæ*; in Roman costume, *togatæ*, &c. There were *statuæ pedestres* (on foot), *sedentes* (sitting), *equestres* (on horseback), and *curules* (driving; and these, again, *bigatæ*, *quadrigatæ*, in which way many deities and triumphant generals were represented). Sometimes whole groups were and are exhibited, as the Laocoön; but, in these, the figures were generally distinct, except in those which represented figures intertwined with each other (*symplegmata*, as in the case of groups of wrestlers). Statues were often used by the ancients to ornament buildings, &c. (As to the material employed, see *Plastics*, and *Sculpture*.) The most celebrated statues are mentioned in the article *Sculpture*.

STATUTE: an act of the legislature of a state; a positive law. *Statute* is commonly applied to the acts of legislative bodies, consisting of representatives. In monarchies not having representative bodies, the acts of the sovereign are called *edicts*, *decrees*, *ordinances*, *rescripts*. Statutes are distinguished from common law. The latter owes its force to the principles of justice, to long use, and the consent of a nation; the former to a positive command, or declaration of the supreme power.

STAUBBACH, FALLS OF. See *Cataract*.

STAUDLIN, CHARLES FREDERIC, doctor and professor of theology at Göttingen, was born in 1761, at Stuttgart, and early began his History and Spirit of Scepticism, particularly in respect to Morality and Religion (which appeared at Leipsic, 1794). He travelled in Switzerland, France and England, and was appointed *professor extraordinarius* at Göttingen, in 1790, where he became doctor of theology in 1792. His writings are very numerous, and the latter ones have been charged with the faults often attending too great fertility. He died in 1826. His works are a Manual of the Extent, Method and History of Theological Sciences (Hanover, 1821); Ecclesiastical Geography and Statistics (Tübingen, 1804); Contributions to the Elucidation of the Prophets of the Old Testament (Stutgart, 1786); continuation of the same (Göttingen, 1791); Origin, Contents and Construction of Solomon's Song, in Paulus's *Memor*; Essay towards a Criticism of the System of the Christian Religion (1791); Sketch of Academical Lectures on Morals and Dogmatics for future Teachers of the Christian Religion (2 vols., 1798—1800); Text-Book of Dogmatics, and the History of Dogmas (3d edition, 1809): Outlines of Philosophical and Biblical Morals (an academical text-book, 1805); New Text-Books of Morals for Theologians, with Introductions to the History of Morals and moral Dogmas (1813); Practical Introduction to the Books of the Sacred Scriptures (1826); a History of the Ideas which have been entertained respecting the Morality of Theatres, the Doctrine of Suicide, Conscience, Oaths (1824), and Friendship (1826); a History of Rationalism (1826); a History of the Ethics of Jesus (4 vols., 1799—1823); Outlines of a History of Philosophical, Hebrew and Christian Morals (Hanover, 1806); General History of the Christian Church (3d edition, 1823); History of Christian Morals since the Revival of Learning (1808); General Ecclesiastical History of Great Britain (Göttingen, 1819); History of Moral Philosophy (Hanover, 1822); History of the Theological Sciences (2 vols., 1811); History and Literature of Ecclesiastical History (edited by Hemsen, 1827). He edited several periodicals himself, as the Göttingen Library of the latest Theological Literature (1794—1800); Contributions to the Philosophy and History of Religion and Ethics in general, and of the various Creeds and Churches

(1797—99); Magazine for the History of Religion, Morals and the Church (1801—6); Archives of ancient and modern Ecclesiastical History (1813—20); Archives of Ecclesiastical History, in conjunction with Tzschirner and Vater (vol. i., Halle, 1823). He also wrote a great number of occasional treatises.

STAUFEN. See *Hohenstaufen.*

STAUNTON, Sir George Leonard, a traveller and diplomatist, was a native of the county of Galway, in Ireland. He was destined for the medical profession, with a view to which he studied at the university of Montpellier, and took the degree of doctor of physic. About the year 1762, he established himself in practice in the island of Grenada, in the West Indies, where he obtained the patronage of the governor, Lord Macartney, who made him his secretary; and he likewise held the office of attorney-general of Grenada, till the taking of that island by the French. His lordship, being appointed governor of Madras, took Mr Staunton with him to the East Indies, where he was employed in the arrest of general Stuart, who had opposed the authority of the governor. He also induced the French admiral Suffren to suspend hostilities before Gondelour, previously to the official announcement of the peace in 1714; and he negotiated a treaty with Tippoo Saib. Returning to England, the East India company repaid his services with a pension of £500 a year; the king created him a baronet, and the university of Oxford bestowed on him the diploma of doctor of laws. When Lord Macartney went as ambassador to China, Sir George accompanied him as secretary of legation, with the provisional title of envoy extraordinary and minister plenipotentiary. Of that mission, and of the empire and people of China, he published an Account in 1797 (2 vols., 4to.), which was translated into French and German. He died in London, in January, 1801.

STAUROTIDE; a mineral species, so called from *σταυρος*, a cross, in allusion to the regular crossing of its crystals, which so frequently takes place. The primitive form of the crystal is a right rhombic prism of 129° 30′, which is rarely modified at its extremities, though its acute lateral edges are usually truncated, converting the crystals into six-sided prisms. The cruciform crystals of this species are of two kinds: in the first, the crystals cross each other at right angles; in the second, at angles of 60° and 120°. Fracture uneven or conchoidal; lustre vitreous, inclining to resinous; colour reddish-brown, or brownish-red, very dark; streak white; translucent; hardness a little superior to that of quartz; specific gravity 3·3 to 3·9. According to an analysis, by Vaquelin, of the variety from Brittany, and another by Klaproth, of the variety from St Gothard, staurotide consists of

Silex,	33·00	27·50
Alumine,	44·00	41·00
Lime,	3·84	0·00
Magnesia,	0·00	0.50
Oxide of iron,	13 00	18·25
Oxide of manganese,	1·00	0·50

It assumes a dark colour before the blow-pipe, but does not melt. Staurotide occurs, for the most part, in mica slate, and is often accompanied by garnet and cyanite. It is found in single crystals on St Gothard, in Switzerland, and on the Greiner mountain, in Zillerthal, in the Tyrol. It is an abundant substance in the United States, particularly in the states of Maine, New Hampshire and Massachusetts.

STAY; a large, strong rope, employed to support the mast on the fore part, by extending from its upper end towards the stem of the ship, as the shrouds are extended on each side.

STAYS. See *Corset.*

STEALING. See *Larceny.*

STEAM; the vapour of water raised to such a degree of elasticity by the application of heat, as to be available to the propelling of machinery. When water, exposed to the pressure of the atmosphere, is heated to the temperature of 212°, globules of steam, composed of heat and water in a state of combination, are formed at the bottom of the vessel, and rising through the fluid, may be collected at its surface. In its perfect state it is transparent, and consequently invisible, but when it has been deprived of a part of its heat by coming in contact with cold air, it becomes of a cloudy appearance, as when it issues from a tea-kettle. By increasing the heat, the temperature of the water never rises above 212°, nor that of the steam which is generated; the only effect being a more copious production. If the water is confined in a strong copper vessel, both it and the steam which is produced may be brought to any temperature, and any degree of elastic force

Steam is highly elastic; but when separated from the fluid from which it is generated, it does not possess a greater elastic force than the same quantity of air. If, for instance, a copper vessel be filled with steam only, at 212°, it may be brought even to the temperature of red heat, without any danger of bursting; but if water be also in the vessel, each additional quantity of heat causes a fresh quantity of steam to rise, which adds its elastic force to that of the steam already generated, till the constantly accumulating force bursts the vessel in pieces.

The latent heat of steam, or that quantity of heat which is necessary for its existence in a state of vapour, and yet is not indicated by the thermometer is, according to the experiments of different philosophers, given in the following table:

Rumford,	1051°	Desprete,	986°
Thomson,	1016	Watt,	960 or 980
Lavoisier,	1000	Southern,	958
Clement,	990	Black,	800

The mean of these results is 950°, agreeing with the measure obtained by Mr Watt. The estimate of Lavoisier cannot be far from the truth, and affords a most convenient number for calculation, i. e. 1000.

Let us suppose that steam of the temperature of 212° contains 950° of heat, which is not detected by the thermometer, while it retains the gaseous state, its real quantity of heat will be 950° + 212° = 1162°; consequently, if we mix a quantity of steam with 5½ times its weight of water, at 32°, the temperature of the water will rise nearly to the temperature of ebullition, because $5\frac{1}{2} \times 32° + 32° = 208°$. Hence the great utility of steam not only in manufactures where great quantities of hot water are required, but also for heating large buildings, and for drying whatever is liable to combustion.

The elasticity of steam, arising, no doubt, from the great quantity of heat which it contains, is very great, and from its extensive application as an impelling power, it has been investigated with considerable attention.

Mr Watt was the first philosopher who made any accurate experiments on the elasticity of steam. These were performed while he was a mathematical

instrument maker in the university of Glasgow, and considering the simplicity of the apparatus with which he conducted his experiments, the results he obtained are remarkable for their accuracy. The range of his experiments, extended from 55° to 272° Fahrenheit.

Dissatisfied with his own experiments, in the results of which he observed irregularities which he could not explain, Mr Watt, in the year 1796, requested Mr Southern to try them over again, and, in fulfilling his requests, he was assisted by Mr William Creighton.

Mr Achard of the Royal Academy of Berlin, published, in the Memoirs of 1782, a series of experiments on the elasticity of steam, from the temperature of 32° to that of 212°. The following are a few of the results, which are here compared with those of Mr Watt and Mr Robison, (afterwards Dr Robison) at this time a student at Glasgow, and subsequently the professor of Natural Philosophy in the University of Edinburgh:

Temperature.	Achard. Elasticities. Inches.	Watt. Elasticities. Inches.	Robison. Elasticities. Inches.
168°	11·06	11·34	10·60
189	14·5	18·45	17·47
209	26.1	27·88	26·05

The following results were obtained by Dr Robison:

Temperature.	Elasticities.	Temperature.	Elasticities.	Temperature.	Elasticities.	Temperature.	Elasticities.
32°	0·0	100°	1·6	170°	11·05	240°	34·9
40	0·1	110	2·25	180	14·05	250	66·6
50	0·2	120	3·0	190	17·65	260	89·3
60	0·35	130	4·05	200	22·62	270	94·1
70	0·55	140	5·15	210	28·65	280	105·9
80	0·85	150	6·72	220	35·6		
90	1·15	160	8·65	230	44·5		

The next experiments on the elasticity of steam were made by Bettancourt, who also made similar experiments on the elasticity of the vapour of spirit of wine, and he found it at all temperatures equal to 2⅓ times that of steam. The next set of experiments on steam were made by Dr Dalton about 1800, with a degree of accuracy and care, which gives them a high value. The following is a table of his results.

Temperature Fah.	Elastic force in inches of mercury.	Temperature Fah.	Elastic force in inches of mercury.	Temperature Fah.	Elastic force in inches of mercury.	Temperature Fah.	Elastic force in inches of mercury.	Temperature Fah.	Elastic force in inches of mercury.
40	0·013	29	0·184	62	0·560	95	1·59	128	4·11
30	0·020	30	0·194	63	0·578	96	1·63	129	4·22
24	0·030	31	0·173	64	0·597	97	1·68	130	4·34
10	0·043	32	0·201	65	0·616	98	1·74	131	4·47
0	0·064	33	0·207	66	0·635	99	1·80	132	4·60
1	0·066	34	0·214	67	0·655	100	1·86	133	4·73
2	0·069	35	0·221	68	0·676	101	1·92	134	4·86
3	0·071	36	0·229	69	0·696	102	1·98	135	5·00
4	0·074	37	0·237	70	0·721	103	2·04	136	5·14
5	0·076	38	0·247	71	0·745	104	2·11	137	5·28
6	0·079	39	0·254	72	0·770	105	2·18	138	5·44
7	0·082	40	0·263	73	0·796	106	2·25	139	5·59
8	0·085	41	0·273	74	0·822	107	2·32	140	5·76
9	0·087	42	0·283	75	0·851	108	2·39	141	5·93
10	0·090	43	0·294	76	0·880	109	2·46	142	6·09
11	0·093	44	0·305	77	0·910	110	2·53	143	6·21
12	0·096	45	0·316	78	0·940	111	2·60	144	6·37
13	0·100	46	0·329	79	0·971	112	2·68	145	6·53
14	0 ·4	47	0·339	80	1·00	113	2·76	146	6·71
15	0·108	48	0·351	81	1·04	114	2·84	147	6·87
16	0·112	49	0·363	82	1·07	115	2·92	148	7·05
17	0·116	50	0·375	83	1·10	116	3·00	149	7·23
18	0·120	51	0·388	84	1·14	117	3·09	150	7·42
19	0·124	52	0·401	85	1·17	118	3·16	151	7·61
20	0·129	53	0·415	86	1·21	119	3·25	152	7·81
21	0·134	54	0·429	87	1·24	120	3·33	153	8·01
22	0·139	55	0·443	88	1·28	121	3·42	154	8·20
23	0·144	56	0·456	89	1·32	122	3·50	155	8·41
24	0·150	57	0·474	90	1·36	123	3·59	156	8·60
25	0·156	58	0·488	91	1·40	124	3·69	157	8·81
26	0·162	59	0·507	92	1·44	125	3·79	158	9·02
27	0·168	60	0·524	93	1·48	126	3·89	159	9·24
28	0·174	61	0·542	94	1·53	127	4·00		

Dr Ure made various Experiments on the Elastic Force of Steam from 24° to 312°, the following results of which are given in inches of mercury:—

Temp.	Elastic force.	Temp.	Elastic force.	Temp.	Elastic force.	Temp.	Elastic force.
24°	0·170	155°	6·300	242°	53·600	281·6°	104·400
32	0·200	160	9 600	245	56·340	293·6	107·700
40	0·250	165	10·800	248·6	57·100	293·2	112·200
50	0·360	170	12 050	248 5	60·400	257·2	114·400
55	0·416	175	13·350	250	61·900	289	118·200
60	0 516	180	15·160	251·6	63·500	290	120·150
65	0·630	185	16·900	254·5	66·700	292·3	123·100
70	0·746	190	19 000	255	67·250	294	126·700
75	0·850	195	21·100	257·5	69·800	295	129·000
80	1·010	200	23·600	260	72·300	295·6	130·400
85	1·170	205	25 900	261·4	72·800	297·1	133·900
90	1·360	210	28·850	262·6	75·900	298·6	137·400
95	1·640	212	30·000	264·9	77·900	300	139·700
100	1·960	216·6	33 400	265	78·040	300·6	140 900
105	2·100	220	35·540	267	81·900	302	144·200
110	2 456	221·6	36·700	269	84·900	303·6	147 700
115	2·820	225	39·110	270	86 300	305	150·860
120	3 200	226 3	40·100	271·2	88·000	306·6	156·400
125	3·580	230	43·100	273·7	91·200	308	157·710
130	4·366	230·5	43 500	273	93·450	310	161·200
135	5·070	234·5	46 500	275·7	94·900	311·4	164·800
140	5·770	235	47·220	277·9	97·900	312	165·9
145	6·600	240·5	50·300	279 5	101 600	312	167·900
150	7·530	240	51 700	280	101 900		

The next experiments on the elasticity of steam were those of Mr Philip Taylor, at temperatures from 212° to 320°. But these do not differ so materially from the foregoing as to require insertion.

A very valuable set of experiments were made a few years since, by M. Arago and other members of the French Institute. The results contained in the following table, given by them, were obtained by direct experiment, from 1 to 24 atmospheres; all above this were calculated by a formula, and cannot, of course, be so much depended upon.

Elasticity of steam, the pres. of the atmosphere being 1.	Corresponding temp. in deg. of Fahrenheit.	Elasticity of steam, the pres. of the atmosphere being 1.	Corresponding temp. in deg. of Fahrenheit.	Elasticity of steam, the pres. of the atmosphere being 1.	Corresponding temp. in deg. of Fahrenheit.	Elasticity of steam, the pres. of the atmosphere being 1.	Corresponding temp. in deg. of Fahrenheit.
1	212	6	320·28	14	396·94	24	438·56
1½	234	6½	326·26	15	402·86	25	439·94
2	250·8	7	331·7	16	408·48	26	457·16
2½	263·6	7½	336·76	17	403·82	35	472·73
3	275·2	8	341·78	18	408·92	40	486·59
3½	285	9	350·78	19	413·78	45	499·14
4	293·7	10	359·78	20	418·46	50	510·6
4½	302·2	11	366·65	21	422·96		
5	307 4	12	374	22	427·28		
5½	314·24	13	380·66	23	431·48		

The most recent experiments on the elastic force of steam are those by a committee of the Franklin Institute, appointed by the treasury directors of the United States. The object of the committee was to inquire into the causes of the explosion of steam boilers, to investigate which they were requested to make experiments on the properties of steam, the expence of which was defrayed out of the treasury of the United States. The appointment of this committee is highly honourable to the government of the North American republic, and has been rewarded by results of great advantage to science, and highly creditable to the gentlemen who conducted the experiments. We give here an extract from the report, as published in the Journal of the Franklin Institute. The committee, determined to put the apparatus which was necessary for other experiments, to the best use possible, in determining the elastic force of steam, at different temperatures; and accordingly great pains were bestowed upon the graduation of the guage, the regulation of the temperature of its parts, &c., the comparison of the thermometers, the maintenance of the scales at about the same temperature, &c. The small size of the boiler, and the various openings required to be made in it for the experiments which were the immediate objects of the committee, were unfavourable to the attainment of considerable

pressures, but the discrepancies, even at working pressures, of the different tables of the elastic force of steam, made it important to push those trials as far as could be done without material changes. They succeeded, without much difficulty, in reaching ten atmospheres, which is but one atmosphere less than the reputed working pressure of our high-pressure engines, and as the experiments on the safety valves have rendered probable, is very near the true working pressure.

Table of the Elastic Force of Steam, from One to Ten Atmospheres.

Pressure.	Observed temperature.	Pressure.	Observed temperature.	Pressure.	Observed temperature.	Pressure.	Observed temperature.	Pressure.	Observed temperature.
Atmos.	Fah.°	Atmos.	Fah.°	Atmos.	Fah.°	Atmos.	Fah.°	Atmos.	Fah.°
1	212	3	275	5	304½	7	326	9	345
1½	225	3½	284	5½	310	7½	331	9½	349
2	250	4	291	6	315½	8	336	10	362½
2½	264	4½	298½	6½	321	8½	340½		

The results of the committee as to pressure corresponding to temperature, all fall below those of professor Robison, the extremes being ·14 and ·40 of an atmosphere; they approach nearer to those of Dr Ure, differing in the extremes —·06 and + ·12 of an atmosphere. They agree even pretty nearly with the experiments of Mr Taylor, tending, generally, to gain upon them; thus at 260° the difference is ·01 of an atmosphere, and at 320° is ·42. The temperature corresponding to six atmospheres, in the table of the committee, is 315½°, to the same (5·98) in that of Mr Taylor, 320°, and to the same in that of the French commission, 320·4, the latter two agreeing very closely.

From these comparisons it appears, that for given temperatures the pressures determined by the committee are lower than those found by professor Robison, between 1 and 3½ atmospheres; lower than those of Dr Ure, from 1 to 5½ atmospheres, except at the highest pressure, differing, however, but little from them; nearly the same from 1 to 2¾ atmospheres with those of Mr Taylor, and higher from 2¾ to 6 atmospheres; higher than those of Mr Southern; much higher than those of professor Arzberger; higher than those of the French commission.

In a work like the present, it would be out of place to investigate the formulæ used for the calculations where experiments were rendered impracticable; but we will give a very convenient rule, which is near enough the truth for all common purposes.

Add 100 to the temperature expressed in degrees of Fahrenheit, divide the sum by 177, and raise the quotient to the sixth power, the result will be the elastic force of the steam in inches of mercury, which, being divided by 2, will give the pressure upon the square inch. Thus if the temperature be 307° we have 307 + 100 = 407 ÷ 177 = 2·3, which raised to the sixth power is 2·3 × 2·3 × 2·3 × 2·3 × 2·3 × 2·3 = 148·035 inches of mercury, to which the pressure of the steam is equal, or 148·035 ÷ 2 = 74 pounds upon the square inch nearly.

When water is converted into steam, the vapour, as before observed, will occupy a much greater space than the water from which it was formed. It was found by Watt that a cubic inch of water, when converted into steam at a temperature of 212°, will occupy the space of a cubic foot, or rather more than 1700 cubic inches, this steam having an elastic force of one atmosphere, or being capable of exciting a pressure of 15 lbs. upon the square inch. If the pressure of the atmosphere be diminished or taken away, the steam formed from the same quantity of water will occupy a much greater space than one cubic foot, but its pressure will be diminished in a proportionate degree. On the other hand, when the water is made to boil under a greater pressure than that of the atmosphere, the steam formed will occupy a less space than one cubic foot, but will be possessed of a proportionately greater elastic force. Thus suppose the pressure on the surface of the boiling water to be two atmospheres, or 30 lbs. upon the square inch, then will the steam formed have a pressure of two atmospheres, but it will only occupy half a cubic foot. If it be allowed more free space, it will expand and fill that space, but as it expands its pressure will be lessened.

From what has just been said, the reader will readily conclude that as the steam from a cubic inch of water may be made to occupy a larger or smaller space, and to have a greater or lesser elastic force accordingly, that the density or specific gravity of the steam will increase with its elastic force. This law will be seen exemplified in the following table:

Pressure in inches of mercury.	Temperature Fahrenheit therm.	Weight of cubic foot in grains.	Specific gravity, air being unity.	Pressure in inches of mercury.	Temperature Fahrenheit therm.	Weight of cubic foot in grains.	Specific gravity, air being unity.
0·53	60·00	6·16	0·0113	15·00	253·00	332·50	1·123
1·00	77·00	10·70	0·0202	30·00	274·70	700·00	1·32
2·00	98·70	20·50	0·0388	105·00	294·50	810·00	1·53
3·00	112·50	30·00	0·0565	120·00	303·10	910·00	1·723
4·00	123·00	39·00	0·0744	135·00	309·00	1110·00	2·12
7·50	147·00	71·00	0·134	180·00	320·00	1317·00	2·5
15·00	178·00	135·00	0·255	210·00	331·50	1520·00	2·86
22·50	197·40	196·00	0·371	240·00	341·20	1655·00	3·25
30·00	212·00	254·70	0·484	270·00	350·00	1910·00	3·61
35·00	220·00	292·00	0·553	300·00	358·00	2100·00	3·97
45·00	233·00	362·00	0·687	600·00	414·00	3940·00	7·44
52·50	242·50	427·00	0·81	900·00	450·00	5670·00	10·75
60·00	250·20	483·00	0·915	1200·00	477·00	7350·00	13·93

At the commencement of this article the attention of the reader was drawn to the quantity of latent heat contained in steam, and the results of different experiments were given. We stated that the number 1000° was the most convenient and could not be far from the truth, but this is only the latent heat of steam at 212°. It was not one of the least important of the discoveries of Watt, that, whatever be the temperature of steam, the amount of its latent and sensible heat will be the same. From this law, it is easy to find the latent heat of steam at any temperature; for since 1000 added to 212° gives a sum of 1212, we have only to subtract the sensible heat from this constant number to obtain the latent heat. Thus if the temperature of the steam be 307, its latent heat will be 1212 — 307 = 905; and if the temperature be 400, the latent heat, in the same way, will be found to be 1212 — 400 = 812; hence the latent heat decreases while the sensible heat increases.

It is a singular fact that though low pressure steam will scald most dreadfully, yet high pressure steam will not. Dr Thomson accounts for this as follows:

"When the steam of boiling water comes in contact with any part of the living body, it occasions a most severe scald, but when steam of a higher temperature than boiling water, or high pressure steam, as it is called, issues into the atmosphere, the finger, or any part of the body, may be passed through it with impunity. It has not the property of scalding. And if a thermometer be placed into it, we find the temperature greatly be-

low that of boiling water."—"When steam issues from the spout of a boiling tea-kettle, it is at first invisible, and it is not till it has advanced some distance in the air, that it begins to assume the appearance of a visible cloud. But condensed steam is visible the moment that it issues from the pipe. The high pressure steam, supposing the elasticity double, occupies only half the space of low pressure steam. The moment it comes into the atmosphere its volume is doubled. This occasions a prodigious increase in the capacity for heat, and at the same time mixes it with the cold atmospheric air. These two circumstances sink its temperature so low that it is no longer capable of scalding."

When steam is brought into contact with cold bodies, so that parting with a portion of its heat it is reduced below the temperature of 212°, it again assumes the liquid form and occupies 1700 times less space. This is called *condensation*. Upon this property, and upon its expansibility, depends its efficacy as a propeller of machinery, as will be shown in the subsequent article.

STEAM ENGINE, a mechanical contrivance, whereby steam is made to produce continuous motion.

History. The first idea of employing steam as a motive power, seems to have occurred to Hiero of Alexandria, who flourished about 40 B. C. He introduced high pressure steam into the interior of a hollow globe, revolving upon an axis, and having two projecting tubes from the sides, through which the steam escaped into the atmosphere, and by the reaction arising from its escape into the air, the globe was made to revolve. This engine acted on the same principle as Barker's mill. In 1629, Branca, an Italian, published an account of another form of steam engine, in which the steam, issuing out from a tube in the boiler, impinged upon the floats of a wheel, and turned it round. These contrivances are so trifling in their nature, so far as utility is concerned, that they need scarcely be mentioned. The first approaches at any thing like a useful machine was made by the marquis of Worcester, who, in a work entitled a *Century of the Names and Scantlings of Inventions*, published in the year 1668, gave an account of it, from which we may infer that his engine acted somewhat after the following manner. Suppose a long upright tube, furnished at the top with a valve opening upwards, and communicating with a vessel containing water. When steam is thrown upon the surface of the water, it will force the water up the pipe to a height greater in proportion as the force of the steam exceeds the elasticity of the air. The valve at the top of the pipe would prevent the water from returning when the steam was cut off. The inventor designates his contrivance, "an admirable and most forcible way to drive up water by means of fire;" yet the description of this engine, which forms the sixty-eighth of his century of inventions, is, like most of the others, in no way remarkable for its perspicuity; but his contrivance was inefficient in practice. He was the inventor of the digester that goes by his name, and of course the first who proposed or used a safety valve. Amontons and Deflander in 1692, proposed steam wheels, neither of which could be brought into useful action. Six years subsequent to the above date, Thomas Savary took out letters patent for a steam engine. During the course of the following year, he exhibited a working model of it before the Royal Society of London. The proposed use of Savary's engine was the draining of mines, and consisted of a long pipe inserted into the well to be drained, in which pipe a valve was placed, opening upwards, and at a height in the pipe not exceeding twenty feet above the surface of the water to be raised. Immediately above this valve a side pipe branched off from the main pipe, and formed a communication between it, and a hollow vessel, called the receiver. In the main pipe, and immediately above that part where the receiver pipe branched off, there was another valve opening upwards, and the top of the main pipe opened into the cistern, where the water was to be delivered. The receiver communicated with the boiler by means of a pipe furnished with a stop cock, which might be opened or shut at pleasure. and the receiver was connected in a similar way with the cold water cistern. Steam was admitted into the receiver and consequently into the main pipe, above the lower valve. When this was the case, the steam cock was shut, and cold water let into the receiver by the other pipe; the steam was condensed and a vacuum formed in the receiver and main pipe, and the water, by the action of the atmosphere, pressed up the main pipe from the well, and was prevented from returning by the lower valve which was closed by the weight of the fluid above it. In this state of things the steam was again admitted into the receiver, and acting upon the water in the main pipe, forced it through the upper valve up the pipe and into the cistern. The steam, of course, would at the same time force down the under valve, and prevent the water from returning to the well. Several ingenious mechanics have endeavoured to improve the engine of Savary, among whom may be more especially mentioned Mr Pontifax, Mr J. Boaz, and Mr G. Whitelaw. There were several engines erected on Savary's principle, but the introduction of Newcomen's, in 1705, caused it to be abandoned. Letters patent were granted in that year to Thomas Newcomen, a blacksmith, and John Cawley, a plumber, both of Dartmouth, in conjunction with captain Savary, for a new engine for raising water from mines. This captain Savary, it is to be observed, is the same Thomas Savary, above spoken of; he was neither a captain in the army or navy, but received the title from the miners, who are in the habit of calling their overseers captains. The nature of this invention may be described as follows. A solid piston was fitted into a hollow cylinder, and so contrived that it was capable of moving up and down without difficulty, yet at the same time so accurately fitted that, while even in a state of motion, no air or steam was allowed to escape between it and the cylinder. Into this piston a rod was fixed, attached to one end of a long beam, suspended in the middle, and having the pump rods at the other end. The weight of the pump rods was such as to draw down that end of the beam, and by raising the other, lift the piston to the top of the cylinder. In this position steam was introduced into the bottom of the cylinder, so as to fill the whole space below the piston, and when this was done cold water was introduced, which converted the steam into water, or condensed it, and formed a vacuum in the cylinder below the piston. The pressure of the air on the upper surface of the piston forced it down to the bottom of the cylinder, raised the pump rods at the other end of the beam, and thus drew the water from the well. The re-admission of steam below the piston would destroy the vacuum, and the piston would be drawn to the top of the cylinder by the weight of the

pump rods. Another condensation by the injection of cold water would cause the piston to descend, and so the alternate rising and falling of the piston and pump rods was continued. The steam and cold water were admitted, at the proper intervals of time, by an attendant, who turned stop cocks. It is recorded that a boy, named Potter, contrived, by attaching cords and catches to the beam and cocks, to cause the engine to admit and cut off the steam and the cold water at proper intervals. This occurred about the year 1712, but in 1717, Mr Henry Beighton, of Newcastle-upon-Tyne, made a more complete and effective arrangement for opening and shutting the valves. In the year 1720, one Leupold, a German, made the first proposal of a *high pressure engine*. He placed two cylinders above the boiler, the cylinders being placed side by side, and furnished with pistons. At the bottom of each cylinder an opening was made into a cavity, in which a four way cock was placed, so constructed that when a free passage was opened between the bottom of one cylinder and the boiler, a free passage was opened at the same instant between the bottom of the other cylinder and the atmosphere. Steam of an elastic force greater than the atmospheric pressure, was generated in the boiler, and being admitted into the bottom of one of the cylinders, forced up the piston to the top, while at the same time a free communication was opened between the bottom of the other cylinder, which allowed the steam it contained to make a free escape and the piston to descend. The four way cock was now turned so as to permit the steam in the cylinder whose piston was up, to escape, and therefore the piston would descend, while the other piston would be forced up by the steam from the boiler being admitted below it; and thus the operation was continued. About 1757, Fitzgerald proposed the use of the *fly wheel*, a simple yet powerful augmentation to the efficacy of the steam engine as a mover of machinery. The celebrated Smeaton did a great deal to improve the construction of Newcomen's engines, and his labours contributed in no small degree to hasten the engine to that state of perfection in which we now find it. John Blakey took out a patent, in 1766, for a proposed improvement on Savary's engine, in which he used two receivers, one placed above the other, preventing the contact of the steam and water by a floating stratum of oil, but his contrivance was impracticable. He had, however, the merit of inventing tubulated boilers, now so extensively employed in locomotive engines.

The greatest improvements ever yet made on the steam engine were reserved for Dr James Watt, a native of Greenock, but at the time his attention was drawn to the subject, a mathematical instrument maker in Glasgow. He began his researches on the nature of steam as early as 1763, but his plans for improving the steam engine seem not to have been matured until about 1768, and in the year following he obtained his first patent for "Methods of lessening the consumption of Steam, and consequently of fuel in fire engines." The great improvement held forth in the specification consists in condensing the steam, not in the steam cylinder, but in a separate vessel, with which it was made to communicate occasionally by the opening and shutting of a valve. By this means the steam cylinder was not cooled down by the injection of cold water at every condensation, as in the engine of Newcomen, otherwise called the atmospheric engine, and all the steam which was expended in heating the cylinder in Newcomen's engine was thus saved. He also specified his method of extracting the air and water from the condenser, by means of pumps, and likewise the employment of high pressure, or what he terms expansive, steam to work the engine, either with or without condensation. Watt might thus be considered the inventor of the high pressure engine, but the priority is due to Leupold, who proposed an engine with two cylinders on the high pressure principle. In the same specification he also includes the rotatory engine to be applied to the turning of mills. Instead of rendering the piston air-tight by water on its upper surface, he proposes oil, wax, mercury, &c. In 1781, one Steed obtained a patent for the crank motion, in order to convert the alternating motion of the beam into a continuous rotatory motion; but there is strong proof that the invention was stolen from Watt, as a pattern of the crank was lying in the yard of Boulton and Watt's foundery, at Soho, for some time previous to the date of Steed's patent. (See *Life of James Watt, Chambers' Biography of Eminent Scotsmen.*) Watt was thus driven to the invention of that beautiful motion, the sun and planet wheel, as a substitute for the crank, for which he obtained a patent the same year. Mr Jonathan Hornblower took out a patent, in 1781, for an ingenious method of employing steam so as to act expansively. He employed two cylinders; first allowing the steam to act uniformly in one, and then to act by expansion in the other; but as he could not employ a separate condenser he could not bring his engine into use. This was compensated for by Watt, who, in the year following, i. e. 1782, took out letters patent for his expansive engine. He employed only one cylinder, and effected the action from expansion, by admitting high pressure steam at the beginning of the stroke, but cutting it off when the piston had moved a certain space, after which the steam expanded to the end of the stroke. It is but justice to add, that Watt had employed the expansive engine both at Soho and Shadwell, between the years 1776 and 1778. In the patent of 1782, Watt included many contrivances for regulating the power of the double-acting engine. In 1784, he obtained letters patent for the parallel motion, together with other contrivances; and in the year following he obtained a patent for an improved smoke consuming furnace, the governor, steam gauge, condenser gauge, and indicator.

The next modification of the steam engine, of any consequence, was that of Cartwright, who proposed to condense the steam by means of cold water applied to the external surface of the condenser. The condenser consisted of two cylinders, one placed within the other, the cold water flowing through the inner and enveloping the outer. The valves to change the steam were placed in the piston, so that the condenser was always open. This engine was ingenious, but nothing more can be said of it. The metallic piston, however, was invented by Cartwright, and employed in his engine, and this invention is of itself sufficient to rank him among those to whom we are indebted for one of the great improvements in the steam engine. Much was done by Mr Murray, of the firm Fenton, Murray, and Wood, of Leeds, in improving several parts of the steam engine, which he included in his patents of 1799, 1801, and 1802. About the same period, Mr W. Murdoch, the well-known inventor of gas lighting, made several important improvements in constructing the cylinders and working

the valves of steam engines. In 1801, Mr Bramah contrived the four way cock, as a substitute for the valves, the cock turning always in one direction.

As before stated, Leupold had projected a high pressure engine, and so had Watt, but it was not until 1802 that the principle was applied with success, in the simple high pressure engine of Trevithick and Vivian, whose principal object seems to have been the formation of a simple and portable engine, where water was scarce, and where economy of fuel was an object of less moment. These engines were intended chiefly to propel carriages on railways. In 1804, Arthur Woolf projected a new form of expansion engine, somewhat after the construction of Hornblower's, but he used high pressure steam in the small cylinder, whereas Hornblower did not. Wonderful advantages were expected from Woolf's engine, from the supposed existence of a law in the expansion of steam which he imagined he had discovered. He stated that from numerous experiments he had made, he found that the temperature remaining the same the bulk of steam is inversely as the pressure in lbs. above the atmosphere; and thus, that steam generated at fifty lbs. above the pressure of the atmosphere would expand, when allowed to escape into a large vessel of the same temperature, to fifty times its former bulk. But in this discovery he deceived himself, and has led many others astray, for the expansion will be inversely as the pressure; thus, a cubic foot of steam, generated at a pressure of 50 above the atmospheric pressure, will (reckoning the atmospheric pressure at 15 lbs. per square inch) expand in the proportion of 15 to 15 + 50, or 15 to 65, or 1 to $4\frac{1}{3}$, that is, the steam, when expanded, will only occupy $4\frac{1}{3}$ cubic feet, instead of 50, according to Woolf's assertion. The engine of Woolf is said, however, notwithstanding this immense deduction from its proposed advantages, to work better than the single cylindered expansion engine of Watt.

We have thus given a short sketch of the history of the steam engine, but we have not noticed the many attempts that have hitherto been made to form rotatory steam engines, or steam wheels, as these, however ingenious, have hitherto been failures, and when found to work at all, their effect has been inferior to that of the piston and cylinder engine, employing the same quantity of steam. Much has been said of late in praise of the American steam wheel, the invention of Mr Avery, and which has lately been brought into use by Mr Ruthven of Edinburgh, the inventor of the printing press which goes by his name. The writer of this article has a working model of this engine now before him, which works very well, and acts upon the same principle as Hiero's steam engine or the Eolopile, the first steam engine ever invented. Mr Ruthven has an engine, which is said to have a power of fifteen horses, now working on his establishment at Edinburgh, and driving turning laths and other machinery; but from the many unsuccessful attempts that have been previously made to produce effective rotatory steam engines, from the admirable exposition of the subject by Mr Russel, in the last volume of the Edinburgh Philosophical Transactions, and from our own experiments, we would not be disposed to be very sanguine as to the speedy and general adoption of the rotatory steam engine.

Description. In order to make the action of the condensing steam engine easily understood, we will draw the attention of the reader in the first place to the most important parts only, and afterwards point out the connexion of these with each other in more minute detail.

Let there be a hollow cylinder, A, fig. 1, accurately bored in the interior, so that it shall be smooth, and of the same diameter from bottom to top. Into this cylinder let a solid piston of metal, B, be fitted so that it may easily move up and down, yet so as not to allow air, water, or steam, to pass. To the centre of this piston let the upright rod, C, be attached, the upper end of which is connected with a long beam, or lever, D E F, poised in the middle E; to the other end, F, of this beam there is a weight, W, attached. G is a small pipe, also containing a piston similar to that in the large cylinder. The pipe in which this piston moves is closed at the top with a cover or lid, through the centre of which the rod *e* moves easily up and down, yet so as not to allow any air or steam to escape. A pipe I is led from the boiler and enters the pipe or small cylinder G, near the top, and at the bottom of this cylinder G another pipe enters, leading from the cistern, K, which contains cold water. A connexion is formed between the large and the small cylinders by the cross pipe L.

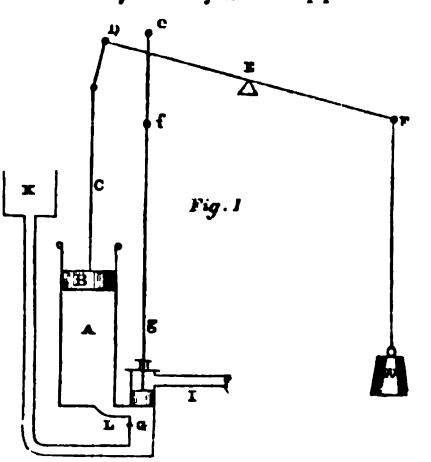


Fig. 1

Let us now suppose that the weight W is so adjusted as just to draw the end, F, of the beam down, and, consequently, raise the other end D, along with the piston B; and suppose the small piston to be below the opening L, in which case the steam from the boiler would be allowed to enter the large cylinder, as the piston B ascended. On the piston arriving near the top the beam would strike the tappet *e*, which would raise the small piston to the position shown in the cut; when in this position, it now being above the opening L, the steam from the boiler would be shut off, and a communication opened with the vessel K, from which cold water would enter the cylinder A, and condense the steam, forming a vacuum below the piston; the atmosphere above the piston then having nothing to counteract its weight, would cause the piston to descend; on its arriving near the bottom, the beam would strike the tappet *f*, and cause the small piston to descend below the opening L; this would stop the communication with K, and admit steam from the boiler, allowing the large piston again to ascend as before.

This is the nature of the action of the engine of

Newcomen, commonly called the *Atmospheric engine*. This engine is commonly used to raise water, the pump rods being substituted instead of the weight W.

Instead of injecting the cold water into the cylinder, Watt formed a communication between the bottom of it and another hollow vessel, M, fig. 2, called the condenser. Into this vessel a shower of cold water is continually flowing through a rose, the steam is condensed in consequence, and the cold water, together with the condensed steam, are taken out of the condenser by means of a pump N worked by the engine itself, so that the condenser is continually cleared.

In order to keep the piston parallel it was usual to attach the top of it to a chain, which adapted itself to a wooden arch at the end of the beam, but this has, in general, been abandoned for the more perfect contrivance for the same purpose, called the parallel motion, to be described hereafter.

It is not difficult to see that a very considerable addition of power could be derived from this engine were the pressure of the atmosphere taken off the top of the piston when it is in the act of rising. This is accomplished in the following manner. The cylinder is closed at the top, by a cover, as shown in fig. 3. Through the centre of the cover a circular opening is made to permit the piston rod to rise and fall, and a small metallic box is placed upon it, containing hemp, which envelopes the piston rod, and prevents the passage of air or steam by the opening. The upright tube *a b* communicates with the cylinder, both at the top and bottom, and also communicates with the steam boiler by a pipe I, as likewise with the condenser by means of a pipe D D. The upright pipe *a b* contains a rod, passing up through it, and movable up and down through a hemp stuffed box in the top, similar

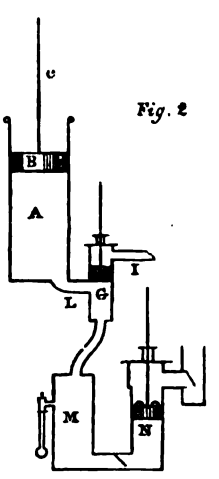


Fig. 2

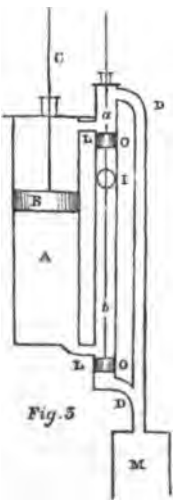


Fig. 3

to that for the piston rod in the cylinder cover. This upright rod, or spindle, carries two pistons O O, which move up and down past the openings into the cylinder at the top and bottom. When the pistons are below the openings, or port holes, as they are called, as shown in fig. 3, then it is plain that there will be a free communication between the bottom of the cylinder, and the steam from the boiler, and at the same time a free communication between the top of the cylinder and the condenser. When the pistons are raised above the openings or port holes, then the case is reversed, the steam is cut off from the bottom of the cylinder, and admitted to the top, while the condenser is opened to the bottom and closed to the top. On whichever side of the piston the steam acts, it will move the piston in the direction of its own motion, that is, when the steam issues in at the top of the cylinder the piston will descend to the bottom, and when admitted at the bottom, the piston will rise to the top, there being nothing but its own friction to oppose its ascent or descent, as the moment that the steam is opened to one side, the other side is put into a state of vacuo, by being opened to the condenser. Such is the principle of the double acting condensing engine of Watt. If the steam be used of higher pressure than 14 lbs. to the square inch, and cut off before the piston has moved through the whole length of the cylinder, being then allowed to expand itself, the engine is of the expansive kind. If there be no condenser at all, and the steam be used of very high pressure, and instead of being condensed be allowed to escape into the open air, after it has moved the piston, then the engine is of the high pressure kind.

Having now laid down the general principles on which condensing and high pressure engines act, we will now describe them as actually constructed in all their parts, beginning with the high pressure engine, its arrangements being the most simple.

In the accompanying wood cuts, figs. 4 and 5 show a high pressure steam engine of the simplest construction. Fig. 4 is a side elevation, in which some of the parts are drawn in section, and fig. 5 is a ground plan. The same letters of reference are used for both figures. The hollow cylinder *a y* is made of cast-iron, and is accurately bored; the piston *b* is also made of cast-iron, accurately fitted to the cylinder. A flat groove is formed round the circumference of the piston, which is packed full of plaited hemp yarn, in order to prevent the steam in the cylinder from passing between the side of the cylinder and the piston. The piston rod *c*, which is made of malleable iron, is firmly fixed to the piston, and turned and polished, so that it will slide easily through the stuffing box, which forms part of one of the covers of the cylinder. In order to prevent the escape of steam, the stuffing box is packed with hemp. The cross head, or part fixed upon the end of the piston rod, which is outside of the cylinder, is connected to the crank *f* by means of the rod *g g*; one end of this rod works upon two turned parts on the cross head, and its other end works upon a pin fixed into the crank. The construction of the brass bushes into which the crank pin and the centres on the cross head work, are fully shown in the figures; and it may be remarked that the crank shaft, and other working parts of the engine, work into similar brass bushes. On the shaft *h h*, the fly wheel *i i*, is firmly fixed; for small engines this shaft and its crank are cast in one piece, but in large ones they are fixed together by bolts or otherwise. In order to show the parts more fully, the crank is drawn in a position perpendicular to the horizon in fig. 4, while its position is a horizontal one in fig. 5. The plummet block *l*, into which the crank shaft works, is in ordinary cases bolted upon a stone in the wall, and an opening is left through the wall round the block. The part *k* of the crank shaft is made so that a shaft or a wheel fixed on it may put

the machinery to be driven by the engine in motion. There is a cast iron frame *m m m*, upon which the cylinder and most of the other fixed parts of the engine are bolted. The two rods *n n*, *n n*, which guide the cross head, are made fast at their ends to the framing of the engine, so that the axis of the piston rod may always be in a line with the axis of the cylinder. The frame *m m m*, is fixed down by means of bolts to the bottom of the building shown under the engine. A small pump *o o*, is wrought by the cross head: its use is to supply the boiler with water. A pipe is joined to the branch *p* to carry the water into the boiler, and a pipe from the branch *q* passes into a well. The cylinder has a cover fixed upon both ends, each cover being accurately fitted and made steam tight.

By inspecting fig. 4, it will be seen that each end of the cylinder has a communication with the cast iron chest or box *r*, by means of a passage which runs nearly over one half of the length of the top side of the cylinder, passing into the cylinder at one end and into the chest at the other. There is

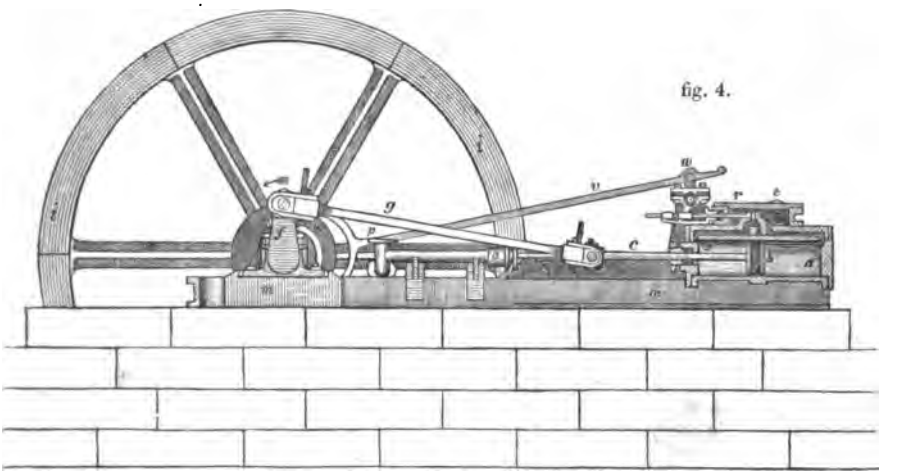


fig. 4.

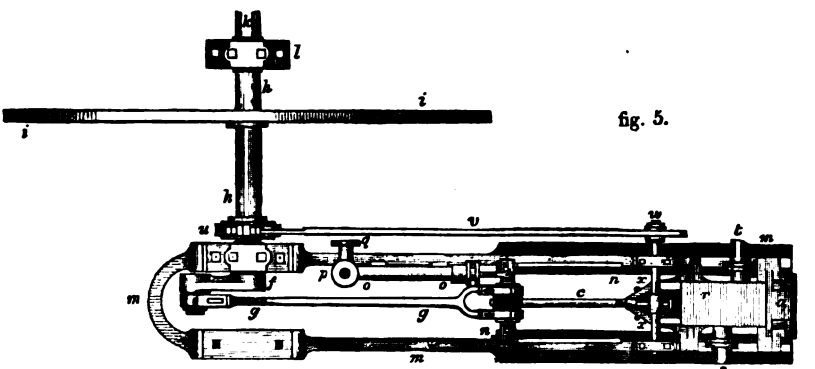


fig. 5.

another passage or space besides the passages just mentioned, which also opens into the chest *r*; this space does not communicate with the inside of the cylinder, but communicates with the pipe *s*, which is called the eduction or escape steam pipe. There is another pipe, *t*, seen in both figs., which admits steam from the boiler. The steam chest *r*, together with the other parts described in this paragraph, constitute the nozles.

Inside of the chest *r*, a small box is shown, with its open side undermost, and covering the passage which leads into the end, *y*, of the cylinder, as also the middle space or eduction port. This last described box is called the slide valve. The valve is made steam tight to the surface upon which it works, by first planing the parts in contact, and afterwards grinding the one part upon the other.

In the position of the valve, as shown in the drawing, no steam can escape from the boiler into the end *y* of the cylinder, but there is a communication with the boiler and the end *a* of the cylinder, and as the side of the valve next the hollow is above the passage leading into the end *y* of the cylinder, and also above the eduction opening or open *port*, if there then be any steam in the end *y* of the cylinder, it has a free escape into the atmosphere, through the pipe *s*. If the valve was pushed end ways, so that its hollow side were above the passage leading to the end *a* of the cylinder, and also above the space which lies between the passages into the cylinder, then there would be a communication with the end *a* of the cylinder and the atmosphere, and also a communication with the boiler and the end *y* of the cylinder. When the crank shaft revolves, the valve is kept working from its position in the drawing to the position just described, and back again to the position shown in the sketch, once during each revolution of the shaft by means of a wheel *u*, fixed upon the crank, called the eccentric wheel, in such a manner that the axis of the

Newcomen, commonly
engine. This engine is
water, the pump rods be
the weight W.

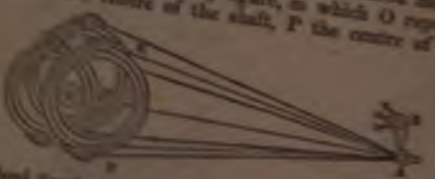
Instead of injecting th
der, Watt formed a ve
bottom of it and smoth
called the condenser.
cold water is continua
the steam is condense
cold water, together w
taken out of the cond
worked by the engine
is continually cleared.

In order to keep th
to attach the top of
itself to a wooden ar
this has, in general,
perfect contrivance f
parallel motion, to

It is not difficult
addition of power
gine were the pres
the top of the piste
This is accomplish
cylinder is closed
in fig. 3. Through
cular opening is
rise and fall, and
it, containing a ben
and prevents th
opening. The
with the cylinde
also communicat
I, as likewise
pipe D D,
passing up
through a

to that
This
which
the c
piston
are p
there
both

shaft and the centre of the wheel do not coincide. There is a ring or strap fitted loose upon the circumference of the eccentric wheel, and the rod e is fixed to the strap; by which arrangement, if the crank shaft revolves, the rod e will move on and from and towards the shaft once during a revolution. The rod e communicates its motions to the lever a, fixed upon the rocking shaft (so called from the nature of its motions) z z. The rocking shaft z z, works into brackets fixed to the frame-work, and it has another lever fixed upon it, which conveys motion to the rod in connexion with the valve. The above remarks will be rendered more plain by the following figure, in which O represents the centre of the shaft, P the centre of a

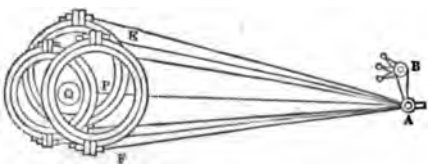


wheel fixed on that shaft, so that the centre or axis of the shaft shall be at a given distance from the centre of the wheel. A brass ring is placed loosely, but not so as to shake, in the circumference of the wheel, to which ring the rods E A, F A are firmly attached. These ears consist of A, being formed into an eye through which a pin passes, connecting them to the lever A B. It is plain that as the shaft O turns upon its axis the wheel whose centre is P will be turned round with it, and the rods attached to the ring upon its circumference will be drawn backwards and forwards so as to move the rod A and give an alternating motion to the lever A B.

Suppose a steam engine with its parts in the position as shown in fig. 4, and that the steam in the boiler was raised to such a pressure as that its force on the piston would always be more than sufficient to overcome the friction of the machinery and the resistance of the atmosphere. Then as the valve is in such a position as that the steam can only act on the side a of the piston, and the piston will go in the direction of the arrow (1), suppose the end of the arrow (1) to be fixed to the crank, in such a way that when the piston has gone to the bottom of the cylinder, it shall then take the position of the dotted line, and the valve will be moved by the eccentric wheel

the wheel do not coincide. P fitted loose upon the cir- tric wheel, and the rod v is which arrangement, if the e rod v will move on end ift once during a revolu- icates its motions to the rocking shaft (so called ons) x x. The rocking cets fixed to the frame er fixed upon it, which in connexion with the will be rendered more , in which O repre- P the centre of a

shaft and the centre of the wheel do not coincide. There is a ring or strap fitted loose upon the circumference of the eccentric wheel, and the rod *v* is fixed to the strap; by which arrangement, if the crank shaft revolves, the rod *v* will move on end from and towards the shaft once during a revolution. The rod *v* communicates its motions to the lever *w*, fixed upon the rocking shaft (so called from the nature of its motions) *x x*. The rocking shaft *x x*, works into brackets fixed to the frame work, and it has another lever fixed upon it, which conveys motion to the rod in connexion with the valve. The above remarks will be rendered more plain by the following figure, in which O represents the centre of the shaft, P the centre of a

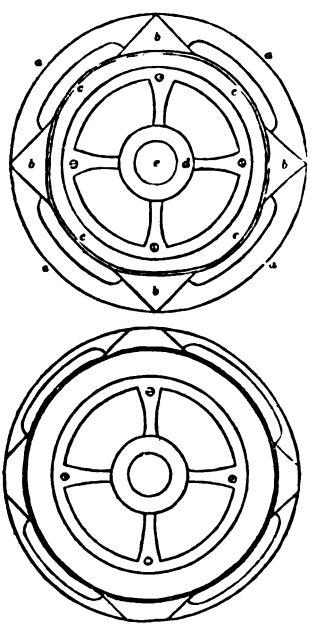


wheel fixed on that shaft, so that the centre or axis of the shaft shall be at a given distance from the centre of the wheel. A brass ring is placed loosely, but not so as to shake, in the circumference of the wheel, to which ring the rods E A, F A are firmly attached. These arms unite at A, being formed into an eye through which a pin passes, connecting them to the lever A B. It is plain that as the shaft O turns upon its axis the wheel whose centre is P will be turned round with it, and the rods attached to the ring upon its circumference will be drawn backwards and forwards so as to move the end A and give an alternating motion to the line A B.

Suppose a steam engine with its parts in the positions as shown in fig. 4, and that the steam in the boiler was raised to such a pressure as that its force on the piston would always be more than sufficient to overcome the friction of the machinery and the resistance of the atmosphere. Then as the valve is in such a position as that the steam can only act on the side *a* of the piston next the latter, the piston will go in the direction of the arrow till it reaches the end of the cylinder. But as the valve is always in motion, and the eccentric is fixed on the crank shaft, in such a way, that when the piston reaches the other end *y* of the cylinder, it has shifted the valve so as just to be beginning to open the passage for the steam to get into this end *y* of the cylinder, and also to open the passage for it to escape from the end *a* into the atmosphere. On this account the motion of the piston will be reversed, and it will now move to the end *a* of the cylinder, and when it has reached this end, the valve will be so placed that the steam will send the piston again towards *y*, and in this way the piston acquires a continuous alternating rectilinear motion, which by intervening contrivances communicates a continued rotatory motion to the crank shaft. It will be understood that as the steam has less tendency to turn the crank shaft when the crank is near the position shown in fig. 5, than when it is in the position shown in fig. 4, the motion of this shaft will not be uniform. But the fly wheel is used to cause the motion of the crank shaft to be nearly uniform at every part of the stroke of the piston, by its taking in part of the power when the steam acts with its greatest force to turn the shaft, and again giving out this power when the steam has little tendency, from the position crank, to turn the engine. The fly whee short, a regulator of the engine; for as has b served, in an elementary work on mechanic effect of the fly wheel in accumulating fo led some to suppose that there is, positi creation of force in the fly; but this is a n for it is only, as it were, a magazine of where there is no force but what has been de to it. The great use of the fly wheel is deliver out, at proper intervals, that force has been previously communicated to it; though there is absolutely a small loss of po the use of the fly, yet this is more than comp for by its utility as a regulator."

The piston is described above as being with hemp; but it is now common to use w called metallic pistons, which are superior i respects; they are attended with less troul expense, and they glide up and down the c with less friction; indeed hemp packing i pressure engines is not at all answerable, high temperature of the steam soon destroy

The metallic piston of Mr Barton, has bee approved of; its structure will be understo the following figures:—*a a a a* are four segments; *b b b b* four right-angled wed terposed between the segments, their point ing a portion of the periphery of the circle; is a thin steel spring, formed into a singl hoop, and pressed into the undulated form sented, by which it is found to act with energy upon the wedges, until they and t ments become so much worn in the co



time, that the steel spring recovers itself original circular figure; *d* is the frame-w in one piece, with the lower plate of the p is the piston rod; the open spaces shown plan within the circular frame *d*, are cavitie sen the weight of metal; the other sp cavities to allow of the free action of the spring. To prevent the segments from fa

STEAM ENGINE

PLATE LIII

THE DOUBLE ACTING LOW PRESSURE PORTABLE STEAM ENGINE 20 HORSE POWER.

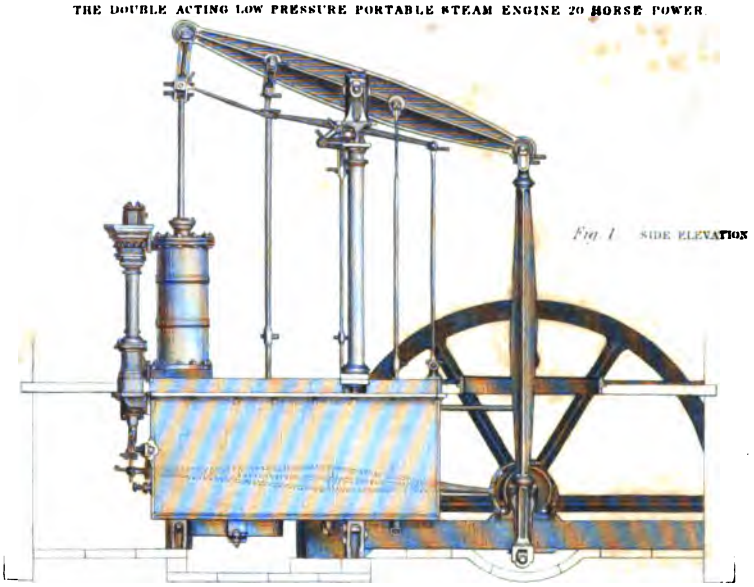


Fig. 1. SIDE ELEVATION

ENLARGED SECTION OF THE CYLINDER AND NOZLES.

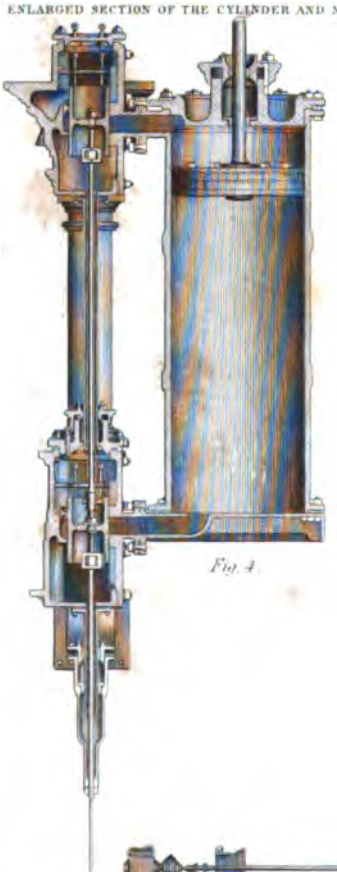


Fig. 4.

Fig. 2. END ELEVATION.

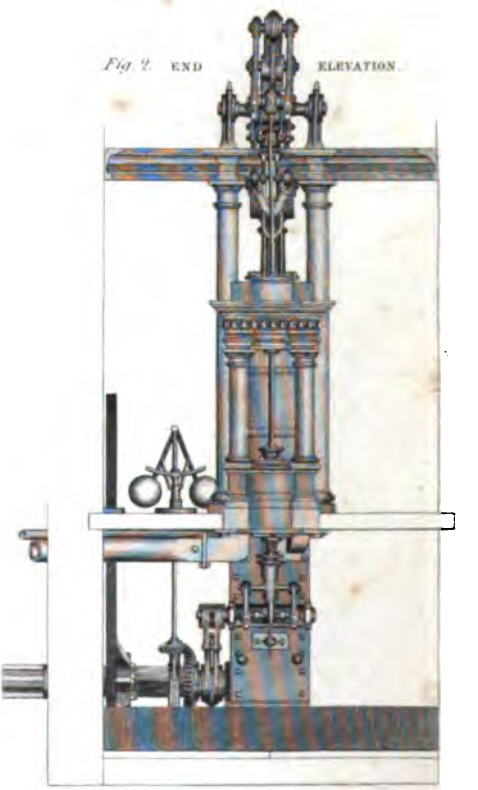
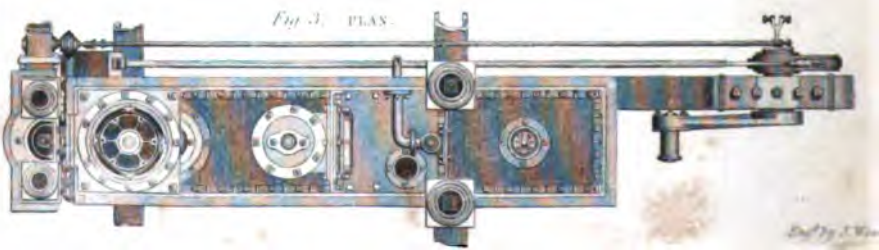


Fig. 3. PLAN.



Scale of Feet to Fig. 1

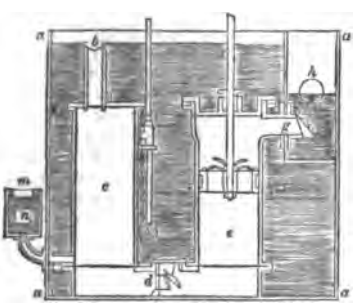
Scale of Feet to Fig. 2 and 3

of their places whilst the piston is being taken out, or put into the cylinder, the periphery of it is grooved near to its upper and lower edge, in which are sunk two slight spring hoops, cleft across into forked joints, which close together simply by their elasticity. To lubricate the piston, there is a third groove, made midway between the two former, for the reception of oil; these parts are not introduced into the figures. The action is as follows:—as the piston and cylinder wear away by the friction, the circular spring *c*, presses out the wedges *b*, and these project the segments against the cylinder by degrees as they are reduced in thickness.

In the engine just described the cylinder is horizontal, which is unusual, but the position of the cylinder does not alter in any way the nature of the principle upon which the steam puts the piston in motion.

It must be evident, that the steam escaping from the cylinder of a high pressure engine, will be resisted by the pressure of the atmosphere; but if the eduction pipe, in place of opening out to the atmosphere, communicated with a vessel free of air, and having a jet of cold water running into it, so as to condense the steam as it entered, the steam would then meet with no obstruction, in which case, the steam from the boiler would act with greater force on the piston. On this principle, as we have already hinted at, is the condensing engine constructed, which comes next to be described.

We shall first notice the structure and action of the condenser, together with the air pump, and their connexions, as shown in the accompanying cut. *a a a a* represents a section of the cistern, containing cold water, *b* is the eduction pipe through which the steam passes from the cylinder into the condenser *c*. The condenser communicates with the air pump *e*, by a pipe at the bottom, furnished with a valve *d*, called the foot valve. This valve is of the clack form. The air pump *e*, is of the common suction kind, the piston being furnished with two valves, as will be seen in the figure. The valve *g* opens into the hot well *h*, and the opening at *h* is the end of a pipe that allows the surplus hot water in the well to run off, the remainder being pumped into the boiler. At the side of the condenser a rod is seen rising in the cistern, the lower end being attached to an injection cock. The water from the cistern passes through the injection cock and enters the condenser through a rose, in the form of a shower.



Before the engine is set a going, the injection cock being shut, steam is admitted into the cylinder, which, passing down through the pipe *b* into the condenser, displaces the water and air contained in the condenser, discharging them out through the snifter valve *n*, which opens into the small chest *m*. This operation of "blowing through," as it is termed, being continued a sufficient time, and the cylinder and condenser wholly filled with steam, the injection cock is then opened, and steam admitted to the one end of the cylinder, while the other end communicates with the condenser; the injection water immediately condenses the steam and the piston begins to move. The piston rod and air pump rod being attached to the same end of the beam, rise and fall together; when the piston rises, the valve in the bucket of the air pump will be shut, and all the air and water above the bucket will be lifted through the valve *g* into the hot well *h*. At the same time a vacuum being formed in the air pump *e*, below the bucket, more perfect than that in the condenser, the foot valve *d* will be opened, and the water and air will pass from the condenser into the air pump. When the bucket descends, the valve in it will open, and allow the air and water to pass into the space above it, while the valves *g* and *d* will be shut. At the return, the water and air is lifted through the valve *g* to the hot well or cistern, as before, &c. The condenser is usually made of the same capacity as the air pump, each being equal to one eighth of the content of the cylinder; that is, the length of the air pump should be one half of the length of the cylinder, and also its diameter one half that of the cylinder.

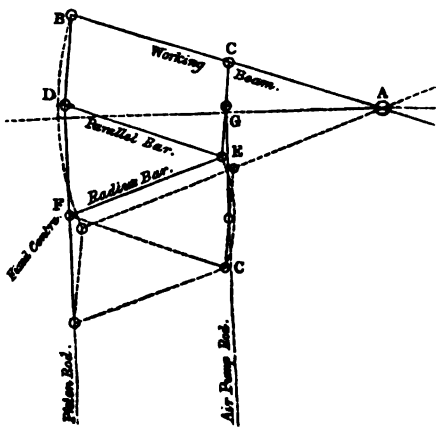
When a steam engine is made on this principle, the steam that is used has a low pressure, unless the engine be wrought expansively. (For an account of which method of working an engine, see the description of expansion valves given at the end of this article.)

Fig. 4, plate LXXXIII, is a view in section of the steam cylinder and nozels of a condensing engine, showing the piston with part of its rod, and the steam valves with their rods and connections. There are many different kinds of steam valves in use; those shown are what are called D valves, being different from those described for the high pressure engine. The principle of them will be best understood by referring to the cut fig. 3, page 388; and by supposing the pistons O O, to be semicircular, with their flat sides next to the steam ports, the face of the steam ports being also a flat surface. We shall also suppose hemp packing to be round the back of these pistons, or valves, for the purpose of preventing the steam from passing the valves, to the eduction side of the nozles, and at the same time to keep the flat side of the valve pressed to the other face *c*, the operation of the steam passing to and from the cylinder, being the same as was described when noticing cut, fig. 3.

Fig. 1, 2 and 3, plate LXXXIII, are three views of a twenty horse power condensing engine. First, there are the nozles into which the steam enters from the boiler, and from which the steam is admitted at proper intervals, into the cylinder, to give motion to the piston; the rods of it are seen connected to the working beam by the straps or links of the parallel motion. The other end of the working-beam has the connecting rod attached to it, which communicates motion from the beam to the crank; thus, with the aid of the fly wheel, producing a rotatory motion to the crank shaft. The vertical rods that hang down from the working beam are for working the engine pumps; the one next the cylinder, is for the air pump; that on the other side of the main centre columns works the cold water pump, which supplies the cold water cistern with water for condensing the steam. It

is also usual to work the hot water pump which supplies the boiler, off the working beam, but in this engine it is wrought off the parallel motion, the rod from which is seen close to the main centre columns. These several pumps, together with the condenser and hot well, are all enclosed within the cistern on which the cylinder and main centre columns rest, and are shown in fig. 3. It will be seen that the slide valves in this, as in the high pressure engine, are wrought by an eccentric.

As the end of the working beam moves in an arc of a circle, it is necessary to have some means of guiding the piston rod, so that it may move up and down in a straight line. This is accomplished by that beautiful contrivance of Watt, the parallel motion. There are various modifications of this motion, such as the one of the engine we are now describing, but we shall confine ourselves to the common form, which the accompanying diagram will illustrate. The top of the piston rod and the



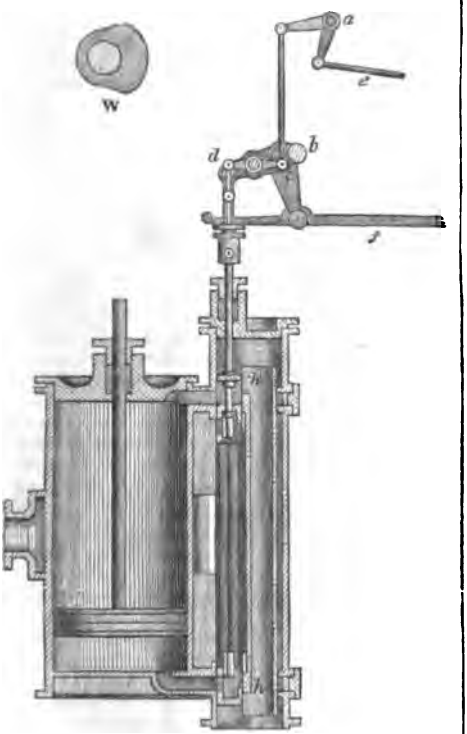
top of the pump rod are connected by joints at B and C to the rods D B and E C, which rods are called straps or links. The links are connected by joints, B and C, to the working beam, and at their other extremities to a cross bar D E. The links are of the same length, and the bar D E being equal in length to the distance of the centres B and C, B C E D will be a parallelogram; hence the bar D E, being parallel to the working beam, is called the parallel bar. Another bar, F E, is connected to the parallelogram by a joint at E, and is moveable round a fixed centre, F. This bar is called the radius bar. By the alternate motion of the beam, up and down, it is plain that the joint C will describe an arc of a circle whose centre is the centre A of the working beam; and the joint E will describe an arc whose centre is the other extremity F of the radius bar; the centres A and F being fixed. Now the centres E and C are connected by the link E C; and by the alternate motion of the beam the joint C will draw the upper end of the link towards the left hand side of the figure, and the other end E will advance towards the right, and the link will become inclined; but there will be some point, as G, in the link which is bent neither to the right nor to the left, and if to this point the top of the air pump rod be attached, it will rise and fall in a vertical line. And as the length of the rods are so adjusted that the centre D keeps parallel to the point G, therefore the piston rod attached to this point will also move in a straight vertical direction.

In the transverse elevation, fig. 2, is seen the governor. Its purpose is for regulating the speed of the engine. It consists of two balls suspended from the upright spindle by two rods or arms moveable on the point of suspension. The spindle gets its motion from the crank shaft by means of the bevel wheels. When the engine is working, the spindle revolves, carrying the balls round about along with it. The centrifugal force that the balls thus acquire, will cause them to recede from the spindle or centre of motion to a distance proportionate to the speed of the engine. In the steam pipe, near to the nozels, is a throtle valve, as it is termed, for admitting more or less steam to act on the piston. It is so contrived that this valve is operated on by the governor balls as they expand or collapse. For instance, should it happen that the engine was going too quick, the balls would immediately fly farther asunder, and would act on the throtle valve so as to allow less steam to enter, and thus check the engine from attaining too great a velocity. On the contrary, if the engine was happening to go too slow, the balls would come nearer each other, which would open the throtle valve, and admit more steam to the engine, and thus enable it to keep up to its required speed.

In a steam engine planned so that the communication between the boiler and the cylinder is closed before the piston reaches the end of its stroke, the steam in the cylinder expands, and carries the piston through the part of the stroke in which the cylinder has no communication with the boiler. This is by far the best method of working the steam engine, as all the power that is got out of the steam after the communication from the boiler to the cylinder is closed, is power gained over what would be had if the same quantity of steam was used in an engine working full pressure the whole length of its stroke; and although the steam used is of a high pressure, there is only a small quantity admitted into the cylinder at each stroke, and on this account an air pump and condenser may be used to great advantage in a high pressure engine. There are various methods in use of cutting off the steam; the plans now to be described seem well adapted for the purpose: they were invented by Mr James Whitelaw, and are modifications of some of his plans given in No. 13 of the Repertory of Patent Inventions.

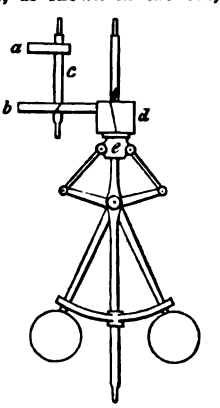
The following cut shows a plan of expansion gear adapted to the cylinder and nozles of a steam boat engine of the ordinary form. In this fig. it will be seen that the cut off or expansion valves work upon the back of the face part of the large slide valve of the engine; the top cut off valve is shown covering its port in the face of the slide valve and the port for the bottom cut off valve is shown open. The small rocking shaft *a*, is supported upon brackets which may be fixed at a convenient distance above the rocking shaft *b*, which works the large slide valve. It will be seen that the rocking shaft *b* is cranked in order to let the end *c* of the lever *d c*, be so near the centre of motion of the shaft *b*, as that the motions which this shaft gives to the large slide valve will not shift the cut off valves from any position on the large slide valve into which they may be put by means of the wiper and other apparatus which work them. The lever *d c* which gives motion to the cut off valves is fixed upon a centre, an end of which works into

each lever in connection with the links which move the large slide valve. A wiper, shown enlarged at W, is fixed upon the crank shaft of the engine, and communicates its motions to a rod *e*, part of which is seen in the fig. and the motions of this rod are carried to the cut off valves by means of the other shafts, rods and levers, also shown in the fig.; *f* is the eccentric rod.



The large slide valve shown above is a modification of the leech D valve. The pipe *h h*, which forms the communication betwixt the top and bottom parts of the valve, does not work up and down, but it is fixed to the nozles, and the valve slides past it. The eduction pipe *h h* rests and is prevented from rising by means of narrow flanches cast on the top end of it, which are guided by means of similar flanches cast inside of the top part of the nozles; the construction of these flanches is such as to allow the pipe to be pressed against the valve, although they prevent it from working up or down. As the working part of this valve is very light, it may be made entirely of brass and cast in one piece: behind the rod which connects the top and bottom cut off valves, a light rib is shown in the fig., which connects the top and bottom parts of the large valve. Both faces of a valve, as now described, may be finished in a planing machine. In this sort of valve each set of blocks which press upon the packing should be cut into four pieces; one of these pieces should press upon each side of the valve and the other two pieces should act upon the packing placed round the eduction pipe.

In a factory engine, the part of the stroke at which the steam is cut off must be regulated by the governor. The following cut shows a plan of a governor, which shifts the wiper for working the expansion valves, so as to cut off the steam sooner, whenever the engine goes too quick, and if the engine happens to work below its proper speed, it puts the wiper into a position to give the piston the full pressure of the steam during a longer portion of its stroke; and in this way the governor keeps the engine going at nearly the same speed, whether it is doing much or little work. The wiper *a* gives motion to the cut off valves by means of a similar arrangement of rods, levers, &c., as shown in the immediately preceding cut, and it is of the same form as the one shown at W, in the same cut. *b* is a spur wheel and *d* is a pinion which gears into it. The part *e* of the governor is connected to the pinion *d* in such a manner that if the part *e* rises or falls, it will carry the pinion *d*, along with it; but the connection of these parts does not hinder the pinion from revolving on the governor shaft or rod. The wheel and pinion are calculated so as to cause the shaft *c* upon which the wiper *a* is fixed, to make the same number of revolutions as the crank shaft of the engine. The pinion *d* is bored out and fitted to the governor rod, so that it can revolve and work up and down on it, and the feather which forms the connection betwixt the rod and the pinion runs in a spiral direction, as shown in the cut, and not, as in ordinary cases straight up and down. By this arrangement, if the pinion *d* is raised or lowered by means of the governor, the screwed feather will carry it round upon the rod and shift the position of the wiper, so as to cut off the steam sooner or later, according as the balls are up or down, if the screwed feather winds in the proper direction. If the teeth of the spur wheels *b* and *d* wind in a spiral direction on the surface of their rims, as in White's wheels, the pinion *d*, as it rises or falls alongside of the wheel *b*, will cause the wiper and its shaft to revolve still farther than with the screwed feather, simply if the teeth of the wheel and pinion have the directions as per the angled lines drawn upon them. It will be evident that if the governor was driven at the same speed as the crank shaft, then the shaft *c*, as well as the wheel *b* and the pinion *d*, are not needed; as in this case, the wiper *a* would act as before stated, if it was fitted upon the governor rod at the same place and in the same manner as the pinion *d* is fitted.



Having thus considered the general principles of the structure and action of the steam engine, in its most common forms, we shall next proceed to investigate what may be the amount of mechanical energy which it can furnish.

By reference to the preceding article *Steam*, it will be seen that, under ordinary circumstances, the steam from a cubic inch of boiling water, at the temperature of 212°, occupies one cubic foot; or, in other words, that the steam fills about 1700 times the space previously occupied by the water from which it was formed. To make this more plain; suppose that a cubic inch of water were put into a hollow cylinder, whose area is one foot square in the base and twelve inches high, the content of

such a cylinder must be one cubic foot, or 1728 cubic inches. Now if heat be applied to the bottom of this cylinder, and the water made to boil, the steam from that water will fill the whole of the interior of the cylinder. Suppose that a piston were fitted into the cylinder so that the piston must rise before the steam can fill the cylinder, and that there is no weight pressing down the piston, it is plain that the piston must be pressed up to the top of the cylinder with an energy or force equal to the force of the steam upon its under surface, which at this temperature of 212° is equal to the pressure of the atmosphere, or 15 lbs. upon the square inch. To determine therefore the effect of one cubic inch of water, converted into steam, we have only to multiply 144 square inches, or one square foot, the surface of the piston acted on by the pressure, which is 15 lbs. on each square inch, and the product 144 × 15 = 2160 lbs. through the height of one foot by the steam formed from one cubic inch of water. But this number, 2160, comes so near to the number of pounds in a ton, i. e. 2240 lbs. that, for the sake of round numbers, we may consider that one cubic inch of water, converted into steam at a temperature of 212° will raise one ton weight one foot high.

This is no doubt low pressure steam; and the question naturally arises, can we obtain any more force from high pressure steam, raised from the same quantity of water? No, we cannot. For let us take the hollow cylinder spoken of in the last paragraph, with its piston, and containing its cubic inch of water to be converted into steam; let the upper side of the piston be so loaded, that it cannot be forced up by the pressure of the steam below until it acts with a force of 30 lbs. upon the square inch,—then when the whole of the water has been formed into steam, it will have raised the piston up with a force of two tons, but only to the height of six inches; for the steam having double the elastic force of the former, occupies only half the bulk. The effects from the high and low pressure steam, when formed from the same quantity of water, are therefore equal; for it is quite the same thing, so far as mechanical effect is concerned, to raise one ton one foot, or two tons through half that height. The power of an engine will therefore depend upon the quantity of water converted into steam to supply it for a given time. It is also worthy of remark, that it will require the same quantity of fuel to convert a given quantity of water into steam, whether it be of the low or high pressure kind; so that the power of an engine will depend on the quantity of fuel consumed in its working.

In the common low-pressure steam engine of Watt, steam is admitted into the cylinder whose elastic force is somewhere about that of the atmosphere, which we have all along supposed to be 15 lbs. to the square inch; but imperfect vacuums, even in the best engines, diminish this pressure to about 12 lbs. on the square inch, or 9·4 on the circular inch. But from the power required to overcome the friction of the several parts, and to work the air and other pumps, there is only about 6 lbs. of effective pressure remaining for each circular inch of the piston.

Mr Tredgold gives the following tables, as an estimate of the loss of power that takes place in high pressure and condensing engines. In an engine which has no condenser:—

The pressure on the boiler being	10·000
1. The force necessary for producing motion of the steam in the cylinder	·069
2. By cooling in the cylinder and pipes	·160
3. Friction of piston and waste	2·000
4. The force required to expel the steam into the atmosphere	·069
5. The force expended in opening the valves, and friction of the parts of an engine	·622
6. By the steam being cut off before the end of the stroke	1·000
Amount of deductions	3·920
Effective pressure	6·080

In one which has a condenser:—

The pressure on the boiler being	1·000
1. By the force required to produce motion of the steam into the cylinder	·007
2. By the cooling in the cylinder and pipes	·016
3. By the friction of the piston and loss	·125
4. By the force required to expel the steam through the passages	·007
5. By the force required to open and close the valves, raise the injection water, and overcome the friction of the axes	·063
6. By the steam being cut off before the end of the stroke	·100
7. By the power required to work the air-pump	·050
Amount of deductions	·368
Effective pressure	·632

The diameter of a given cylinder being 24 inches, its area, and consequently the area of the piston in circular inches, will be, $24^2 = 576$.

We have seen that steam just sufficient to balance the atmosphere yields a power equal to 6 lbs. on the circular inch; hence the area of the piston 576 × 6 = 3456 the resulting force of the steam on the whole surface of the piston. And say that the length of the stroke is five feet, and the engine makes 44 single or 22 double strokes in a minute, then the piston will move through a space of 22 × 5 × 2 = 220 feet in a minute; and from what has been said before, it will not be difficult to see, that the power of the engine will be equivalent to a weight of 3456 lbs. raised through 220 feet in a minute.

But in place of steam equal to the pressure of the atmosphere, it is usual to employ steam 2, 3 or 4 lbs. above the pressure of the atmosphere. So that the piston will have nearly that much more pressure on each circular inch of the piston.

This is the most certain measure of the power of a steam engine. It is usual, however, to estimate the effect as equivalent to the power of so many horses. This method, however simple and natural it may appear, is yet, from differences of opinion as to the power of a horse, not very accurate; and its employment in calculation can only be accounted for on the ground, that when steam engines were first employed to drive machinery, they were substituted instead of horses; and it became thus necessary to estimate what size of a steam engine would give a power equal to so many horses.

There are various opinions as to the power of a horse. According to Smeaton, a horse will raise 22,916 lbs. one foot high in a minute. Desaguliers has 27,500; and Watt makes it 33,000. There is reason to believe that even this number is too small, and that we may add at least 11,000 to it, which gives 44,000 lbs. raised one foot high per minute.

Now, in the case above, we found that the engine of 24 inch cylinder, would raise 3456 lbs. through the space of 220 feet in one minute; and it is easily seen that it could raise 220 × 3456 lbs. through one foot in the same time; therefore 220 × 3456 = 760320 lbs. raised through one foot in one minute, is the effective power of the engine; and from these considerations it will be easy to find the power according to the different estimates of a horse's power. For,

Fig. 4

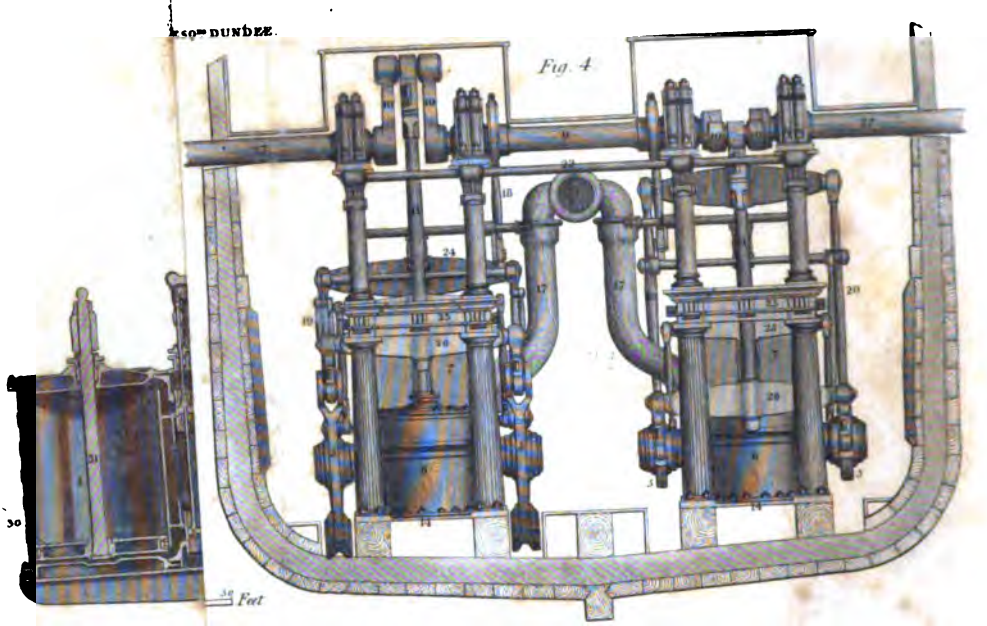
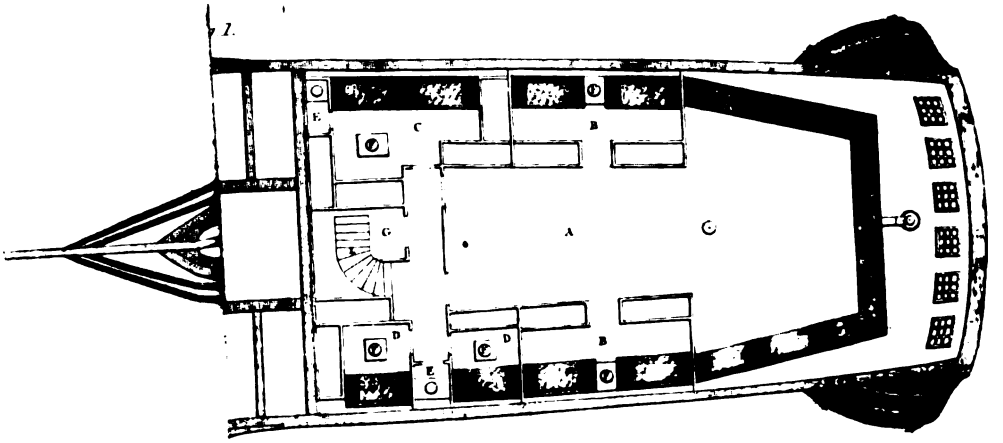


Fig. 1.



P. Horne Esq^r

Engd by J. Wear

according to Smeaton, $\frac{760320}{22976} = 33$ horses' power;

according to Desaguliers, $\frac{760320}{27500} = 28$ horses' power;

according to Watt, $\frac{760320}{33000} = 23$ horses' power;

according to the usual estimate, $\frac{760320}{44000} = 17$ horses' power.

The reader will have no difficulty in forming a general rule for estimating the power of a steam engine. (The effective pressure on each circular inch × the area of piston in circular inches × length of stroke in feet × number of strokes per minute) ÷ 44000 = the number of horses' power of the engine.

STEAM ENGINE, LOCOMOTIVE. See *Locomotion*, *Locomotive Engine*, and *Railways*.

STEAM NAVIGATION. The application of steam power to the propelling of vessels, is one of the most important inventions of modern times, By this application of the steam engine, man has so extended his dominion over nature, that he may be almost said to have completely overcome the wind and the tide in traversing the deep. From the uniformity and amount of the power, the time of transit upon rivers, seas and even the ocean, is not only vastly different from the former modes of navigating, but vessels may be calculated upon in all weathers with as much certainty as can well be desired. The advantages of steam navigation have, as is well known, been immense, and are daily increasing; but it is at the same time worthy of observation, that the advantages to mankind by its application to the art of war are by no means inconsiderable; for by diminishing the chance of victory of either side of the combatants over the other by chance advantages of winds or currents, it increases the certainty of destruction to and proportionally lessens the desire for battle. In a book by Valturius, entitled "De re Militari," printed at Verona, in 1472, a method is described of propelling vessels by means of paddles or wheels. The vanes, or paddles, were made of pitched sail cloth, and were put in motion by means of cranks. It is beyond doubt that troops were often transported across rivers, during the 15th and 16th centuries, by means of boats, or pontoons, moved by paddles, the paddles being turned by animal strength. Jonathan Hull was the first who proposed to apply steam power to the propelling of vessels. His method of converting the reciprocating into the rotatory motion was ingenious, though by no means so simple as the crank. The steam-boat was patented in December, 1736, and a description, with a drawing, published in a small pamphlet, in 1737, under the title of "A description and draught of a new invented machine for carrying vessels or ships out of or into harbour, port, or river, against wind, or tide, or in a calm." From the date of this invention it is manifest that the engine must have been the old atmospheric engine of Newcommen. The paddles were situated behind the boat. It would appear that, from want of encouragement, the steam-bout of Jonathan Hull was never actually constructed. Two Americans, James Ramsey of Virginia, and John Fitch of Philadelphia, claimed the honour of inventing steam-boats, about 1785, so also did Thomas Paine, but none of their plans were ever brought into practice. Robert Fulton, an American engineer, claimed the honour of being the inventor and constructor of the first steam-boat actually brought into use; but the following statements will show that his claims are unfounded.

The real inventors of the steam-boat were Mr Miller of Dalswinton, and the tutor of his family, Mr James Taylor. The former was the first to suggest the application of paddle-wheels in the propelling of vessels, and the latter to suggest the employment of steam as the moving-power of these wheels. So far back as the year 1788, they constructed a boat on this principle, the engine of which was made by Mr Symington, then a young engineer in Edinburgh. Experiments were made with this boat on the lake of Dalswinton, Dumfriesshire, which proved highly satisfactory, the vessel being driven at the rate of five miles an hour. The same gentleman, in the following year, constructed, at the Carron foundry, a larger vessel, which was tried on the Forth and Clyde canal in November and December, 1789, and went at the rate of seven miles an hour. Soon after this, a misunderstanding arose between Messrs Miller and Taylor, and the prosecution of the invention was by them for some time neglected. Mr Symington, the engineer, meanwhile, did not abandon the project. Having commenced business at Falkirk, he, in 1801, built another experimental steam vessel, which was also tried with success on the Forth and Clyde canal, but was interdicted by the canal company, on account of its motion destroying the banks. This vessel, which lay at Lock Sixteen, was inspected by Mr Fulton, accompanied by Mr Henry Bell of Glasgow, when on a visit to the Carron works; and the consequence was, that, in 1807, Mr Fulton launched a steam vessel on the Hudson, and, in 1812, Mr Bell another upon the Clyde, being respectively the first vessels of the kind used for the service of the public in the new and old hemispheres. Before, however, carrying the discovery to America, Mr Fulton, in company with Robert R. Livingston, American minister to France, made several experiments on the subject. After some trials on a small scale, they built a boat upon the Seine, in 1803, which was completely successful. On Mr Fulton's arrival at New York, in 1806, they immediately engaged in building a boat of what was then deemed very considerable dimensions. This boat began to navigate the Hudson river in 1807: its progress through the water was at the rate of five miles an hour. February 11, 1809, Mr Fulton took out his first patent for navigation by steam; and, February 9, 1811, he obtained a second patent for some improvements in his boats and machinery. In 1811 and 1812, two steam-boats were built under Mr Fulton's directions, as ferry-boats for crossing the Hudson river, and soon after, one of the same description for the East river. Of the former Mr Fulton wrote and published a description, in the American Medical and Philosophical Register, for October, 1812. These boats were what are called *twin-boats*; each of them being two complete hulls, united by a deck or bridge; sharp at both ends, and moving equally well with either end foremost; so that they cross and re-cross without losing any time in turning.

After the minute account that has been given of the steam engine, little need be said here more than to point out the peculiarities of the arrangement of its parts as adapted to navigation. The chief difference in form arises from the necessity of keeping the centre of gravity of the vessel as low as possible, in order that she may maintain her stability, and

therefore the weight of the engine is as much as possible thrown below. For this purpose the working beam is taken away from the top, and in its stead two side levers are substituted, one on each side of the engine, and each connected with the piston pump rods and crank in a way which will at once be understood by inspecting the plates to which we shall very soon refer.

The revolving oars or paddle wheels having float boards fastened upon their circumferences, are placed at the sides of the vessel, and revolve upon the end of the crankshaft, in the place of the fly wheel shown in the plate of the condensing engine. Various forms of these paddles have been tried, but upon the whole it has been found that the common kind, fashioned after the manner of an undershot water wheel, answers best. From the nature of the resistance which the engine has to encounter, the paddles act as fly wheels, so that no fly wheel is required in a marine engine.

By inspecting plate LXXXIV. the arrangement of the several parts of a marine engine, as constructed by R. Napier, Esq. of Glasgow, will be seen. This engine is similar in form to those made by the celebrated engineer Maudsley of London. The following account of a steam vessel lately erected, but differing from the above in some of the details, will render any farther description of this plate unnecessary.

References to plate LXXXV. of Steam Navigation:—A. Saloon.—B.B. Gentlemen's state rooms.—C. Ladies' cabin.—D.D. State rooms.—E.E. Water closets.—FF. Wash hand basins.—G. Stewards' pantry.—H. Fore cabin.—J. Ladies' fore cabin.—K.K. Wash-hand basins.—L. Main cabin stair.—M. Fore cabin stair.—N. Engine room stair.

1. Boiler.—2. Funnel.—3. Safety valve.—4. Cylinder.—5. Side lever.—6. Air pump.—7. Condenser.—9. Crank shaft.—10. Cranks.—11. Connecting rod.—12. Paddle wheels.—13. Nozzle case.—14. Bottom plates.—15. Foot valves.—16. Discharging valves.—17. Steam pipes.—18. Eccentric rods.—19. Parallel motion rods.—20. Cylinder side rods.—21. Diagonal stay and upper crank framing.—22. Transverse stay rods.—23. Lower crank-framing.—24. Cylinder cross heads.—25. Air pump cross heads.—26. Cross tails.—27. Paddle wheel shafts.—28. Upper chamber of condenser.—29. Lower chamber of condenser.—30. Pistons.—31. Piston rods.—32. Main centres.

Having given those references, we will now lay before the reader a more detailed account of the *Sea Horse* steamer.

The *Sea Horse* steam ship was built by Thomas Adamson, Esq., ship-builder, Dundee, and the engines manufactured by Peter Borrie, Esq., Tay Foundry, Dundee, who also fitted up and furnished her cabins. This vessel is the largest ever built on the Tay, having length of keel 150 feet, length on deck 170 feet, breadth over the paddle boxes 48 feet, length of quarter deck 65 feet, and breadth 30 feet. The vessel is all timbered with oak of the best quality, die square, and large scantling, being thirteen inches at the keel, and made perfectly solid and caulked outside and inside from stem to stern to the six feet water line before the planking was put on. The planking at the keel is six inches thick, bolted horizontally through the keel, and at the bilges it is seven inches thick, and also bolted edge ways to each other, all strongly copper bolted through and clenched inside. The keelson is oak, fourteen inches by sixteen inches, bolted through with 1¼ inch copper in every floor timber, and clenched on the under part of the keel. There are four riders from stem to stern, fourteen inches square, bolted in a similar manner to the keelson; upon these the engines and boilers rest. The vessel throughout is planked with heavy planking, the greater part amidship being six inches thick, bolted edge ways to each other and through the vessel's side. The lower side of the keel is covered from end to end the whole breadth with iron plates ¾ inch thick, bolted upwards, with the bolts counter sunk in the plates. Her cubical displacement, when immersed to the load water line, is about 800 tons; and allowing 420 tons for weight of vessel, engines, boilers, equipments and stores, a dead weight of 380 tons can be transported by this vessel. Two large fore and after holds are provided for the stowage of this cargo, whose cubical capacity is 15,200 feet.

The sole plates of the engines are strongly bolted through the riders, thus rendering it impossible, while the vessel holds together, that the engines can sustain the least strain. The engines have no connections with the deck beams. The two framings are securely bound together by horizontal stays, which method is found superior in many respects to the way formerly practised in binding the engine framing to the deck beams. Besides other advantages, it is found to do away, in a great measure, with that tremulous motion so universal and so disagreeable on board of steam vessels.

The space occupied by the engines and boilers is fifty-four feet long by 23½ feet broad by twelve feet high. The boilers are twenty-eight feet long by twenty-one feet broad by 9½ feet high, having eight furnaces, whose flues traverse the boilers twice, and then the smoke passes into the funnel. Around the funnel is the steam chest, from which a large pipe, with two verticle branches at the opposite end, communicates to the nozle casing, and the steam is admitted to and educted from the cylinders by slide valves wrought from the paddle shaft by eccentrics in the usual manner. The relative situation of the boilers and engines are different from the common method. Instead of the cylinders being next the boilers, they are placed at the opposite end of the sole plates. Thus the cylinders are ahead of the paddle shaft instead of being astern. From this arrangement several advantages result, the principal of which is, that the shaft is placed nearer the centre of buoyancy, which causes the paddle floats to operate with much better effect on the water, and gives an increased speed to the vessel.

One of the greatest difficulties encountered in applying steam to the purposes of navigation, arises from the necessity of having to supply the boiler with sea water. This cannot be avoided where the common condenser is used and the condensation of the steam effected by a jet of sea water, as the boiler is supplied from the condenser, and this water holds in solution a proportional quantity of salt to the quantity of water used.

The salt, thus conveyed into the boiler, not being evaporated, remains there; and as a constant egression of steam from the boiler causes as regular an increase of salt, its accumulation soon becomes greater than what water is capable of holding in solution; a deposition of salt in the boilers immediately commences, which in process of time would fill them. And in addition to the salt thus conveyed into the boilers, under some circumstances a deposition

MARINE STEAM ENGINE

AS MADE BY ROBT NAPIER ESQR ENGINEER GLASGOW.

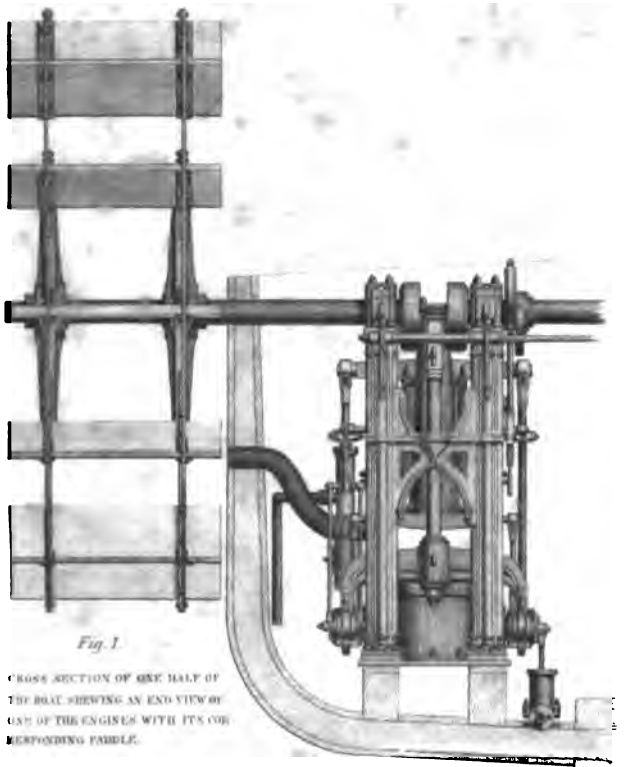


Fig. 1.

CROSS SECTION OF ONE HALF OF THE BOAT SHEWING AN END VIEW OF ONE OF THE ENGINES WITH ITS CORRESPONDING PADDLE.

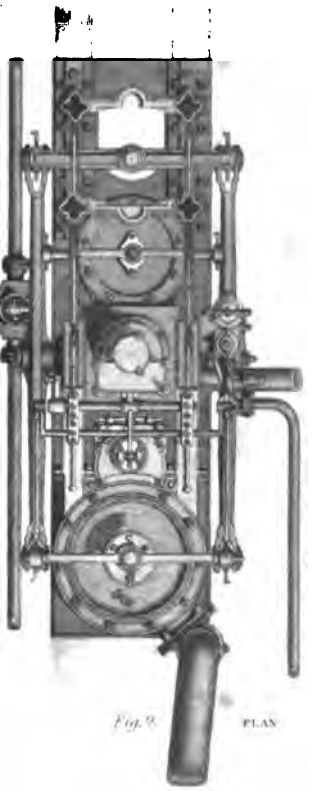


Fig. 2. PLAN

Scale of Feet to Fig 1.

Scale of Feet to Fig 2.

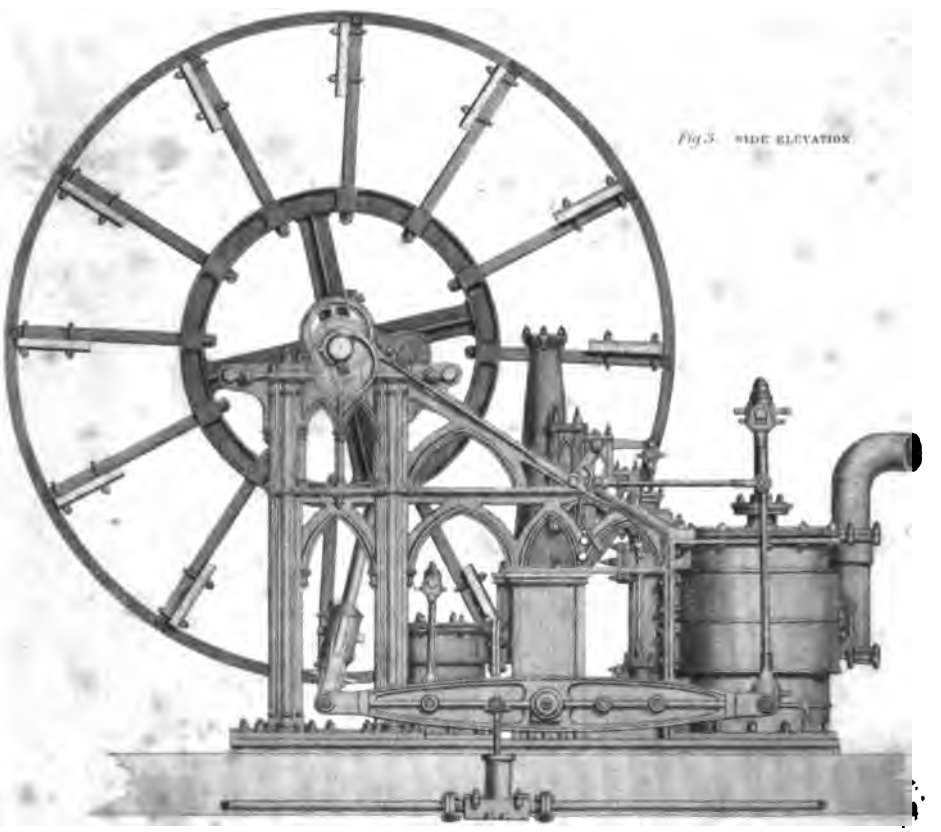


Fig 3. SIDE ELEVATION

lime is made. These, with other ingredients so hard an incrustation on the inner surface the boilers, particularly in the cavities about the aces and flues, as to render the generation of a ficient quantity of steam a matter of considerable ficulty on long voyages. As this crust continues thicken the heat is impeded by it, and the metal the boilers becomes overheated, raising it to a perature much above that of the water, and in some instances to such an extent that the boilers come red hot and burn. The consequence is a pid destruction of the boiler, an unnecessary waste fuel, and great labour in removing the crust at e termination of each voyage.

Engineers have suggested a variety of methods carrying off the salt; among others a process of charging several tons of water from the boilers ery twenty-four hours, or oftener, and termed owing out. But the most effectual remedy yet ggested for the removing of this obstacle, appears to be that of Mr S. Hall, of Basford, near Nottingham, who has become patentee for a new form of condenser, specially intended for preventing the accumulation of salt in marine boilers, &c.

Mr Hall's condenser consists of a cast iron cistern, erected where the common condenser is usually placed in other engines. At the top and bottom of this cistern a flat chamber is formed by two brass plates which are accurately fitted into the cistern, and made steam tight. These two plates are closely perforated, into which perforations the extremities of as many composition tubes are introduced, and made tight by a peculiar method of stuffing, to allow of their expansion without permitting the steam to escape through the stuffing boxes or any injury to the tubes.

From the cylinder the steam escapes to the upper chamber of the condenser and then descends vertically through the tubes to the lower chamber, into which it enters in the form of pure water (being condensed by the cold surfaces of the tubes in its descent) in which form, it is thence drawn off by the air pump and again conveyed into the boilers. While the steam is thus continuously passing through the inside of the tubes, a regular stream of cold sea water is injected by a force pump into the cistern, and made circulate among them, which, cooling their external surfaces, causes a condensation of the steam. This water is again forced into the sea and replaced by a fresh supply from the force pump. It is indeed a regular current of cold water flowing incessantly through among the tubes.

From the above description, it is evident that no waste of the water originally introduced into the boilers will take place, but what arises from leakage; so if the boilers be filled with pure water, it may be worked for any length of time without injury. The small quantity lost by leakage is supplied by a small apparatus, in which a sufficient quantity of sea water is distilled.

The steam, which in other engines is allowed to escape through the safety valve into the atmosphere when the vessel stops, or when the engines are working at an under power, is in Mr Hall's engines conveyed by a safety valve of a peculiar construction, communicating with a tube to the condenser. It is then reconverted into water and pumped into the boilers by the air pump.

The following are the advantages, as stated by Mr Hall, to be gained by his condenser:—1. A saving of fuel, amounting, in some cases, to so much as a third of the ordinary consumption. 2. The preservation of the boilers from the destruction produced in common engines by the corrosive action of sea or other impure water, and by incrustations of earthy matter. 3. The saving of the time spent in cleaning the boiler. 4. A considerable increase of power, owing to the cleanness of the boilers; the absence of injected water to be pumped out of a vacuum; the greater perfection of the vacuum; the better preservation of the piston and valves of the air pump; and (by another contrivance of his) the more perfect lubrication of the parts of the engine. 5. The water in the boiler being constantly maintained at the same height by self-acting arrangement. 6. The size of a boiler exerting a given power, being much smaller than the common kind, owing to its more perfect action.

P. Borrie having obtained a licence from the patentee for making this condenser, has, at the request of the Company to whom the *Sea Horse* belongs, fitted her engines up with two of them.

The number of tubes in the condenser shown is 2621; $\frac{1}{8}$ inch diameter, and five feet eight inches long, metal No. 21, W. G. thickness. These tubes are made of a composition of copper and tin, and are all well tested before being used.

As is shown in the transverse section, fig. 6, the *Sea-horse* has two engines of 120 horse power, each having cylinders fifty-five inches diameter, with a stroke of five feet, and makes twenty-one strokes per minute. The paddle wheels are twenty-one feet diameter and $8\frac{1}{2}$ feet broad, and their circumference gives a velocity of $15\frac{11}{13}$ miles an hour.

This vessel is also provided with two powerful double-acting force-pumps, used for filling the boilers with water or pumping out the bilge water when necessary. A hose is provided, and at a moment's notice can be attached to them; so that in case of fire on board, a continuous and powerful stream of water can be instantly conveyed to any part of the vessel, and answer, on such an occasion, all the purposes of a fire engine.

The saloon of the after cabin occupies a space of 650 square feet, being forty feet in length and eight feet high. In connection with the saloon are two state rooms, one gentlemen's and one ladies' cabin, also an ample lobby and steward's pantry and other necessary conveniences, as will be indicated by the references on the plate. The sofas are all so constructed that, when required, they are available as sleeping berths, making in all, with the matress beds, fifty-four berths in the after cabin; besides the moveable sofa berths, which will accommodate eight or ten more.

The saloon table will accommodate fifty at dinner. The panneling of the saloon is embellished with landscape and sea views, and otherwise superbly decorated, that may justly entitle it to the designation of a floating palace.

The fore cabin is also spacious, being eight feet high, and fitted up in a very elegant manner. Besides the main fore cabin, in area 240 square feet, there is a commodious cabin for the ladies, containing eighteen sleeping berths and other conveniences. The main cabin has sleeping berths for thirty; in all forty-eight sleeping berths in fore cabin. The dining table of this cabin can accommodate forty-three persons.

On deck, fore and aft the paddle boxes, on each side, are the cook's pantry, cooking apparatus, water closets, &c., and in the engine room and forecastle are sleeping berths for engineers and crew.

of lime is made. These, with other ingredients form so hard an incrustation on the inner surface of the boilers, particularly in the cavities about the furnaces and flues, as to render the generation of a sufficient quantity of steam a matter of considerable difficulty on long voyages. As this crust continues to thicken the heat is impeded by it, and the metal of the boilers becomes overheated, raising it to a temperature much above that of the water, and in some instances to such an extent that the boilers become red hot and burn. The consequence is a rapid destruction of the boiler, an unnecessary waste of fuel, and great labour in removing the crust at the termination of each voyage.

Engineers have suggested a variety of methods for carrying off the salt; among others a process of discharging several tons of water from the boilers every twenty-four hours, or oftener, and termed blowing out. But the most effectual remedy yet suggested for the removing of this obstacle, appears to be that of Mr S. Hall, of Basford, near Nottingham, who has become patentee for a new form of condenser, specially intended for preventing the accumulation of salt in marine boilers, &c.

Mr Hall's condenser consists of a cast iron cistern, situated where the common condenser is usually placed in other engines. At the top and bottom of this cistern a flat chamber is formed by two brass plates which are accurately fitted into the cistern, and made steam tight. These two plates are closely perforated, into which perforations the extremities of as many composition tubes are introduced, and made tight by a peculiar method of stuffing, to allow of their expansion without permitting the steam to escape through the stuffing boxes or any injury to the tubes.

From the cylinder the steam escapes to the upper chamber of the condenser and then descends vertically through the tubes to the lower chamber, into which it enters in the form of pure water (being condensed by the cold surfaces of the tubes in its descent) in which form, it is thence drawn off by the air pump and again conveyed into the boilers. While the steam is thus continuously passing through the inside of the tubes, a regular stream of cold sea water is injected by a force pump into the cistern, and made circulate among them, which, cooling their external surfaces, causes a condensation of the steam. This water is again forced into the sea and replaced by a fresh supply from the force pump. It is indeed a regular current of cold water flowing incessantly through among the tubes.

From the above description, it is evident that no waste of the water originally introduced into the boilers will take place, but what arises from leakage; so if the boilers be filled with pure water, it may be worked for any length of time without injury. The small quantity lost by leakage is supplied by a small apparatus, in which a sufficient quantity of sea water is distilled.

The steam, which in other engines is allowed to escape through the safety valve into the atmosphere when the vessel stops, or when the engines are working at an under power, is in Mr Hall's engines conveyed by a safety valve of a peculiar construction, communicating with a tube to the condenser. It is then reconverted into water and pumped into the boilers by the air pump.

The following are the advantages, as stated by Mr Hall, to be gained by his condenser:—1. A saving of fuel, amounting, in some cases, to so much as a third of the ordinary consumption. 2. The preservation of the boilers from the destruction produced in common engines by the corrosive action of sea or other impure water, and by incrustations of earthy matter. 3. The saving of the time spent in cleaning the boiler. 4. A considerable increase of power, owing to the cleanness of the boilers; the absence of injected water to be pumped out of a vacuum; the greater perfection of the vacuum; the better preservation of the piston and valves of the air pump; and (by another contrivance of his) the more perfect lubrication of the parts of the engine. 5. The water in the boiler being constantly maintained at the same height by self-acting arrangement. 6. The size of a boiler exerting a given power, being much smaller than the common kind, owing to its more perfect action.

P. Borrie having obtained a licence from the patentee for making this condenser, has, at the request of the Company to whom the *Sea Horse* belongs, fitted her engines up with two of them.

The number of tubes in the condenser shown is 2621; $\frac{1}{2}$ inch diameter, and five feet eight inches long, metal No. 21, W. G. thickness. These tubes are made of a composition of copper and tin, and are all well tested before being used.

As is shown in the transverse section, fig. 6, the *Sea-horse* has two engines of 120 horse power, each having cylinders fifty-five inches diameter, with a stroke of five feet, and makes twenty-one strokes per minute. The paddle wheels are twenty-one feet diameter and $8\frac{1}{2}$ feet broad, and their circumference gives a velocity of $15\frac{2}{13}$ miles an hour.

This vessel is also provided with two powerful double-acting force-pumps, used for filling the boilers with water or pumping out the bilge water when necessary. A hose is provided, and at a moment's notice can be attached to them; so that in case of fire on board, a continuous and powerful stream of water can be instantly conveyed to any part of the vessel, and answer, on such an occasion, all the purposes of a fire engine.

The saloon of the after cabin occupies a space of 650 square feet, being forty feet in length and eight feet high. In connection with the saloon are two state rooms, one gentlemen's and one ladies' cabin, also an ample lobby and steward's pantry and other necessary conveniences, as will be indicated by the references on the plate. The sofas are all so constructed that, when required, they are available as sleeping berths, making in all, with the matress beds, fifty-four berths in the after cabin; besides the moveable sofa berths, which will accommodate eight or ten more.

The saloon table will accommodate fifty at dinner. The panneling of the saloon is embellished with landscape and sea views, and otherwise superbly decorated, that may justly entitle it to the designation of a floating palace.

The fore cabin is also spacious, being eight feet high, and fitted up in a very elegant manner. Besides the main fore cabin, in area 240 square feet, there is a commodious cabin for the ladies, containing eighteen sleeping berths and other conveniences. The main cabin has sleeping berths for thirty; in all forty-eight sleeping berths in fore cabin. The dining table of this cabin can accommodate forty-three persons.

On deck, fore and aft the paddle boxes, on each side, are the cook's pantry, cooking apparatus, water closets, &c., and in the engine room and forecastle are sleeping berths for engineers and crew.

STEAM-GUN. As early as 1805, the French general Chasseloup is said to have shown the possibility of preparing steam artillery. In 1814, a French engineer constructed ordnance of this sort. The generator supplied at once six pieces of artillery with steam. The turning of a cock supplied all the pieces at once with balls and steam. This machine could make 150 discharges in a minute. The steam artillery invented by Jacob Perkins is thus described by him, in a letter to doctor Jones, editor of the Franklin Journal, dated March 8, 1827:—"I am now engaged in building steam artillery, as well as musketry, for the French government. The piece of ordnance is to throw sixty balls, of four pounds each, in a minute, with the correctness of the rifled musket, and to a proportionate distance. A musket is also attached to the same generator, for throwing a stream of lead from the bastion of a fort, and is made so far portable as to be capable of being moved from one bastion to another. The musket is to throw from one hundred to one thousand bullets per minute, as occasion may require, and that for any given length of time. I am within the truth when I say that, if the discharges are rapid, one pound of coals will throw as many balls as four pounds of powder."

STEARINE. See *Fat*, and *Soap*.

STEATITE (*soapstone*). All the varieties of steatite are so soft that they may be easily cut by a knife, and in most cases scratched by the nail. Its powder and surface are soft, and more or less unctuous to the touch. It is seldom translucent except at the edges. Its fracture is, in general, splintery, earthy or slaty, with little or no lustre. By friction it communicates to sealing-wax negative electricity. Exposed to heat, it becomes much harder, but is almost infusible by the blow-pipe. It is a compound of silica, magnesia, alumina, oxide of iron, and water. It is sometimes much mixed with talc, asbestus, &c. It is very common in Cornwall and Germany. Common steatite is usually solid, and its texture compact: sometimes it is almost friable, and its texture earthy. Its surface is often like soap to the touch. Its colour is usually gray or white, seldom pure, but variously mixed with green, yellow or red, and is sometimes a pale yellow, red or green, of different shades. The colours sometimes appear in spots, veins, &c. Its specific gravity is usually between 2·38 and 2·66. When solid, it is somewhat difficult to break. It sometimes presents pseudomorphous crystals. It agrees with talc in its composition. Common steatite occurs in masses or veins, or small beds, in primitive and transition rocks, more particularly in serpentine. The variety of steatite, called *potstone* is in hardness nearly the same as common steatite, but is more tenacious. The substance employed in the arts under the name of *soapstone*, usually belongs to steatite, but sometimes to lamellar or indurated talc. Steatite is not susceptible of a good polish; but its softness and tenacity, in consequence of which it may be cut or turned into various forms, and its property of becoming hard by heat, render it a useful mineral in the arts. It is employed for the hearths of furnaces, the sides of fire-places and stoves, &c. The potstone has received its name from having been manufactured into culinary vessels. The common steatite has even been employed for the purpose of engraving; for, being easily cut when soft, it may be made to assume any desired form, and afterwards rendered hard by heat. It then becomes susceptible of a polish, and may be variously coloured by metallic solutions. Steatite is used in Britain in the manufacture of porcelain. It has a great affinity for glass. It is also employed in the manner of paste, reduced to a fine powder, and mixed with colouring matters, for painting on this substance. Tailors and embroiderers prefer it to chalk for marking silk. It possesses the property of uniting with oils and fat bodies, and enters into the composition of the greater number of the balls which are employed for cleaning silks and woollen cloths. It also forms the basis of some preparations of paints. It is used to give lustre to marble, serpentine and gypseous stones. Mixed with oil, it serves to polish mirrors of metal and crystal. When leather, recently prepared, is sprinkled with steatite to give it colour, and afterwards, when dry, is rubbed several times with a piece of horn, it assumes a very beautiful polish. Steatite is also used in the preparation of glazed paper. It facilitates the action of screws, and from its unctuosity, may be employed with much advantage for diminishing the friction of the parts of machines which are made of metal.

STEEL is a compound of iron and carbon. The furnace in which iron is converted into steel, has the form of a large oven, or arch, terminating in a vent at the top. The floor of this oven is flat and level. Immediately under it there is a large arched fire-place, with grates, which runs quite across from one side to the other, so as to have two doors for putting in the fuel from the outside of the building. A number of vents, or flues, pass from the fire-place to different parts of the floor of the oven, and throw up their flame into it, so as to heat all parts of it equally. In the oven itself, there are two large and long cases or boxes, built of good fire stone; and in these boxes the bars of iron are regularly stratified with charcoal powder, ten or twelve tons of iron being put in at once, and the box is covered on the top with a bed of sand. The heat is kept up, so that the boxes and all their contents are red hot for eight or ten days. A bar is then drawn out and examined; and if it be found then sufficiently converted into steel, the fire is withdrawn and the oven allowed to cool. This process is called *cementation*. The bars of steel formed in this way are raised, in many parts, into small blisters, obviously by a gas evolved in the interior of the bar, which had pushed up, by its elasticity, a film of the metal. On this account, the steel made by this process is usually called *blistered steel*. The bars of blistered steel are heated to redness, and drawn out into smaller bars by means of a hammer, driven by water or steam, and striking with great rapidity. This hammer is called a *tilting hammer*, on which account, the small bars formed by it are called *tilted steel*. When the bars are broken in pieces and welded repeatedly, and then drawn out into bars, they acquire the name of *German* or *shear steel*. Steel of cementation, however carefully made, is never quite equable in its texture; but it is rendered quite so by fusing it in a crucible, and then casting it into bars. Thus treated, it is called *cast-steel*. When steel is to be cast, it is made by cementation in the usual way, only the process is carried somewhat farther, so as to give the steel a whiter colour. It is then broken into small pieces, and put into a crucible of excellent fire clay, after which the mouth of the crucible is filled up with vitrefiable sand, to prevent the steel from being oxidized by the action of the air. The crucible is exposed for five or six hours to the most

intense heat that can be raised, by which the steel is brought into a state of perfect fusion. It is then cast into parallelopipeds about a foot and a half in length. To fuse one ton of steel, about twenty tons of coals are expended; which accounts for the high price of cast-steel, when compared with that of iron, or even of common steel. Every time that cast-steel is melted, it loses some of its characteristic properties; and two or three fusions render it quite useless for the purposes for which it is intended. It has recently been proved that the steel of which the Damascus blades were made, and which was steel from Golconda, owed the peculiarity which these blades have of showing a curious waving texture on the surface, when treated with a dilute acid, to their consisting of two different compounds of iron and carbon, which have separated during the cooling. It is cast-steel in which the process is carried farther than usual, and which is cooled slowly; both common steel and cast-steel are formed, which separate during the slow cooling. The steel is rendered black by the acid, while the cast-iron remains white. This kind of steel can only be hammered at a heat above that of cherry-red.

The specific gravity of good blistered steal is 7·823. When this steel is heated to redness, and suddenly plunged into cold water, its specific gravity is reduced to 7·747. The specific gravity of a piece of cast-steel, while soft, is 7·82; but when hardened by heating it red-hot, and plunging it into cold water, it is reduced to 7·7532. Hence it appears, that when steel is hardened, its bulk increases. The colour of steel is whiter than that of iron. Its texture is granular, and not hackly, like that of iron. The fracture is whitish-gray, and much smoother than the fracture of iron. It is much harder and more rigid than iron; nor can it be so much softened by heat without losing its tenacity and flying in pieces under the hammer. It requires more attention to forge it well, than to forge iron; yet it is by its toughness and capability of being drawn out in bars, that good steel is distinguished from bad. Steel is more readily broken by bending it than iron. If it be heated to redness, and then plunged into cold water, it becomes exceedingly hard, so as to be able to cut or make an impression upon most other bodies. But, when iron is treated in the same way, its hardness is not in the least increased. When a drop of nitric acid is let fall upon a smooth surface of steel, and allowed to remain on it for a few minutes, and then washed off with water, it leaves a black spot; whereas the spot left by nitric acid on iron, is whitish-green. Doctor Thomson gives the following as the composition of cast-steel:

Iron, ...	99
Carbon, with some silicon, ...	1
	100

The *natural steel*, or *German steel*, is an impure and variable kind of steel, procured from cast-iron, or obtained at once from the ore. It has the property of being easily welded, either to iron or to itself. Its grain is unequally granular, sometimes even fibrous; its colour is usually blue; it is easily forged; it requires a strong heat to temper it, and it then acquires only a middling hardness. When forged repeatedly, it does not pass into iron so easily as the other kinds. The natural steel yielded by cast-iron, manufactured in the refining houses, is known by the general name of *furnace steel;* and that which has only been once treated with a refining furnace, is particularly called *rough steel*, and is frequently very unequally converted into steel. The best cast-iron for the purpose of making natural steel, is that obtained from the brown hæmatite, or from the sparry iron ore. White cast-iron does not yield steel, unless its charge of carbon is increased, either by stirring the melted metal with a long pole, and keeping it melted a long time, that it may absorb charcoal from the lining of the furnace, or by melting it with dark-coloured iron. Black cast-iron yields a bad, brittle steel, unless the excess of carbon that it contains is either burnt away, or it is mixed with finery cinder. The cast-iron to be converted into steel is then melted in blast furnaces, and treated nearly the same as if it were to be refined into bar-iron, only the blast is weaker; the tewyre, instead of being directed so as to throw the wind upon the surface of the melted metal, is placed nearly horizontally; the melted metal is kept covered with slag, and is not disturbed by stirring. When the iron is judged to be sufficiently refined, and is grown solid, it is withdrawn from the furnace and forged. The natural steel made directly from the above mentioned ores, in small blast furnaces, is a good steel for ploughs and similar machines; the best of it is excellent for saws and cutlery. The most esteemed steel of this kind comes from Germany, and is made in Stiria. It is usually sold in chests or barrels, two and a half or three feet long.

STEELE, Sir Richard, the earliest of our modern British essayists, and who, in humour and liveliness of style, has not been surpassed by any of his successors, was born at Dublin, in 1671, of a family of English extraction. He was educated at the charter-house, whence he removed to Oxford. He left the university without taking a degree, and (a thing not unusual at that time with needy young men of good connexions), for some time rode as a private trooper in the dragoon guards. His frank and generous temper soon, however, gained him friends, and he obtained an ensigncy in the foot guards. Being led into many irregularities, he drew up and published a little treatise as a testimony against himself, entitled the Christian Hero, the seriousness of which excited much ridicule among his companions, his conduct falling far short of his theory. For this reason, as he himself observed, to enliven his character, he wrote his first comedy, entitled the Funeral, or Grief à-la-mode, which was acted in 1702, with considerable success. Through the recommendation of Addison, he was appointed, in the beginning of the reign of Anne, to the post of writer of the London Gazette. His comedy of the Tender Husband appeared in 1703, and his Lying Lover in 1704. In 1709, he began the periodical paper so celebrated under the title of the Tatler, which included a portion of the information of a common newspaper, but, in raciness of humour, and vivacity and urbanity of tone, was not, perhaps, exceeded by the most celebrated of its successors. As it sided with the existing ministry, and was extensively circulated, its projector was appointed one of the commissioners of the stamp duties. In 1711, the Tatler was succeeded by the still more celebrated Spectator, in which the assistance of Addison and other eminent writers was more regular than in its predecessor, although Steele, as before, supported the chief burden. The Spectator terminating, he commenced the Guardian, in 1713, and also produced a political periodical, called the Englishman, with several other political pieces of temporary celebrity. His

object was now to obtain a seat in parliament, for which purpose he resigned his place in the stamp office, and a pension. He was accordingly elected for Stockbridge, but was soon after expelled the house for an alleged libel in the last number of the Englishman, and in another paper, called the Crisis. His expulsion being purely the result of ministerial resentment, he regained favour on the accession of George I., and received the appointments of surveyor of the royal stables, and governor of the king's comedians, and was knighted. He also again entered the house of commons as member for Boroughbridge, and received £500 from Sir Robert Walpole, for special services. On the suppression of the rebellion of 1715, he was appointed one of the commissioners for the forfeited estates in Scotland, when he busied himself in an abortive scheme for a union between the churches of England and Scotland. Devoid of all prudential attention to economy, although he married two wives successively with respectable fortunes, he was uniformly embarrassed in his circumstances. Always engaged in some scheme or other, few or none of which succeeded, he wasted his regular income in the anticipation of a greater, until absolute distress was the consequence. A scheme for bringing fish to market alive, in particular, involved him in much embarrassment, which was heightened by the loss of his theatrical patent, in consequence of his opposition to the peerage bill. He appealed to the public, in a paper called the Theatre, and, in 1720, honourably distinguished himself against the famous South sea scheme. He was restored, the following year, to his authority over Drury-lane theatre, and soon after wrote his Comedy of the Conscious Lovers, on a hint from Terence, first acted in 1722, and dedicated to the king, who rewarded the author with £500. His pecuniary difficulties, however, increasing, he retired to a seat in Wales, where a paralytic stroke impaired his understanding, and finally terminated his life, in 1729. Besides the works already mentioned, Sir Richard Steele published two periodical papers, called the Lover, and the Reader, as well as numerous political pieces.

STEELYARD; a kind of balance, called also the Roman balance, by means of which the gravities of different bodies are found, by a single weight being placed on the lever or beam, so as to secure an equilibrium, the notches and figures marked on it denoting the number of pounds.

STEEN, JAN, a distinguished painter, was born at Leyden, in 1636. He studied under Brouwer and Van Goyen, and married the daughter of the latter. Being imprudent and intemperate in his habits, he neglected all the advantages which lay in his way, until finally reduced to paint for a mere subsistence. He had a strong, manly style of execution, the result of native talent rather than of application, which, together with a fine feeling of humour, conducted him to a high degree of professional excellence. Among his capital pictures are a Mountebank surrounded with Spectators, a Quaker's Funeral, and a Marriage Contract. His works did not obtain an extraordinary price during his life; but, after his death, being far from numerous, they so rose in value as to become some of the highest priced of his peculiar school. His death is generally dated in 1689, but by Houbraken eleven years earlier.

STEENKERKE, OR STEINKIRCHE, OR STEENKERQUE; a village of Belgium, in Hainaut, thirteen miles north of Mons. Here a bloody battle was fought between the allies, commanded by William III., king of England, and the French, under the duke of Luxembourg, the 24th of July, 1692, in which the latter were victorious.

STEERAGE; an apartment before the great cabin, from which it is separated by a partition or bulk-head. In merchant-ships, it is generally the habitation of the inferior officers and crew; but in ships of war, it serves only as a hall or anti-chamber to the great or captain's cabin. *Steerage* is also used to express the effort of the helm. *Steerage-way* implies a sufficient degree of motion communicated to a ship for her to become susceptible of the effects of the helm in governing her course.

STEERING. See *Helm*.

STEEVENS, GEORGE, a dramatic critic and biographer, was born at Stepney, where his father, an East India director, resided, and educated at Cambridge. In 1766, he published twenty of the plays of Shakspeare, with notes, in 4 vols., 8vo. The skill which he displayed as a commentator induced doctor Johnson to take him as a coadjutor in his edition of the works of the great dramatist (1773, 10 vols., 8vo.) A new edition of the Shakspeare of Johnson and Steevens appeared in 1785; and, in 1793, Mr Steevens produced an enlarged and improved edition of the same work, in 15 vols., 8vo. He was one of the contributors to Nichol's Biographical Anecdotes of Hogarth; and he also assisted in the *Biographia Dramatica*. His death took place at Hampstead, January 22, 1800. Mr Steevens left a valuable library of dramatic and other English literature, of which a catalogue appeared after his decease.

STEGANOGRAPHY. See *Cryptography*.

STEIERMARK, OR STEYERMARK. See *Stiria*.

STEIN, JOHN ANDREW, a distinguished organ and piano-forte maker, was born, in 1728, in the Palatinate, and died in 1792. He invented several musical instruments. His piano-fortes were sent all over Europe.

STEINKOPF, JOHN FREDERIC, professor and court painter at Stuttgart, died in 1825, ninety-four years old. Many of his paintings, particularly horses, are in the royal castles.

STELLIONATE, in Roman law; the deceiving others to their pecuniary disadvantage. The Romans frequently used *stellionatus* to express all kinds of deceits that had no proper names.

STEM; a circular piece of timber, into which the two sides of a ship are united at the fore end: the lower end of it is scarfed to the keel, and the bowsprit rests upon its upper end; the ends of the wales and planks of the sides and bottom are let into a groove or channel cut in the middle of its surface from top to bottom. The outside of the stem is usually marked with a scale of feet answering to a perpendicular from the keel. The use of this scale is to ascertain the draught of water. *From stem to stern*; from one end of the ship to the other.

STEM, in botany. See *Botany*.

STEMMATA, in the history of insects, are three smooth, hemispheric dots, placed generally on the top of the head, as in most of the *hymenoptera* and other classes.

STENOGRAPHY (from στενος, narrow, and γραφω, I write); the art of writing in abbreviations and with many arbitrary signs to denote whole syllables, words, and phrases, so that the writing may occupy but little room, and be executed with

much more rapidity than is possible in the common mode. *Tachygraphy* (from ταχυς, quickly, and γραφω) signifies the same art, as far as its object is expedition; and as this is generally the chief thing aimed at, and the use of abbreviations is only the means, *tachygraphy* would be the preferable name, yet *stenography*, or *short-hand*, has been generally adopted. Even the Greeks and Romans made use of this art, though in an imperfect state, for the sake of taking down oral discourses. Their stenography consisted of a number of arbitrary signs, not reduced to rules, which, of course, rendered the learning of it very difficult. In the eighteenth century, professor Taylor of Oxford reduced stenography to rules, and Bertin, in France, simplified it still more. In 1824, appeared, in Paris, the fourth edition of Conen de Perpéan's *Sténographie*, and the second edition of Grosselin's *Vocabulaire Sténographique*, with a theory. William Harding's Universal Stenography, on Taylor's principles (London, 1825), is the most complete work on this subject, on which nearly 100 works have appeared in England during the two last centuries. The reporters of the parliamentary debates for the English newspapers do not make much use of stenography. See *Newspapers*.

STENTOR; a warrior of the Greek army before Troy, of whom Homer tells us that his voice was equal to that of fifty others; hence the phrase a *Stentorian* voice. Juno assumed his form, and encouraged the Greeks to fight valiantly against the Trojans.

STENWYCK, OR STEENWYCH, HENRY, the elder, born at Steenwych, in Flanders, in 1550, was the disciple of John de Vries; and, following the steps of his master, he became celebrated for his delineation of the insides of convents and churches of Gothic architecture, viewed by the light of torches or lustres, to which his perfect knowledge of *chiaro-scuro*, and the lightness and delicacy of his pencil, gave a surprising effect. His pictures are very rare, and bear a high price He died in 1603.

Henry Stenwyck, the younger, son and pupil of the preceding, copied his father's manner, and was thought frequently to equal him. He was introduced by Vandyke to the court of Charles I.; and he painted many pictures in England, where he died, in what year is unknown.

STEPHEN. Besides the first martyr of the Christian church, who was stoned to death (Acts vi. 9—15, and vii. 53—60), there are two saints of this name—Stephen I., a pope and martyr of the third century, and Stephen I., king of Hungary, who, towards the end of the tenth century, introduced the Christian religion into his dominions, and was therefore canonized. His successors received from the pope the title of apostolic majesty, which is still borne by the emperor of Austria, as king of Hungary.

STEPHEN, king of England, son of Stephen count of Blois, by Adela, fourth daughter of William the Conqueror, was born in 1104, and invited, when young, into England by his uncle Henry I., who gave him the earldom of Mortaigne, in Normandy, and large estates in England. He likewise procured for him in marriage the heiress of Eustace, count of Boulogne. For these favours Stephen professed the most grateful attachment to the king, and was most zealous in taking the oath for securing the succession to Henry's daughter, the empress Matilda, or Maud. No sooner, however, did that monarch's death take place than he hastened from France to England, and laid claim to the crown for himself. (See *Henry I.*) Having ingratiated himself with both nobles and people, he was at once received as king in London; and the concurrence of the clergy was obtained by Stephen's brother, the bishop of Winchester, aided by the oath of a nobleman of the late king's testifying his intentions in favour of his nephew, while on his death bed. David, the king of Scotland, marched an army into England, and Carlisle and the county of Cumberland formed the price which Stephen was obliged to pay for peace. He was, however, able to subdue the opposition of the nobles of England, and was also invited by the barons to take possession of the duchy of Normandy. Another war with Scotland followed, which was terminated by the battle of the Standard, in which the Scots were entirely defeated by the northern barons. The empress Matilda landed in England, with her brother, the earl of Gloucester, and, being joined by several powerful barons, a civil war ensued, which proved one of the most calamitous in the English annals. Stephen performed his part with vigour and courage, but, being taken prisoner in 1141, his party was broken up, and Matilda was acknowledged queen. The haughty conduct of the new sovereign excited an insurrection against her government; and, being invested in Winchester castle, she escaped with difficulty, while the earl of Gloucester was taken prisoner. Stephen was exchanged for the earl, and the war was renewed. Matilda was induced, by the death of the earl, to retire to Normandy; and the contest was carried on by her son, Henry Plantagenet, who, in 1153, landed an army in England, and was joined by the barons of his mother's party. An armistice, however, took place, and it was agreed that Stephen should reign during his life, that Henry should succeed him, leaving to William, the son of Stephen, his father's patrimonial estates. On the death of the king, the following year, Henry quietly ascended the throne. (See *Henry II.*) Stephen died in the fiftieth year of his age, and the nineteenth of his uneasy reign. Had he succeeded fairly to the throne, he possessed talents which would have enabled him to fill it with honour. His resistance to the encroachments of the clergy and the see of Rome were spirited and creditable; and he was active and able both in the cabinet and the field.

STEPHEN BATHORI, one of the most distinguished kings of Poland, was descended of a noble family in Transylvania, where he was born in 1532. His prudence and courage had already (1571) raised him, through the suffrages of his countrymen, to the dignity of prince of Transylvania when, on the death of Sigismund, a powerful party in Poland, under count Zamoyski, called him to the Polish throne. Another party had chosen the emperor Maximilian II.; but Stephen was gradually joined by the whole nation, and the death of Maximilian left him without a competitor. He maintained the royal dignity with vigour, and defended the kingdom successfully from foreign enemies. After three successful campaigns against the Russians, who had invaded Livonia, he forced the czar Ivan II. (1582) to restore all his conquests in that province; he obliged the Cossacks to submit to the Polish laws, and established three supreme tribunals of justice for the whole kingdom. His toleration was shown in his mildness towards his Protestant subjects, and, when urged to extirpate

heresy in his dominions, he replied, that there were three things which God only could do—to make something of nothing, to foresee the future, and to command consciences. He died December 12, 1586, after a reign of ten years, and in the 54th year of his age, probably of poison.

STEPHENS, OR STEPHANUS (the English and Latin forms of Estienne); the name of two distinguished scholars and printers. *Robert*, born in 1503, at Paris, devoted himself to learned studies. He possessed a profound knowledge of Latin, Greek and Hebrew, as the works edited by him in those languages evince. After his father's death, he was for several years connected with Simon de Collines, and superintended an edition of the New Testament, which was more correct and of a more convenient form than any which had yet appeared. The rapid sale of this edition disturbed the doctors of the Sorbonne, who only wished for a pretence to forbid the dissemination of a book, from which the adherents of the new doctrines, which Stephens embraced, drew all their arguments. Robert soon after married Petronella, the daughter of the printer Jodocus Badius Ascensius, who was so well acquainted with Latin, that she taught it to her children and servants; and there was no person in the house who did not speak Latin fluently. About 1526, Stephens erected a press in his own name, from which proceeded a series of the most valuable works. Most of his editions of the Greek and Roman classics were enriched with notes and valuable preliminary treatises. He endeavoured to attain the greatest possible correctness, and for this purpose hung up his proof-sheets publicly, and offered a reward for the discovery of errors. At first he printed with the types of his father and Simon de Collines; but about 1532 he had a handsomer type cast, with which he printed the elegant Latin Bible, dated that year. This drew upon him new persecutions, which, however, were averted by the protection of king Francis I., and by his promising to print nothing more without the consent of the Sorbonne. In 1531, he published the first edition of his excellent *Thesaurus Linguæ Latinæ*, which he improved in every successive impression, and which Gesner has since taken as the basis of his. In 1539, he was appointed printer of Latin and Hebrew to the king. At his request, Francis I. caused the beautiful types to be cast, which are still in possession of the royal press at Paris. The new attacks which he suffered, in consequence of his Bible of 1545, were rendered harmless for a time by the favour of the king; but after his death they were renewed with increased violence, and Stephens was at length forced to abandon France. In 1552, he went to Geneva, where, in connexion with his brother-in-law, he printed the New Testament in French, and established a new press of his own, from which several valuable works were issued. He died in 1559. His Hebrew Bibles (4 vols., 4to., and 8 vols., 16mo.); the Latin Bible (folio, 1538—40); the New Testament (folio, 1550), which was formerly regarded as the most beautiful Greek book ever printed; his *Historiæ Ecclesiasticæ Scriptores; Eusebii Preparatio et Demonstratio Evangelica;* his Dionysius of Halicarnassus; Dio Cassius (first complete edition); and his Terence, Cicero, Plautus, &c., are highly esteemed.

Equally celebrated is the son, *Henry*, born at Paris, in 1528. He was distinguished for his talents, and devoted himself particularly to the study of Greek. The celebrated Peter Danes was his instructor. He also enjoyed the teaching of one Tusanus Turnebus, and in a short time became one of the most able Hellenists of his age. His rapid progress in the Latin language is shown by his annotations on Horace, published at the age of twenty years. He likewise studied the mathematical sciences with zeal. In 1547, he went to Italy, to avail himself of the treasures contained in the libraries at Florence, Rome, Naples, and Venice, and brought away several valuable copies of the classics. He also visited England and the Netherlands, and returned to Paris in 1552, just as his father was on the point of setting out for Geneva. He perhaps accompanied him thither; but, in 1554, he was in Paris again, where, in consequence of the privilege granted to his father by Francis I., he applied for permission to establish a press. The same year he again visited Italy, to collate the manuscripts of Xenophon and Diogenes Laërtius; and, at the beginning of 1557, he commenced the publication, from his own press in Paris, of some of the works which he had procured with so much labour and care. He would, however, have been unable to meet the expense, had he not been assisted by Ulrich Fugger, out of gratitude to whom he called himself, till the death of his patron, Fugger's printer. The death of his father, in 1559, filled him with grief; but his marriage roused him to fresh exertions. In consequence of his attachment to the new doctrines, his peace was often disturbed, and his labours interrupted. In 1566, he republished Valla's Latin translation of Herodotus, with a preface, in which he defended the father of history from the reproach of credulity. Robert Stephens had already begun to collect materials for a Greek dictionary; Henry pursued the arduous work, and, in 1572, produced his still unrivalled *Thesaurus* of the Greek Language, which is a treasure of learning and criticism, and would alone suffice to secure its author permanent fame. An edition of the *Thesaurus* has lately been published in London (1816—26), with the additions of several philologists; and new editions have recently been published by Hase at Paris, and, with the additions of Dindorf, at Leipsic. The high price of this work, and the abridgment published by Scapula soon after its appearance, made the sale extremely slow; and the author became greatly embarrassed. He then went to Germany, either for the purpose of recreation, or to seek new means of support. Henry III. granted him, on account of his work *De la Précellence du Langage François*, a reward of 3000 livres, and a pension of 300 livres, to enable him to continue his examination of ancient manuscripts, and treated him with great distinction; but this money was probably never paid him. At any rate, Stephens continued in embarrassed circumstances, and finally retired from court, in order to occupy himself more advantageously, and lived at Orleans, Paris, Frankfort, Geneva, and Lyons. On a journey to the latter place, he fell sick, and died in the hospital, in 1598, apparently deranged. Such was the end of one of the most learned and indefatigable scholars, who is pre-eminent for the services which he rendered to the cause of ancient literature. His impressions are not so handsome as those of his father, but they are equally valuable in correctness and matter, and exceed them in number. His editions of the classics have served as the basis of the text of almost all subsequent ones; and the charge that he tampered with the text of authors arbitrarily,

is without foundation. He made Latin verses with great facility. He was lively and affectionate in his feelings, fond of gayety and wit, but impatient of contradiction; he indulged himself in caustic epigrams upon his opponents. Among his numerous editions, the principal are, *Poetæ Græci, Principes Heroici Carminis* (1566, folio); *Pindari et cæterorum octo Lyricorum Carmina* (1560, 1566, 1586, 24mo.); also editions of Maximus Tyrius, Diodorus, Xenophon, Thucydides, Herodotus, Sophocles, Æschylus, Diogenes, Laërtius, Plutarch, Apollonius Rhodius, Callimachus, Plato, Herodian, and Appian, Horace, Virgil, Pliny the younger, Gellius, Macrobius, the collection of Roman historians, &c. He translated many Greek authors into Latin. He also produced numerous other valuable works.

STEPPE (from the Russian *step*, a desert; also a dry plain). The steppes of Russia, which are not unlike the *landes* of Guienne, in France, and the heaths of Northern Germany, are in part susceptible of cultivation; and they afford pasturage for the numerous herds of the nomadic tribes. In the extensive steppes of Astrachan, between the Volga and the Ural, the Calmucs and Nogay Tartars rove with their cattle. They produce several sorts of flowers, herbs, and are frequented by wild goats and birds.

STERE. See *French Decimal System.*

STEREOGRAPHIC PROJECTION. See *Projection of the Sphere.*

STEREOMETRY (from στερεος, solid, and μετρον, measure); literally, the measure of solids; a branch of geometry, the name of which would make it applicable to the measurement of all solids, but which, in fact, is limited, by elementary geometry, to a certain number, and is made to embrace other qualities in addition to their solid contents. The solids of which it treats, are those inscribed within plane surfaces, and a few inscribed within curved surfaces, viz. the cylinder, cone, and sphere: all the others it leaves to the higher geometry. A solid, in geometry, is that which has length, breadth, and thickness. If the body in question is a prism, its height indicates how many layers, each equal to its base, must be laid one above the other, in order to form the solid figure; in other words, the contents of the prism are equal to the product of the height multiplied by the base. The same is the case, as will be readily seen, with the cylinder. A prism of three sides may be divided, as is easily shown by actual cutting, into three pyramids, each of three sides, of the same height and base with the prism. A prism of many sides, and a pyramid of many sides, may be divided into as many three-sided prisms or pyramids as the base has sides; hence the contents of every pyramid are equal to a third of the product of the height multiplied by the base. The same is the case with the cone, which has a circle for its base, i. e. a polygon of innumerable sides, and, therefore, can be considered as a pyramid. A sphere may be considered as composed of an infinite number of pyramids, all of which have their vertices in the centre of the sphere: its contents, therefore, are equal to a third of the product of its surface (which makes the sum of the bases of all these pyramids) and its radius. These are the chief points of stereometry; but it also teaches how to compare the various solids with each other, and to ascertain their superficial contents. See Hossfeld's *Lower and Higher Practical Stereometry* (1812, 4to.): see, also, the article *Stereometry* in the fourth volume of Klügel's Mathem. Dictionary (in German), by Mulweide (Leipsic, 1823).

STEREOTYPE, from the Greek στερεος, *firm, standing firm*, and τυπος, *figure, form;* is the name applied to a species of printing, which, within the present century, has come to be extensively practised. The ordinary method of printing has been fully described under the article *Printing.* Stereotype printing consists in casting, by means of a stucco mould, a representation of the superficies of arranged types, which, being fitted to a block, may be used under the press exactly as types are used, and, being retained, may serve at any time to throw off an additional impression. The invention of stereotype seems properly to belong to William Ged, a goldsmith of Edinburgh, who is said to have attempted stereotyping in the year 1725. In July, 1729, Ged entered into a partnership with William Fenner, a London stationer, allowing Fenner half the profits of his invention, in consideration of his advancing the necessary funds. Afterwards, Mr John James, an architect, was taken into the scheme for the same purpose, as was likewise Mr Thomas James, a letter-founder, and Mr James Ged, the inventor's son. In 1730, this company applied to the university of Cambridge for printing Bibles and common-prayer books, by stereotype, and the lease was sealed to them, April 23, 1731. In their attempt they sank a large sum of money, and finished only two prayer books, so that it was forced to be relinquished, and the lease was given up in 1738. Ged imputed his want of success to the jealousy of the workmen, in marring the plates, and the bad conduct of his partner, Fenner. He returned to Edinburgh with blighted prospects, but still prosecuting his invention, published in 1744, a stereotype edition of Sallust, bearing the following imprint: "*Edinburgi, Gulielmus Ged, Aurifaber, Edinensis, non typis mobilibus, ut vulgo fieri solet, sed tabellis seu laminis fusis, excudebat*, MDCCXLIV." Some of the original plates of this work are still extant in our museums, and a page may be seen among the curiosities preserved in Fingask castle, Perthshire. Ged, like many other ingenious men, died in reduced circumstances, before the utility of his invention was appreciated, October 19, 1749. Two of his sons, William and James, settled in Jamaica as printers.

About thirty years after the death of Ged, Mr Tilloch, without having at the time any knowledge of Ged's discovery, made a similar one of his own; and with the assistance and joint labour of Mr Foulis, printer to the university of Glasgow, he greatly improved upon the invention, after many experiments and much labour. "Though we had reason to fear," says Mr Tilloch, "from what we afterwards found Ged had met with, that our efforts would experience a similar opposition from prejudice and ignorance, we persevered in our object for a considerable time, and at last resolved to take out patents for England and Scotland, to secure for ourselves, for the usual term, the benefits of our invention; for the discovery was still as much our own as if nothing similar had been practised before." The patents were accordingly obtained; but owing to circumstances of a private nature, the business was for a time laid aside, and the concern was at length dropped entirely, after Mr Tilloch's removal from Glasgow to London. Prior to this, however, a number of small volumes had been stereotyped and printed under the direction of Messrs Tilloch and Foulis.

Firman Didot, the celebrated French printer, sometime afterwards applied the stereotype art to logarithmic tables, and then to some of the Latin classics, as well as to a number of French publications. His original method of stereotyping differed much from that now in use. He took movable letters, differing from the common ones only by being somewhat shorter, and of a harder substance. These were set in the usual way; the proof sheets were then printed and corrected, till the whole copy was as free from errors as possible. Then every page set with these hard letters was pressed upon a plate of properly prepared metal. These plates served as matrices for whole pages; and the letters of the hard substance, mentioned above, might now be separated from each other, set anew, and used to form other matrice-plates. A page which served for a matrice was pressed upon melted type-metal, which, hardening immediately, served for printing. In this manner was Callet's logarithmic tables printed in 1795.

To the patronage of earl Stanhope the art of stereotyping is greatly indebted for its improvement and general adoption in this country. It is said that his lordship was instructed in the mystery by Mr Tilloch, and afterwards had, at his estate of Chevening, the personal attendance of Mr Foulis for several months. Mr Wilson, a respectable printer in London, engaged with earl Stanhope, some years after this, in prosecuting experiments towards the improvement of the art; and in January, 1804, Mr Wilson laid before the university of Cambridge the result of their experiments in stereotyping, with offers to execute by stereotype the Cambridge bibles, testaments, and prayer books. Some difference, however, arose between the syndics of the university and Mr Wilson, on which occasion the latter published his case in a stereotyped pamphlet, entitled, "Arbitration between the university of Cambridge and Andrew Wilson."

By degrees, the benefits of stereotyping began to be understood, and within the last twenty years, it has come to be adopted in the production of numerous works, particularly standard authors, for whom there is a continued demand, and works published in parts or numbers. In the case of a book in general use, such as the Bible, and also in cases where the publication takes place in numbers, and one number is in danger of being sold to a greater extent than another, stereotyping is of vast utility. It may, indeed, be pronounced absolutely necessary to the production of cheap books in large numbers, and therefore a most important auxiliary in the diffusion of knowledge by the printing-press. It saves the publisher from printing more copies at a time than may be required, or from the necessity of a new composition of types for every new demand. In some cases, too, by casting more plates than one, the same work may be printed in different parts of the world at the same time, without the cost of a different composition of types for each place, and so as to avoid the carriage of printed sheets from one quarter to another.

We shall now briefly describe the process of stereotyping, as at present generally practised. Stereotyping is distinctly superadded to the work of printing from movable types (described under *Printing*), and forms a middle operation between the labours of the compositor and the pressman. The first point in stereotyping is that of taking a mould from each page of movable types. The pages are not arranged as they would be combined in a sheet, and wedged up together in one iron frame or chase, but each page is put in a separate chase. It is essential that the face of the types should be perfectly clean and dry, and that no particle of dirt or other substance should attach to the bottom of the types, so as to prevent them being level upon the surface. The page is now placed upon the lower part of a moulding-frame. The upper part of the frame is somewhat larger than the page, and the margin of mould thus formed determines the thickness of the plates. The types having been previously rubbed over with an oily composition, plaster of Paris is poured evenly over the whole surface. This substance, from a liquid state, soon becomes perfectly solid. Much nicety is required from the workman, in forming the mould, and in removing it from the type. If any part of the plaster adheres to the face of the type, the mould is imperfect, and the operation must be gone over again. Having been removed and found perfect, it requires some dressing with a knife on its edges, and several notches are cut in the margin to allow the metal to enter the mould. It is now fit for baking. This process also requires much care. The oven in which the moulds are placed must be kept at a very regular temperature; for if it be too hot, the moulds warp. The process of casting begins when the moulds have been baked sufficiently long to be perfectly dry and hard. At the bottom of the pot is a movable plate of cast-iron, called a floating-plate; and upon this plate the mould is placed with its face downwards. Upon the back of the mould rests the cover of the casting-box, which is held tightly down upon the mould by a screw. The apparatus for plunging the casting-box into the metal pit is attached to a crane, and is so constructed as to swing with a perfectly horizontal motion. The casting-pot, with the mould, being suspended over the metal pot, is gradually forced down into the metal, and there kept steady by a lever and weight. The lid of the casting-box is cut off at the corners; and it is through these spaces that the metal enters the box, and insinuates itself into every hollow. After having remained immersed for about ten minutes, it is steadily lifted out by the crane, and swung to a cooling trough, in which the under side of the box is exposed to water. Being completely cooled, the workman proceeds to remove the mould from the casting-box. The plaster-mould, the plate moulded, and the floating-plate, are all solidly fixed together. The metal, by its specific gravity, has forced itself under the floating-plate, which it has driven tightly up against the ledges of the mould. The mould has in the same way been tightly driven up against the lid of the casting-box. The notches in the ledges of the mould have, at the same time, admitted the metal into the minutest impression from the face of the types. The caster or workman now breaks off the superfluous metal and the ledges of the mould with a wooden mallet. The mould is necessarily destroyed; and if another plate is required, another mould must be taken from the types. After the superfluous metal and the plaster are removed, the stereotype plate comes out, and is then prepared for the press. Its proper thickness cannot be determined by the mould alone; and the back of the plate is therefore turned in a lathe, in which the plate revolves against a cutting tool, and a perfectly true surface is obtained by the superfluous parts being cut away in a series of concentric circles. Besides this, the very best casting cannot

prevent occasional defects in the face of the plate, and it requires therefore to be minutely examined by workmen called *pickers*. It is the business of the picker to remove the small globules of metal which occasionally fill up or bloat the letters; to insert a new letter, which he can do by soldering, if any one be broken; and even to make an alteration of a word or a line, if it should be found necessary. Such, indeed, is the dexterity of a good picker, that a stereotype plate is much more open to correction and alteration than might be imagined; while it has this advantage over ordinary letterpress, that when accuracy is once obtained, the plate is not afterwards liable, as movable types are, to get deranged.

STERLING; an epithet of English money of account. It is by some derived from *easterling*, a name by which the Hanseatics were called in some of the western countries of Europe; others derive it from the Anglo-Saxon *steore* (rule, or law). See *Coins*.

STERN; the posterior part of a ship, or that part which is presented to the view of a spectator, placed on the continuation of the keel, behind.

STERN-POST; a long, straight piece of timber, erected on the extremity of the keel, to sustain the rudder and terminate the ship behind. It is usually marked, like the stem, with a scale of feet, from the keel upwards, in order to ascertain the draught of water abaft.

STERNE, Lawrence, the author of Tristram Shandy, was the son of a lieutenant in the army, and born at Clonmell, in Ireland, in November, 1713. He was put to school at Halifax, in Yorkshire, in 1722, whence he removed to Cambridge, and studied for the church. He took his degree of master of arts in 1740, before which he was advanced; and, by the interest of doctor Sterne, his uncle, a prebendary of Durham, he obtained the living of Sutton, a prebend of York, and, subsequently, by the interest of his wife, whom he married in 1741, the living of Stillington, at which, and at Sutton, he performed the clerical duties for nearly twenty years. During this period, he appears to have amused himself with books, painting, music, and shooting, but was little known beyond his vicinity, the only production of his pen being his humorous satire upon a greedy church dignitary of York, entitled the History of a Watch Coat. In 1759, following, appeared the two first volumes of his celebrated Tristram Shandy, which drew upon him praise and censure of every kind, and became so popular that a bookseller engaged for its continuance on very lucrative terms. Accordingly a third and fourth volume appeared in 1761, a fifth and sixth in 1762, a seventh and eighth in 1764, and a ninth, singly, in 1766. If, in the groundwork of this extraordinary production, a resemblance may be traced to the ridicule of pedantry and false philosophy in Scriblerus, the style and filling up are chiefly his own, although he borrowed entire passages from Burton's Anatomy of Melancholy, and the works of bishop Hall and others. In 1768, he produced his Sentimental Journey (in 2 vols., 12mo.), which, by a number of pathetic incidents, and vivid strokes of national and characteristic delineation, is rendered extremely entertaining, and acquired a more general reputation than even its predecessor. In 1760, appeared two volumes of Sermons of Mr Yorick, to which he added two additional volumes in 1766, with his own name. He died of pulmonary consumption, in March, 1768, leaving a widow and one daughter. The latter, who was married to a French gentleman, published a collection of her father's letters, in three volumes, 12mo., to which were prefixed memoirs of his life and family. In the same year, an anonymous editor published Letters between Yorick and Eliza, which were regarded as the authentic correspondence, in a strain of high sentimental friendship, between Sterne and Mrs Draper, an accomplished East India lady. His private character was by no means honourable to his genius, affording another proof that the power of expressing and conceiving strong feelings by no means implies that they will influence the conduct.

STERNHOLD, Thomas; the principal author of the metrical version of the Psalms long used in public worship in our churches, and not yet entirely discontinued. He was a native of Hampshire, and educated at Oxford, and became groom of the robes to Henry VIII., who left him a legacy of 100 marks. He held a similar office under Edward VI., in whose reign he died, in August, 1549. The principal coadjutor of Sternhold, in his versification of the Psalter, was John Hopkins; and the names of these persons have become a proverbial designation of bad poets. Sternhold also produced Certayne Chapters of the Proverbs of Solomon, drawn into Metre, which were published after his death.

STERNUTATION. See *Sneezing*.

STESICHORUS; a Greek lyric poet, born at Himera, in Sicily, about B. C. 612. He composed a number of works, which were highly esteemed by the ancients. Horace speaks of *Stesichori graves camœnæ;* and Dionysius Halicarnassus says, that he had all the graces of Pindar and Simonides, while he surpassed them both in the grandeur of his subjects. He was the first who introduced into the ode the triple division of strophe, antistrophe, and epode; and he is said to have thence derived his name, which was before Tisias. A few fragments of his works, to the amount of fifty or sixty lines, alone remain. See Kleine's *Stesichori Fragmenta* (Berlin, 1828), with a preliminary treatise.

STETHOSCOPE (from στῆθος, chest); an instrument consisting of a short tube, widening towards one end, with which physicians have, for some years, been accustomed to examine the internal state of the human body (i. e. in diseases of the lungs and other internal organs, also in hernia, and the condition of women in pregnancy, &c.), by applying the stethoscope to the chest or abdomen, and putting the ear to the narrower end. Many disorders may be distinguished very clearly in this way; and the instrument has proved, in the hands of many physicians, a useful invention. See Laennec, *Auscultation Médiate* (Paris, 1819).

STETTIN; a town of Prussia, capital of Pomerania, and of a government and circle of the same name, situated on the Oder, about sixty miles from the Baltic, eighty miles north-east of Berlin; lon. 14° 46′ E.; lat. 53° 20′ N. It stands on an eminence on the left bank of the Oder, and has three suburbs, five gates, and several squares. The principal public buildings are the castle, government house, arsenal, barracks, hospitals, exchange, theatre, and public library. It has five Lutheran churches, an academical gymnasium, college, &c. Population, 32,191. Stettin is a place of extensive trade, the great outlet of the manufactures of Silesia, and the depot of colonial goods and foreign fabrics required by that province, as well as by Berlin, and other towns in Brandenburg. The number of

vessels entered here, in 1814, was 1534; cleared, 1180. Vessels drawing more than seven feet water stop at Swinemunde. (See *Oder.*) The leading articles of export are linen, corn, and timber; of imports, coffee, sugar, cotton, dye-woods, and wine. The manufactures are very various.

STEUBEN, Frederick William Augustus, baron von; a distinguished Prussian officer, who attached himself to the American cause in the revolution of 1776. He had been aid-de-camp to Frederic the Great, and had attained the rank of lieutenant-general in his army. Sacrificing his honours and emoluments in Europe, Steuben went to America in 1777, and tendered his services to congress, as a volunteer in their army, without claiming any rank or compensation. He received the thanks of that body, and joined the main army under the commander-in-chief at Valley Forge. Baron Steuben soon rendered himself particularly useful to the Americans, by disciplining the forces. On the recommendation of general Washington, congress, in May, 1778, appointed the baron inspector-general of the army, with the rank of major-general. His efforts in this capacity were continued with remarkable diligence, until he had placed the troops in a situation to withstand the enemy. In the estimates of the war office, 5000 extra muskets were generally allowed for waste and destruction in the army; but such was the exact order under the superintendence of Steuben, that in his inspection return, but three muskets were deficient, and those accounted for. A complete scheme of exercise and discipline, which he composed, was adopted in the army by the direction of congress. He possessed the right of command in the line, and at one period was at the head of a separate detachment in Virginia. At the battle of Monmouth, he was engaged as a volunteer. When reviewing the troops, it was his constant custom to reward the disciplined soldier with praise, and to pass severe censure upon the negligent. Numerous anecdotes are related illustrative of the generosity, purity, and kindness of his disposition. After the treacherous defection of Arnold, the baron held his name in the utmost abhorrence. One day he was inspecting a regiment of light horse, when that name struck his ear. The man was ordered to the front, and presented an excellent appearance. Steuben told him that he was too respectable to bear the name of a traitor; and at his request the soldier adopted that of the baron, whose bounty he afterwards experienced, and brought up a son by the same name. At the siege of Yorktown, baron Steuben was in the trenches at the head of a division, where he received the first offer of lord Cornwallis to capitulate. The marquis de la Fayette appeared to relieve him in the morning; but, adhering to the European etiquette, the baron would not quit his post until the surrender was completed or hostilities recommenced. The matter being referred to general Washington, the baron was suffered to remain in the trenches till the enemy's flag was struck. After the capture of Cornwallis, when the superior American officers were paying every attention to their captives, Steuben sold his favourite horse in order to raise money to give an entertainment to the British officers, as the other major-generals had previously done. His watch he had previously disposed of to relieve the wants of a sick friend. On another occasion, when he desired to reciprocate the invitation of the French officers, he ordered his people to sell his silver spoons and forks, saying it was anti-republican to make use of such things, and adding, that the gentlemen should have one good dinner if he ate his meals with a wooden spoon for ever after. Steuben continued in the army till the close of the war, perfecting its discipline. The silence and dexterity of his movements surprised the French allies. He possessed the particular esteem of general Washington, who took every proper opportunity to recommend him to congress; from which body he received several sums of money, that were chiefly expended in acts of charity, or in rewarding the good conduct of the soldiers.

Peace being established, the baron retired to a farm in the vicinity of New York, where, in the society of his friends, and the amusements of books and chess, he passed his time as comfortably as his exhausted purse would allow. The state of New Jersey had given him a small farm, and that of New York 16,000 acres of land in the county of Oneida. The exertions of colonel Hamilton and general Washington subsequently procured him an annuity of 2500 dollars, from the general government. He built a log house, and cleared 60 acres of his tract of land, a portion of which he partitioned out, on easy terms, to twenty or thirty tenants, and distributed nearly a tenth among his aid-de-camps and servants. In this situation he lived contentedly, until the year 1795, when an apoplectic attack put an end to his life, in his sixty-fifth year. An abstract of his system of military manœuvres was published in 1779. The year preceding his death, he published a letter on the established militia and military arrangements.

STEVENS, George Alexander, a whimsical and eccentric character, was born in London, and brought up to a mechanical business, which he quitted to become a strolling player. In 1751, he published a poem entitled Religion, or the Libertine Repentant, which was succeeded in 1754, by the Birthday of Folly. These were followed by a novel called Tom Fool, and the Dramatic History of Master Edward and Miss Ann. He subsequently invented his entertainment, called a Lecture on Heads, which possessed no small portion of drollery, and became very popular. Several of his songs have also been much admired.

STEWARD. The lord high steward of England was formerly an officer who had the supervision and regulation, next under the king, of all affairs of the realm, both civil and military. The office was hereditary, belonging to the earls of Leicester until forfeited to Henry III. (See *Montfort.*) The power of this officer was so great, that the office has for a long time only been granted for some particular act, as the trial of a peer on indictment for a capital offence, the solemnization of a coronation, &c. The lord high steward is the first of the nine great officers of the crown. The *lord steward* of the household is the chief officer of the king's household: his authority extends over all officers and servants of the royal household except those of the chamber, chapel, and stable. Under the lord steward, in the counting-house, are the treasurer of the household, cofferer, controller, clerks of the green cloth, &c. It is called the *counting-house*, because the household accounts are kept in it. See *Courts.*

STEWARD in naval affairs, is an officer in a ship of war, appointed by the purser to distribute the different species of provision to the officers and crew.

STEWART, Sir James Denham, an eminent

political writer, was born at Edinburgh, Oct, 10, 1713. His father was solicitor general of Scotland. After having been admitted to the bar, he travelled on the continent five years, and formed an intimacy with the Pretender, whom he aided in his attempt in 1745. On the failure of that attempt, Stewart retired to France, and in 1755, to Flanders. Here he published a Vindication of Newton's Chronology, a Treatise on German Coins, and a Dissertation on the Doctrine and Principles of Money. He returned to Scotland in 1763, where he was allowed to remain unmolested, and concluded his Inquiry into the Principles of Political Economy—a work of much research and acuteness, though the style and method are imperfect. He obtained a full pardon in 1771, and afterwards published various works of a philosophical and politico-economical character. His complete works were published in 1805 (in 6 vols., 8vo.). He died in 1780.

STEWART, DUGALD, a celebrated metaphysical writer, was born in the college of Edinburgh, on the 22nd of November, 1753, his father being professor of mathematics in that university. At the age of seven, he was sent to the High School, where, having completed the customary course of education at that seminary, he was entered as a student at the college of Edinburgh. In 1771, he removed to the university of Glasgow, in order to attend the lectures of Dr Reid, who was then in the zenith of his reputation. The progress which he here made in metaphysical studies was great, and it was here that he composed during the session, his admirable Essay on Dreaming, which was afterwards published in the first volume of the "Philosophy of the Human mind." The declining state of his father's health compelled him, in the autumn of the following year, before he had reached the age of nineteen, to undertake the task of teaching the mathematical classes in the Edinburgh university. As soon as he had completed his twenty-first year, he was appointed assistant and successor to his father, and in this capacity he continued to conduct the mathematical studies in the university till his father's death, in the year 1785, when he was nominated to the vacant chair. Although this continued, however, to be his ostensible situation in the university, his avocations were more varied. In the year 1778, during which Dr Adam Ferguson accompanied the commissioners to America, he undertook to supply his place in the moral philosophy class; a labour, which, although he came to it unprepared, he performed with the most distinguished success.

In the summer of 1783, he visited the continent for the first time, having accompanied the late marquis of Lothian to Paris; on his return from whence, in the autumn of the same year, he married Helen Bannatyne, daughter of Neil Bannatyne, Esq., a merchant in Glasgow, by whom he had one son. In the year 1785, during which Dr Matthew Stewart's death occurred, the health of Dr Ferguson rendered it expedient for him to discontinue his official labours in the university, and he accordingly effected an exchange of offices with Mr Stewart, who was transferred to the class of moral philosophy, while Dr Ferguson retired on the salary of mathematical professor. In the year 1787, Mr Stewart was deprived of his wife by death; and, the following summer, he again visited the continent, in company with the late Mr Ramsay of Barnton.

In 1790, after being three years a widower, he married Helen D'Arcy Cranstoun, a daughter of the honourable Mr George Cranstoun, a union to which he owed much of the subsequent happiness of his life. In the year 1792, he first appeared before the public as an author, at which time the first volume of the Philosophy of the Human Mind was given to the world. In 1793, he read before the Royal Society of Edinburgh, his account of the Life and writings of Dr Adam Smith. In the course of this year also, he published the Outlines of Moral Philosophy; a work which he used as a text book, and which contained brief notices, for the use of his students, of the subjects which formed the matter of his academical prelections. In March, 1796, he read before the Royal Society his account of the Life and Writings of Dr Robertson, and in 1802, that of the Life and Writings of Dr Reid. By these publications alone, which were subsequently combined in one volume, quarto, he continued to be known as an author till the appearance of his volume of Philosophical Essays in 1810.

In the period which intervened between the publication of his first volume of the Philosophy of the Human Mind, and the appearance of his Philosophical Essays, he produced and prepared the matter of all his other writings, with the exception of his Dissertation on the Progress of Metaphysical and Ethical philosophy, prefixed to the Supplement of the Encyclopædia Britannica. Independent of the prosecution of those metaphysical inquiries, which constitute the substance of his second and third volumes of the Philosophy of the Human Mind, to this epoch of his life are to be referred the speculations in which he engaged with respect to the science of political economy, the principles of which he first embodied in a course of lectures, which, in the year 1800, he added as a second course to the lectures which formed the immediate subject of the instruction previously delivered in the university from the moral philosophy chair. So general and extensive was his acquaintance with almost every department of literature, and so readily did he arrange his ideas on any subject, with a view to their communication to others, that his colleagues frequently, in the event of illness or absence, availed themselves of his assistance in the instruction of their classes. In addition to his own academical duties, he repeatedly supplied the place of Dr John Robison, professor of natural philosophy. He taught for several months during one winter the Greek classes for the late Mr Dalzell: he more than one season taught the mathematical classes for Mr Playfair: he delivered some lectures on logic during an illness of Dr Finlayson: and, if we mistake not, he one winter lectured for some time on belles lettres for the successor of Dr Blair.

In the year 1806, he accompanied his friend the earl of Lauderdale on his mission to Paris; and he had thus an opportunity of renewing many of the literary intimacies which he had formed in France before the commencement of the revolution. On the accession of the Whig administration in 1806, a sinecure office, that of gazette-writer for Scotland, was erected for the express purpose of rewarding Mr Stewart, who enjoyed with it a salary of £600 a-year for the remainder of his life. Shortly after, he relinquished the active duties of his chair in the university, and removed to Kinneil House, a seat belonging to the duke of Hamilton, on the banks of the Frith of Forth, about twenty miles from Edinburgh, where he spent the remainder of his days in philosophical retirement. From this place

were dated, in succession, the Philosophical Essays in 1810; the second volume of the Philosophy of the Human Mind, in 1813; the Preliminary Dissertation to the Encyclopædia; the continuation of the second part of the Philosophy, in 1827; and, finally, in 1828, the third volume, containing the Philosophy of the Active and Moral Powers of Man; a work which he completed only a few short weeks before his career was to close for ever.

His death occurred on the 11th of June, 1828, at Edinburgh, where he had been for a few days on a visit. He was interred in the Canongate churchyard, and a monument has been erected to his memory, on the Calton hill Edinburgh.

Mr Stewart left behind him a widow and two children, a son and daughter; the former of whom, lieutenant-colonel Matthew Stewart, has published an able pamphlet on Indian affairs.

STEWART, GILBERT, an eminent portrait painter, was born at Newport, Rhode Island, in 1757, gave early manifestations of his fondness for the pencil, and was sent to London, where he was placed under the care of Benjamin West. In the execution of portraits, the pupil soon surpassed the master. In 1784, he was established as one of the first portrait painters of London, and had, in the exhibition of that year, several full lengths of distinguished individuals. He lived elegantly and gayly; but it is believed that, notwithstanding his great success, he was obliged, by pecuniary distresses, to remove to Dublin. In 1790, he returned to his native country, from which he never again departed. He resided successively in New York, Philadelphia, and its neighbourhood, Washington, and last in Boston, continuing to paint with unabated power, although for years racked with the gout. Soon after his return to America, he painted the best portrait of Washington. The head he carefully finished, but never completed the remainder. He made several copies, all varying from the original. His death occurred at Boston, in July, 1828, and such of his works as could be collected were exhibited for the benefit of his family. Mr Stewart was gifted with uncommon colloquial powers, and his genius for portrait painting was of the highest order.

STEWART, JOHN; commonly called *Walking Stewart*, from his pedestrian feats; an eccentric individual, who wandered, on foot, over a great part of the habitable globe. He was born in London, and, having received the rudiments of education at the Charter-house, was sent out, in 1763, as a writer to Madras. Before he had been in that situation quite two years, he wrote a letter to the directors, telling them that he "was born for nobler pursuits than to be a copier of invoices, and bills of lading to a company of grocers, haberdashers, and cheese-mongers;" and a few weeks after he took his leave of the presidency. Prosecuting his route over Hindoostan, he walked to Delhi, to Persepolis, and other parts of Persia, traversing the greater part of the Indian peninsula, and visiting Abyssinia and Nubia. Entering the Carnatic, he obtained the favour of the nabob, who made him his private secretary, and to this circumstance, he, in his latter days, owed his support, the British house of commons voting him £15,000 in liquidation of his demands upon the nabob. Quitting the service of this prince, he set out to walk to Seringapatam, where Tippoo Saib compelled him to enter his army, with a commission as captain of sepoys. After serving for sometime in this capacity, Sir James Sibbald, the commissioner for settling the terms of peace between the presidency and the sultan, procured his liberation. Stewart then started to walk to Europe, crossing the desert of Arabia, and arriving at length safely at Marseilles. Thence he proceeded in the same manner through France and Spain to his native country; and, having walked through England, Scotland, and Ireland, he crossed the Atlantic, and perambulated the United States of America. The last ten years of his life were passed in London, where he died in 1822.

STEWART, ROBERT, marquis of Londonderry. See *Londonderry*.

STHENIC DISEASES. See *Brown, John*.

STHENO; one of the Gorgons, q. v.

STICHOMANCY (from *στίχος*, a line, verse, and *μαντεία*, prophecy); a kind of divination, in use even among the Romans. Verses from the Sibylline Books were written on small slips of paper, which were shaken in a vessel, and one of them was drawn out, in order to discover some intimation of future events. Something similar has often been practised by Christians, putting a pin at hazard between the leaves of a closed bible. The verse which was pointed out served as an oracle. Even at the present time, this is not unfrequently *done* by the superstitious; and some sects even resort to it for guidance on important occasions. See *Bibliomancy*.

STICK, GOLD; an officer of superior rank in the life-guards, so called, who is in immediate attendance upon the king's person. When his majesty gives either of his regiments of life-guards to an officer, he presents him with a gold stick. The colonels of the two regiments wait alternately month and month. The one on duty is then called *gold stick in waiting;* and all orders relating to the life-guards are transmitted through him. During that month he commands the brigade, receives all reports, and communicates them to the king.—*Silver Stick:* the field officer of the life-guards when on duty is so called.

STIGMA (*Greek*); with the Greeks and Romans, a mark impressed with a hot iron on the foreheads of slaves who had run away or committed theft. The Greeks used a *φ*, signifying *φυγᾶς* (*fugiendus*) or *φυγάδες* (runaway), and the Romans an F, signifying *fur* or *fugitivus*. A black colouring substance was put in the wound. Such slaves were called *stigmatici, inscripti, literati, στιγματίαι, στίγματα*. The Samians, who freed many slaves, and admitted them to office, were called in derision, *γραμματοφόροι, literati*. This name, however, may have had another origin, as many believe. Prisoners of war were also branded, as the slave traders now brand the negroes with the marks of their several owners. (See *Slavery*.) Recruits were also burned in the hand, generally with the name of the general. This was not considered a disgrace. In some countries criminals sentenced to the galleys are branded in a similar way to this day.

STILES, EZRA, a president of Yale college, was the son of the reverend Isaac Stiles, of North Haven, Connecticut. He graduated in that institution in 1746, with the reputation of being one of the greatest scholars it had ever produced. He then studied law, but subsequently devoted himself to theology, and settled at Newport, as pastor of the Second church, where he continued from 1755 to 1776. During this and several succeeding years, the enemy were in possession of Newport, and the inhabitants of the town were scattered. Doctor Stiles was solicited to preach in several places; he

accepted the invitation from the church at Portsmouth, where he was looked up to with great admiration. In 1788, he was chosen president in Yale college, and continued to adorn that station, by his great learning, abilities, and piety, until his death, May 12, 1795, in the sixty-eighth year of his age. In person doctor Stiles was small but well proportioned. His countenance was expressive of benignity and mildness, and his manners were amiable and kind. He had a thorough knowledge of the Hebrew, Greek, Latin, and French languages; in the Samaritan, Chaldee, Syriac, and Arabic he had made considerable progress, and had bestowed some attention on the Persian and Coptic. He was well versed in most branches of mathematical knowledge. He had a thorough acquaintance with the rabbinical writings, and with those of the fathers of the Christian church. Sacred literature was his favourite study; and next to it he most delighted in astronomy. As a preacher he was impressive and eloquent in a high degree; the intrinsic excellence of his sermons was enhanced by the energy of his delivery. He published various discourses, among which was an election sermon, entitled The United States Elevated to Glory and Honour, preached May 8, 1783. He also wrote a history of the three judges of Charles I. (Whalley, Goffe, and Dixwell), and left an unfinished ecclesiastical history of New England, and more than forty volumes of manuscripts.

STILICHO; a Vandalic general, in the service of the emperor Theodosius the Great, whose niece Serena he married. Theodosius having bequeathed the empire of the East to his son Arcadius, and that of the West to his second son, Honorius, the former was left under the care of Rufinus, and the latter under the guardianship of Stilicho. (See *Western Empire*.) No sooner was Theodosius no more, than Rufinus stirred up an invasion of the Goths in order to procure the sole dominion, which Stilicho put down, and effected the destruction of his rival. After suppressing a revolt in Africa, he marched against Alaric, whom he signally defeated at Pollentia. After this, in 406, he repelled an invasion of barbarians, who penetrated into Italy under Rhadagasius, a Hun or Vandal leader, who formerly accompanied Alaric, and produced the entire destruction both of the force and its leader. Either from motives of policy or state necessity, he then entered into a treaty with Alaric, whose pretensions upon the Roman treasury for a subsidy he warmly supported This conduct excited suspicion of his treachery on the part of Honorius, who massacred all his friends during his absence. He received intelligence of this fact at the camp of Bologna, whence he was obliged to flee to Ravenna. He took shelter in a church, from which he was inveigled by a solemn oath, that no harm was intended him, and conveyed to immediate execution, which he endured in a manner worthy his great military character. Stilicho was charged with the design of dethroning Honorius, in order to advance his son Eucherius in his place; and the memory of this distinguished captain has been treated by the ecclesiastical historians with great severity. Zosimus, however, although otherwise unfavourable to him, acquits him of the treason which was laid to his charge; and he will live in the poetry of Claudian as the most distinguished commander of his age. See Gibbon's *Decline and Fall*, ch. 29 and 30.

STILL. See *Distillation*.

STILLING. See *Jung*.

STILLINGFLEET, Edward, bishop of Worcester, was born in 1635, and received his education at St John's college, Cambridge, where he was elected, in 1653, to the first fellowship that became vacant after he had taken his bachelor's degree. His chief work, *Origines Sacræ*, or a Rational Account of Natural and Revealed Religion, is esteemed for the erudition which it displays. It was followed (1664) by a treatise On the Origin and Nature of Protestantism. Having distinguished himself by the prominent part which he took previous to the revolution, against the establishment of the Romish church in England, he was elevated to the see of Worcester by William III. Besides the writings enumerated, he was the author of an appendix to Tillotson's Rule of Faith (1676); the Unreasonableness of Separation (1683); and *Origines Britannicæ*, or Antiquities of the Churches in Britain (folio, 1685). A short time before his death, bishop Stillingfleet engaged in a controversy with Locke, respecting some part of that philosopher's writings, which he conceived had a leaning towards materialism. His death took place in 1690. His works have been collected and published entire, in six folio volumes (1710).

STILL LIFE, in painting; the representation of inanimate objects, such as dead animals (game, fishes, &c.), furniture, sometimes with fruits and flowers in addition. The interest of such representations can consist only in the form, grouping and light; hence the pictures of still life belong to the lowest species of painting. But some scenes of still life are of a higher order than others. The object of the lowest kind is merely to produce a close imitation of nature. A higher kind combines objects so as to form an interesting whole; and the highest employs the objects only to express a poetical idea, as in representing the room of a painter, a table with Christmas presents, the game of a hunter returned from his day's sport. All these may be so represented as to have a poetical character, by reminding us of the individuals with whom they are associated. The Dutch painters Van Ælst, John Fyt, Francis Sneyders, David Koning, John Weeninx, Melchior Hondekoeter, William Kalf, and Van Streeck, are distinguished for the representation of still life.

STIMULANTS are all those medicinal substances, which, applied either externally or internally, have the property of accelerating the pulse and quickening the vital actions. They are among the most valuable and important of medicines, and perhaps are more often the direct means of saving life than any others. But as they are powerful, their injurious effects, when misapplied, have been even more prejudicial to mankind than their best use has been beneficial. In fact, it may be said, that the abuse of this one class of medicines, under the names of cardiacs, cordials, alexipharmics, &c., was the cause of more numerous deaths during the dark ages of medicine, than the sword and the pestilence united. The dreadful mortality of the small-pox and of fevers during the middle ages, and even during the earlier parts of the last century, were mainly owing to the administration, by nurses and physicians, of strong cordials, and heating stimulants of all sorts, the tendency of all of which was to increase the violence of the disease, although they were intended merely to expel the noxious and poisonous humours from the system. But, happily for mankind, a more cautious use of these

articles have been introduced, and they are now the constant means of preserving, when properly applied, the life which they were formerly so quick to destroy. Stimulants are either simple and direct in their operation, as the external application of heat in all forms, dry and moist, by friction, &c., the application to the stomach of hot liquors, spices, camphor, hartshorn, warm and aromatic gums and oils, as mint, cardamom, cajeput, ginger, assafœtida, red pepper, spirits of turpentine, &c.; or they act first as stimulants, but produce afterwards effects of a different character, as is the case with all which are termed *diffusible* stimulants, as wine, brandy and spirits of all sorts, opium, &c., all of which are highly stimulant at first, and in small quantity, but afterwards, and when taken in larger doses, produce exhaustion, debility, sleep and death. The first class are, upon the whole, the most safe, and should be always used, in preference to the last, when they can be had, in all cases of suspended animation, from cold, drowning, suffocation, &c.; while the others are more valuable for their secondary and remote effects, by means of which they ease pain, relieve spasm, &c.; and for these purposes they should be used freely, as they can do no hurt, while the violence of the disease subsists. But they should never be resorted to, unless pain is urgent or debility become so great as to endanger life.

STINK-POT; an earthen jar, charged with powder, grenades, and other materials of an offensive and suffocating smell. It is sometimes used by privateers, to annoy an enemy whom they design to board.

STIPPLING. See *Engraving*.

STIRIA (in German, *Steiermark*); a province of the Austrian empire, which takes its name (see *Marches*) from the county of Steier, in the Land above the Ens. The eastern part was anciently a portion of Pannonia, the western of Noricum, which were conquered by the Romans at the close of the last century before the Christian era. The Avars afterwards occupied Upper Stiria, and the Veneti Lower Stiria, whence the latter was called the *Wendish mark*. Charlemagne set markgraves over it; and, as the counts of Steier were among the number, it hence received the name of *Steiermark*. It is bounded north by the archduchy of Austria, east by Hungary, south by Carniola and Carinthia, and west by Carinthia and Salzburg. Population, 836,128; square miles, 8480. Upper Stiria lies to the north and is mountainous, consisting, in a great measure, of a continuation of a branch of the Alps. Lower Stiria comprises the southern part. A number of lateral branches of the Alps extend into Lower Stiria, but become gradually lower as they remove from the main chain, till they present nothing but small elevations. There are, however, but few extensive plains. The rivers are the Drave, Save, Muhr, and Ens. The climate in the elevated parts is cold, but the air is pure and elastic; the soil, except on the high mountains, very fertile, producing wheat, oats, rye, potatoes, and in warmer situations, wheat. Great attention is paid to raising cattle, and poultry is abundant. Agriculture is in a backward state. Stiria abounds in mineral productions. The iron mines are the most important, and yield annually from 16,000 to 20,000 tons. Salt and coal are abundant. Gold, silver, and copper hardly defray the expense of working: lead is more common. Cobalt, arsenic, and molybdena are found. The manufactures are chiefly derived from the mines. The exports consist of metals, corn, flax, wine, clover-seed, and cattle. The Stirians have the hospitality, frankness, and simple habits of an agricultural people; but they are imperfectly educated, though parish schools have been established in the principal villages. The majority are Catholic, though the Protestants enjoy a full, and the Jews a limited, toleration. The chief town is Grätz. —See Basil Hall's "Schloss Hansfield, or a Winter in Lower Stiria."

STIRLING: an ancient royal burgh of Scotland, the capital of Stirlingshire, is situated on the south bank of the river Forth, at the distance of thirty-five miles N. W. of Edinburgh, and twenty-eight N. E. of Glasgow. In external appearance it resembles the old town of Edinburgh, each being built on the ridge and sides of a hill, which rises gradually from the east, and presents an abrupt crag towards the west; and each having a principal street on the surface of the ridge, the upper end of which terminates with a castle. The castle of Stirling, however, stands on a higher natural battlement than that of Edinburgh; the one being about 350 feet above the level of the sea, the other not quite 300.

Stirling has been called the Windsor of Scotland; and it has some pretensions to that appellation. The view from the castle is of vast extent, and comprehends the richest variety both of the beautiful and the grand in natural scenery. Towards the west the prospect is bounded by the solitary Benlomond, rising at the distance of about thirty miles, to the height of above 3000 feet. The intervening space is a level valley, through which the Forth is seen stealing its way with a thousand meanderings. Round the northern horizon sweeps the almost continuous chain of the Grampians. To the south lie the green hills of Campsie; turning round from which towards the east the eye rests on a plain of rich and cultivated beauty, with the sister towers of the capital cresting the distance, and between, the broad and fertile plains of Carron on the one hand, and on the other, "the many Forth unravelled" in a succession of beautiful windings, till it spreads out from a slender stream into a great arm of the sea.

Some idea of the singular manner in which the river lingers over this part of its course, may be formed from the fact that it travels over about twenty four miles in making its way through a space not more than six miles in length. The innumerable green peninsulas, of every variety of shape and dimension, which it forms in its sportive progress, present a picture which certainly has not often been surpassed in bright and animated beauty.

"Grey Stirling with her towers and town," is unquestionably a place of very high antiquity. The oldest existing charter of the burgh is dated in 1120; but it bears to be a confirmation of former grants, and there can be no doubt that the fort at least was of importance a considerable time before this. The first mention which historians have made of it is in the ninth century, about the middle of which it is recorded to have been taken and thrown down by Kenneth II. the king of the Highlands of Scotland, when he overcame the Picts, whose principal fortress it was, and that which guarded the most exposed extremity of their territory. The whole of the south of Scotland as far as Stirling, however, appears soon after this to have fallen into the possession of the two chiefs, Osbright, or Osbert, and Ella, who, under the weak sway of the English king, Ethelred I., had seized upon the sovereignty of Northumberland; and they rebuilt the castle as

a protection to their new conquests. In the next century we find it again in the hands of the Scots. It was afterwards repeatedly attacked and taken both by the English, and by the several factions whose contentions continued to distract Scotland with little intermission, during nearly all the time it remained an independent kingdom.

Stirling castle first became a favourite residence about the reign of James I., whose son James II. was born in it, and also kept for some time during his minority. James III. was extremely partial to Stirling castle; parliaments were called to sit in it; and he increased the buildings by a palace, part of which is supposed to be still extant, and by founding a chapel-royal within its walls. James IV. gave Stirling and Edinburgh castles to his queen, Margaret of England, (daughter of Henry VII.) as her jointure houses. James IV. frequently resided here during Lent, in attendance upon the neighbouring church of the Franciscans. James V., who was born and crowned in Stirling castle, further adorned it by the erection of the present palace. It was also occupied by the widow of the prince, Mary of Guise, queen regent, who erected the battery towards the east, called the French battery, from having been built by her French auxiliaries. While James V. resided in the castle of Stirling, he frequently went forth in disguise, and his adventures on these occasions have furnished a scheme for many amusing anecdotes. Mary, daughter of this prince, here celebrated the baptism of her son, afterwards James VI.; on which occasion there was a prodigious display of courtly hospitality. James, whose baptism took place in December, 1566, was removed in February 1566—7 to Edinburgh, but was soon after sent back to Stirling, where he spent the years of his childhood till he was thirteen years of age. The apartments which he occupied, with his preceptor, George Buchanan, and where that learned man, in 1577—8, wrote his History of Scotland, are still shown in the palace, though now degraded into the condition of a joiner's workshop. James did not make Stirling the jointure-house of his queen; that honour was reserved for Dunfermline. Here, however, he baptized his eldest son, prince Henry, for which purpose he built a new chapel on the site of the old one. The fortress continued afterwards in considerable strength. In 1651, when employed by the Scottish estates, in the honourable service of keeping the national registers, it was besieged and taken by general Monk. In 1681, James, duke of York, afterwards James II. or VII., visited Stirling, with his family, including the princess, afterwards queen Anne. A scheme was formed in 1689, by viscount Dundee, (Claverhouse) and other friends of this monarch, for rescuing the castle for his service from the revolutionists, but in vain. In the reign of queen Anne, its fortifications were considerably extended, and it was declared to be one of the four fortresses in Scotland which were to be ever after kept in repair, in terms of the treaty of union with England. Since that period, it has experienced little change in external aspect, except its being gradually rendered more and more a barrack, for the accommodation of modern soldiers. It formed an excellent *point d' appui* for the duke of Argyle and the government forces in 1715, when that nobleman encamped his little army in the park, and resolutely defended the passage of the Forth against the insurgent forces under the earl of Mar. In 1745, prince Charles led his highland army across the Forth by the fords of Frew, about six miles above Stirling; but he made no attempt on the castle till the succeeding year, when, in returning from England, he laid siege to it in regular form, but was obliged to retire to the highlands, without having made any impression upon it. Population of the burgh of Stirling in 1831, 8556.

STIRLINGSHIRE; a central county of Scotland, is bounded on the north by Perthshire and Clackmannanshire; on the east by Linlithgowshire; on the south by Lanarkshire; and on the south-west and west by Dumbartonshire. It extends about thirty-six miles in length, and from twelve to seventeen in breadth. Stirlingshire is partly highland, and partly lowland. The highland district is on the western quarter, adjacent to Loch Lomond. East from this, the land becomes flattish, or gently inclining towards the Forth and the Endrick. Next, on the east, or in the centre of the county, within the parishes of Killearn, Fintry, Gargunnock, Campsie, Kilsyth, and the western part of St Ninians, the ground again rises into a series of hills. The Lennox hills, Campsie fells, and Gargunnock hills, are the local appellations of these eminences, which are from thirteen to fifteen hundred feet in height. From Ben Carron, the highest of the hills in Kilsyth parish, there is obtained one of the finest views in Scotland, and which has been computed to embrace an extent of 12,000 square miles. Many of these hills in the central and especially in the southern division, partake more of the lowland than the highland appearance, as their summits, and many parts of their sides, are covered by green sward, which affords excellent pasturage for sheep. The eastern division of the county consists of beautiful carse land, and in many places quite flat, and inclined plains gradually rising towards the south, from the rich vale of the Forth. In this quarter, the country has undergone great improvements, and now exhibits every where the pleasing spectacle of fertile, drained meadows, fields in the highest state of tillage, with plantations, pleasure grounds, gardens, and orchards, all in exuberant vegetation. Almost every variety of soil to be met with in Scotland, occurs in Stirlingshire; but the most common and the most fertile in the county, is the alluvial or carse land, which occupies an extent of about 40,000 acres on the banks of the Forth. In this soil there are beds of shells, clay, marle, and moss. Small patches of rich loam occur in many parts of the county. The soil on the banks of the rivers, in the western and central districts, is chiefly of a light and gravelly description. The agriculture of the county is subject to considerable variation, owing to the great variety of soil and situation. The carse-lands, which are arable, are portioned out into small farms of from fifteen to 100 acres, which sometimes afford a rent of £4 an acre. But the hill farms frequently extend to nearly 4000 acres. Large crops of wheat, barley, beans, peas, turnips, potatoes, &c., are raised; the use of artificial grasses has also been very generally adopted in this country. The extensive ranges of moorland, in the upland districts, are devoted to the feeding of sheep.

The Forth is the principal river of Stirlingshire. It has its origin in a spring near the summit of Benlomond, and after running eight or ten miles under the name of the water of Duchray, and flowing through part of Perthshire, where it is called Avondhu, or the Black River, it again enters Stirlingshire, under the name of the Forth, where

it receives the Teith, Bannockburn, Ardoch, and Allan. The Carron, the next river in size to the Forth, rises in the central district, and after flowing on in an easterly direction, joins the Forth at Grangemouth. The smaller rivers are the Bannockburn, the Avon, the Endrick, the Blane, and the Kelvin.

Stirlingshire abounds with iron-stone, coal, free-stone, and limestone. The manufactures of the county are various. At Stirling, and in the town and parish of St Ninians, there are manufactories of carpets, coarse woollens of divers kinds, tartans, and cottons, while there are several large establishments in different places for cotton, paper, copperas, alum, Prussian blue, soda, &c. There are many large distilleries in various parts of the county. The grand staple manufacture of Stirlingshire is iron goods, cast and malleable, at Carron, on the banks of the river of that name. The manufacture of nails for carpenter work is likewise carried on in the wayside villages to a very considerable extent. By these various means, this central county of Scotland has risen greatly in wealth, civilization, and amount of population, and its future prospects are equally cheering. Stirlingshire comprises twenty-two parishes, besides portions of other four. The county contains only one royal burgh, Stirling, and the populous and thriving town of Falkirk; likewise the villages of St Ninians, Airth, Balfron, Bannockburn, Camelon, Carron, Denny, Drymen, Fintry, Grangemouth, Gargunnock, Killearn, Kilsyth, Kippen, Larbert, Lennoxtoun of Campsie, Laurieston, Polmont, Strathblane, &c. Population of the county in 1881, 72,621.

STIRLING, Lord. See *Alexander, William.*

STIRRUP. The ancients were not acquainted with the use of this convenient article of equestrian costume, the emperor Mauritius, who flourished towards the end of the sixth century, being the first writer who makes mention of it, in his Treatise on the Military Art. The Roman youth were accustomed to leap upon their horses sword or lance in hand. A jasper, explained by Winckelmann; a *basso-relievo*, engraved by Roccheggiani; and the painting of a Greek vase, published in Millin's *Recueil de Monumens*, all exhibit warriors mounting on horseback by the help of a cramp-iron attached to the pike or lance. Distinguished persons and old men had servants to place them on their horses, and conquered sovereigns were often compelled to perform this office for their vanquishers. Caius Gracchus caused to be placed at certain distances along the high roads, after the example of the Greeks, large stones to assist the horsemen in mounting.

STOA. See *Stoics.*

STOAT. See *Ermine.*

STOBÆUS, John, the name of a Greek writer, who, about the middle of the fifth century, was the author of a variety of miscellaneous works, most of which have perished; but his collection of excerpts from those of various philosophers and poets, has come down to posterity, and is important, from the fragments of lost authors which it contains. It consists of four books, of which the third and fourth form a separate work; and its extracts are important contributions to the history of philosophy. The best edition is that of Heeren (Göttingen, 1792—1801, 4 vols.)

STOCK EXCHANGE; originally, the building in London, where the stock brokers assemble to transact their business. It was erected in 1804, in consequence of the inconvenience to which they were subjected, and the general interruption of public business, occasioned by the stock-jobbers, who intermingled with them when they transacted business in the bank rotunda. No person is allowed to act here but regular stock brokers, who are balloted for annually. The name is also applied in general to the place where the same business is transacted in other cities. The great stock exchanges of Europe are those of Amsterdam, London, Paris, and Frankfort on the Maine, which decide the price of stocks in all the rest of the world. Those of Petersburg, Berlin, and Vienna are of much less importance. We have given an account of the stocks of different countries in the article *Public Stocks;* we shall here give a view of the manner of creating, purchasing, and transferring stock, as practised in London. New loans are paid at stated periods, by instalments of 10 or 15 per cent., and the terms on which they are made generally occasion an increase on different kinds of stock, to the amount of three per cent. and upwards (according to the emergency and state of the money market) more than the sum borrowed. Thus, for every hundred pounds capital, new stock is created to the amount of one hundred and three pounds. The difference is called the *bonus*, and the aggregate of the additional stock of different kinds is termed *omnium*. If these be disposed of separately, before all the instalments are paid, the different articles are called *scrip*, which is an abbreviation of *subscription*. The value of the stocks is perpetually fluctuating, the variations being occasioned by unfounded as well as real causes. Any occurrence by which the security of the state is either hazarded or strengthened, though one may be as imaginary as the other, has an immediate effect upon the price, which will advance or fall as the news may be considered good or otherwise. The gaining of a victory, the signing of an armistice, and the conclusion of a peace, have each a direct influence on the rise of the stocks; whilst, on the other hand, the loss of a battle, the death of a sovereign, the commencement and protraction of war, are equally certain to lower the funds; even the mere report of a momentous event will frequently lead to a considerable alteration of price. The quantity of stock in the market will also either depreciate or raise the value, as purchasers may be more or less numerous. The manner of buying stock is, to give a specific number of pounds for a nominal hundred pounds. Thus, if the purchase be made in the three per cents., and the current price be eighty pounds, that sum is paid for one hundred pounds stock, which yields a dividend of three pounds per annum. Persons conversant in these things will sometimes obtain a considerable advantage by transferring stock from one branch of the funds to another, the variations in the value of the different stocks not being always adjusted to their proper level. Every possible degree of facility, consistent with prudence, is given to the purchase and sale of stocks; yet the intervention of a stock broker is generally thought requisite, as the identity of the persons making the transfer must be vouched for, before the witnessing clerk will allow his signature to be made in the bank books. All transfers of stock are made on the appointed transfer days; and no stock can be transferred twice on the same day. The space between the shutting and opening the books of any stock is usually about six weeks. See *Stock-Jobbing.*

STOCK-FISH. See *Cod.*

STOCK-JOBBING. The practice to which the term *stock-jobbing* is more particularly applicable, is that which is carried on amongst persons who possess but little or no property in any of the funds, yet who contract for the sale or transfer of stock at some future period, the latter part of the day, or the next *settling day*, at a price agreed on at the time. Such bargains are called *time-bargains*, and are contrary to law; and this practice is *gambling*, in every sense of the word. The business of *jobbing* is carried on to an amazing extent, and is of this character:—A. agrees to sell B. £10,000 of bank stock, to be transferred in twenty days, for £12,000. A., in fact, does not possess any such property; yet if the price of bank stock on the day appointed for the transfer should be only £118 per cent., he may then purchase as much as will enable him to fulfil his bargain for £11,800; and thus he would gain £200 by the transaction. Should the price of bank stock advance to 125 per cent., he will then lose £500 by completing his agreement. As neither A. nor B., however, may have the means to purchase stock to the extent agreed on, the business is commonly arranged by the payment of the difference—the profit or the loss—between the current price of the stock on the day appointed and the price bargained for. In the language of the *alley*, as it is called in London (all dealings in the stocks having been formerly transacted in 'Change alley), the buyer in these contracts is denominated a *bull*, and the seller a *bear*. As neither party can be compelled to complete these bargains (they being illegal), their own sense of "honour," the disgrace, and the loss of future credit, that attend a breach of contract, are the sole principles on which this singular business is regulated. When a person refuses, or has not the ability to pay his loss, he is termed a *lame duck*; but this opprobrious epithet is not bestowed on those whose failure is owing to insufficient means, provided they make the same surrender of their property voluntarily, as the law would have compelled had the transaction fallen within its cognizance. This illegal practice is nothing more than a wager as to what will be the price of stocks at a fixed period; but the facility which it affords to extravagant and unprincipled speculation, and the mischief and ruin which have frequently followed it, determined the legislature to lay a penalty of £500 on every person making such *time bargains*; and the like sum on all brokers, agents, and scriveners employed in transacting or writing the said contracts. By the same statute also (7 Geo. II., ch. 8), a similar penalty is imposed upon all persons contracting for the sale of stock, of which they are not possessed at the time of such bargain; and £100 on every broker or agent employed in procuring the said bargain. See *Stock Exchange*.

STOCKHOLM; the capital of Sweden, and one of the handsomest cities in the north of Europe, is situated at the junction of the lake Mälar with an inlet of the Baltic; lon. 18° 4′ E.; lat. 59° 21′ N.; population in 1826, 79,526. Stockholm is generally described as standing on seven islands, but is chiefly built on three, of which the small one in the centre constituted the original city, and is still the most busy part of the town, and the residence of the principal merchants. The Norrmalm and Södermalm, the two principal suburbs, occupy several islands. The form of the city is an oblong, and its situation is extremely picturesque, as well from the mixture of land and water as from the unevenness of the ground on which it is built. The view from the higher grounds embraces edifices of all sorts, and vessels at anchor, or sailing across the channels, and is terminated by mountains, with a variety of romantic scenery. Constantinople is perhaps the only city of Europe which surpasses it in situation. There are thirteen stone bridges, and several of wood. The houses in the central part are of stone or brick, covered with plaster, of four or five stories, with their foundations on piles, but in the suburbs of only one or two stories, and partly of wood. Among the public buildings are the royal palace, the palace or house for the nobility of the diet, arsenal, bank, royal stables, warehouse for iron, hospitals, and twenty-four churches, eighteen of which are Lutheran. The royal palace is a large quadrangular edifice, the lower part of the walls of polished granite, the upper part of brick, covered with stucco, and is accounted second to no palace in Europe, except that at Versailles. The literary associations are numerous and respectable; the principal are the academy of sciences, founded in 1739, having a museum, library, an observatory, and 160 members; the Swedish academy, founded in 1786, for improving the Swedish language, having eighteen members; the academy of fine arts, history and antiquities; the military academy, academy for painting and sculpture, and for music, and the medical college. The royal library contains about 50,000 volumes, and there are several important private collections. Stockholm is the mercantile emporium of the eastern part of Sweden. The harbour is of great depth, and so capacious that 1000 vessels may lie here in safety; and the largest come close up to the quays. The number of vessels that enter annually is, on an average, about 1000. The chief exports are iron and steel, also copper, pitch, tar, and timber; imports, colonial produce, wine, fruit, salt, and British manufactures. The manufactures are various, but not on a large scale. See *Sweden*.

STOCKINGS are made of only one thread, entwined so as to form a species of tissue, extremely elastic, and readily adapting itself to the part it is employed to cover. The tissue cannot be called cloth, for it has neither warp nor woof, but approaches it closely, and for the purposes to which it is applied, is much superior. It is well known that the ancient Romans had no particular covering for the legs (see *Breeches*); but during the middle ages, hose, or leggins, made of cloth, came into use; and, at a later period, the art of knitting stockings was invented. Very different accounts are given of the time and country of this important invention, some attributing it to the Scots, and others deriving it from Spain. Woven stockings are manufactured by the machine called *stocking frame*, which is exceedingly ingenious, but too complex to be described without plates. It was invented by William Lee, of Nottinghamshire, in 1589. He met with little encouragement in his attempts to set up an establishment in England, but was invited into France by Henry IV., and received with great favour. Henry's assassination soon after interrupted his prospects, and he died in Paris in great poverty. A knowledge of his machine was carried back to England by some of his workmen, who established themselves in Nottinghamshire, which has since continued to be the principal seat of the manufacture. For near 200 years, few improvements were made on Lee's invention, and two men were usually employed on one frame; but it

has recently been much improved, and adapted also to the manufacture of ribbed stockings. See Beckmann's *History of Inventions*, iv, article *Knitting Netts* and *Stockings*.

STOCKPORT; a large market and borough town of England, in Cheshire, situated on the river Mersey, principally on the top and sides of a hill, 176 miles N. W. by N. from London. It is a place of great antiquity, the Romans having had a camp here, and the Saxons a fortress. In the civil war it was garrisoned for the parliament and taken by Prince Rupert, but again fell into the hands of the parliamentarians, who held it until the termination of the war. In 1745 it was twice visited by the troops under the Pretender. The trade and manufactures of Stockport, that of cotton in particular, have greatly increased of late, and been considerably facilitated by the canal communication with the rivers Mersey, Dee, Ribble, Trent, Severn, &c. The silk trade, which was once extensively carried on here, has declined. The parish church of St Mary is an ancient structure of the 14th century, but which has been frequently repaired, and portions rebuilt. St Peter's church is a neat brick building, erected about the year 1767, at the expence of William Wright, Esq. St Thomas' is a modern edifice. Here are also chapels belonging to the Independent, Primitive, Wesleyan, and New Connexion Methodists; the Society of Friends, Unitarians, and Roman Catholics. A free grammar-school, rebuilt by the Goldsmith's Company, was founded and endowed by Sir Edmund Shaw, of London, in 1482. In a school established in 1805, for all denominations, 4000 children are instructed, and upwards of 1500 are received in branches of the same institution. In 1826, a national school was founded, in which between two and three thousand boys and girls are educated; and the established church and dissenting bodies have Sunday schools. The poor have likewise the advantage of six almshouses, a dispensary, and other benevolent institutions. Within the last twenty years, the town has been greatly improved; it is now well paved, and lighted with gas, and has a neat theatre, and excellent library and news-room. Population of town in 1831, 25,469; of town and parish, 66,610.

STOCKS; a wooden machine used to put the legs of offenders in, for the restraining of disorderly persons, or as a punishment for certain offences.

STOCKS, Public. See *Public Stocks*.

STODDART, Solomon, an American divine, was born at Boston, in 1643, and graduated at Harvard college in 1662, of which he was subsequently made a fellow. Intense application having impaired his health, he went to Barbadoes as chaplain to governor Serle, and preached to the dissenters in that island for nearly two years. On his return, he was invited to take charge of the church of Northampton, and was ordained September 11, 1672. In this place he continued until his death, February 11, 1729, in the eighty-sixth year of his age. Mr Stoddard is considered one of the greatest divines of New England. He waged a polemical contest with doctor Increase Mather respecting the Lord's supper, maintaining that the sacrament was a converting ordinance, and that all baptized persons, not scandalous in life, may lawfully approach the table, though they know themselves to be unconverted, or destitute of true religion; and most of the churches of Connecticut were induced by his arguments to coincide in his sentiments. His diligence was so unremitting that he left a considerable number of sermons which he had never preached; and so fine was his hand-writing, that one hundred and fifty of his discourses are contained in a small duodecimo manuscript volume, which may easily be carried in the pocket. He published various sermons and treatises.

STOICHIOMETRY (from στοιχεῖον, element, original matter). The article *Affinity, Chemical*, treats of the general principles of chemical combinations and solutions. Neutrality is that state of solution of two substances in which each seems to have lost its peculiar characteristics. That branch of chemical science which treats of the proportions which the substances must have, when they enter the state of neutrality, has been called by modern chemists *stoichiometry*.

STOICS; an ancient philosophical sect, founded by Zeno, which received its name from the στοα (*porch* or *portico*), called *Pœcile* in Athens, where Zeno taught his doctrines (about B. C. 300). *Zeno*, a contemporary of Epicurus, after having studied the systems of the Socratic, Cynic and Academic schools, opposed to scepticism views resting on rigorous moral principles. Philosophy is, according to him, the way to wisdom; wisdom itself is the knowledge of human and divine things; and virtue is the application of wisdom to life. The chief heads of his doctrine—logic, physics and morals—were connected into a systematic whole. *In* logic, which he defined the science of distinguishing truth and falsehood, he made experience the basis of all knowledge; ideas, or conceptions, which, in all respects, resemble their objects, he called true, and the power of judging according to principles, the mark of a sound reason. In his physics, he refers to nature itself for the highest standard of human duties, and derives the moral precepts from the laws of the universe. He assumes two uncreated and eternal, but material principles of all things—the passive matter, and the active intelligence, or God, which resides in matter, and animates it. The Deity is the original intelligence, and of an ethereal, fiery nature: he made the world, as an organic whole, out of matter and form, by the separation of the elements; and he also rules the world but is limited in his operations by unchangeable fate or the necessary laws of nature. The universe, according to Zeno, is penetrated by the divine intelligence as by a soul, and is therefore living and rational, but destined to be destroyed by fire. He considers the heavenly bodies, and the powers of nature, of a divine character, and therefore admits the worship of several gods, and teaches that their connexion with men may be beneficial to the latter. The human soul he considers as produced by the union of the creative fire with air, and endowed with eight faculties—the five senses, the powers of generation, speech, and reason: the latter, as the active principle, governs the whole soul. The ethics of the stoics treats the will of God (which also animates the soul of man), or nature, as the source of the moral law, which binds man to aim at divine perfection, since this only can lead to a virtuous life, harmonizing with God and nature, which is the only true happiness. Their practical maxim is, Follow nature, live according to nature, or, which amounts to the same thing, Live in accordance with the laws of consistent reason. They considered virtue the highest good, and vice the only evil; every thing else is indifferent, or only relatively agreeable or disagreeable. They call human actions honest, when they have a reasonable

foundation in the nature of the agent; perfectly proper, and therefore obligatory, when good in themselves; intermediate or lawful, in so far as, indifferent in themselves, they are expedient or allowable only in certain relations, but criminal, when they are inconsistent with the reason of the agent. Virtue they accordingly explain as the true harmony of man with himself, independent of reward or punishment, to be attained by correct moral judgment, and the mastery over the passions and affections: this virtue presupposes the highest inward tranquillity and elevation (apathy) above the pleasures and pains of sense; it makes the wise man not destitute of feeling, but invulnerable, and gives him a dominion over his body which permits even suicide. Virtue, therefore, is represented chiefly under the character of self-denial. Zeno, and his celebrated disciple and successor, Cleanthus, both put themselves to death at an advanced age, the latter by starvation. Cleanthus, originally a pugilist, gave to the Stoic philosophy its distribution into dialectics, rhetoric, ethics, politics, physics and theology. He enlarged theology by his proof of the existence of God, and expressed his reverence of one God in his admirable Hymn, yet extant, *Cleanthi Hymnus* (ed. Sturz, 1785). Chrysippus of Soli (died 208 or 212 B. C.), the successor of Cleanthus, carried logic and dialectics to greater perfection, and in physics, proved that the influence of fate, or the necessary relation of things, neither destroyed the operation of divine providence nor the free agency of man. In morals, he distinguished, like his predecessors, a natural and a positive law, and derived the latter from the mutual relations of men, as fellow-creatures of the same nature. His successors were Zeno, Antipater (both of Tarsus), Panætius of Rhodes, the pupil of Antipater, and Posidonius of Apamea, in Syria, the disciple of Panætius. Chrysippus, through his writings, also exerted a most important influence upon the Roman philosophers, among whom Seneca, Epictetus, and Marcus Aurelius (see *Antonius*), were Stoics. They employed themselves principally on practical questions; and their moral doctrines have so many points of resemblance to those of Christianity, as to have given rise to the opinion, that they were borrowed from the latter.—See Tiedemann's *System der stoischen Philosophie* (Leipsic, 1776).

STOLA; a garment worn by the Roman women in later times, they having originally worn the *toga* only, like the men. The *stola* was a long tunic with sleeves, reaching to the feet, worn both by the rich and the poor, with this difference only, that the *stola* of the latter had but a single gold stripe, whilst that of the former had stripes of gold and purple, and at the bottom a broad border or fringe, called *instita*. Public women, and those who had been found guilty of adultery, were forbidden to wear the *stola;* hence they were called *togatæ*. By *stola*, therefore, a chaste woman, as well as a woman of condition, was designated. *Instita* was used in the same way.—The

stola, which forms a part of the sacerdotal dress of Catholic priests, is a long, broad, white band, of silk or silver stuff, lined with stiff linen, worn by the deacons over the left shoulder, and reaching to the right hip, like the riband of an order; but the priests wear it over both shoulders, and hanging down across the breast. It is marked with three crosses, and not unfrequently has little bells at the end. Prelates wear it ornamented with pearls and embroidery. The *stola* is necessary for reading the mass; hence *jura stolæ*, or the dues which are paid for baptisms, marriages, interments, confirmation, confession, and similar religious services performed by the priest. This name has been retained by the German Protestants, although they no longer use the *stola*. The teachers of the ancient church were supported by the voluntary gifts of the faithful (oblations); and it was long left optional with laymen whether they would give any thing to the priest on such occasions, or not. What was given, was paid over, as late as the sixth century, to the bishop, who allowed a part to the parochial clergy. After that time, every pastor acquired the right to retain what he received in this way from his parishioners; but the councils, down to the tenth century, insisted that the priests should not ask any thing for the above services, but merely receive what was voluntarily given. In the sixteenth century, this permission became a right (*jus*), confirmed by the ecclesiastical authorities; hence *jura stolæ*.

STOLBERG; an ancient German house, which was formerly divided into the two lines of the Hartz and the Rhine. The latter becoming extinct, its possessions fell to the former, which, subsequently to 1638, was divided into the elder line, in the two branches of Ilsenburg (extinct in 1710) and Gedern, and the younger line, in the two branches of Stolberg-Stolberg and Stolberg-Rossla. To the Gedern branch belonged the Stolberg-Wernigerode family, that of Stolberg-Gedern (see *Albany*), now extinct, and that of Stolberg-Schwarza, also extinct. In the time of the empire, the counts of Stolberg belonged to the Wetteravian college. Their possessions have been mediatized, and are now under Prussian or Hanoverian sovereignty.

STOLE, Groom of the; the eldest gentleman of his majesty's bed chamber, whose office it is to present and put on his majesty's shirt, every morning, and to put the room in order. See *Stola*.

STOMACH (*stomachus; ventriculus; gaster*); a membraneous bag, situated in the epigastric region, which receives the food from the œsophagus. Its figure is somewhat oblong and round. It is largest on the left side, and gradually diminishes towards its lower orifice, where it is the least. Its superior orifice, where the œsophagus terminates, is called the *cardia;* the inferior orifice, where the intestine begins, the *pylorus*. The anterior surface is turned towards the abdominal muscles, and the posterior opposite the lumbar vertebræ. It has two curvatures; the first is called the great curvature of the stomach, and extends downwards from one orifice to the other, having the omentum adhering to it; the second is the small curvature, which is also between both orifices, but superiorly and posteriorly. The stomach, like the intestinal canal, is composed of three coats, or membranes:—1. The *outermost*, which is very firm, and forms the peritonæum; 2. the *muscular*, which is very thick, and composed of various muscular fibres; and, 3. the *innermost* or *villous coat*, which is covered with ex-

haling and inhaling vessels, and mucus. These coats are connected together by cellular membrane. The glands of the stomach which separate the mucus are situated between the villous and muscular coat, in the cellular structure. The nerves of the stomach are very numerous, and come from the eighth pair and intercostal nerves. The lymphatic vessels are distributed throughout the whole substance, and proceed immediately to the thoracic duct. The use of the stomach is to excite hunger, and partly thirst, to receive the food from the œsophagus, and to retain it, till, by the motion of the stomach, the admixture of various fluids, and many other changes, it is rendered fit to pass the right orifice of the stomach and afford chyle to the intestines. See *Gastric Juice*, *Digestion*, *Dyspepsia*.

STOMACH-PUMP. A small pump—in this application called the *stomach-pump*—has lately been introduced into practice, for removing poisons from the stomach in cases where the action of vomiting cannot be excited. It has already saved many lives. It resembles the common small syringe, except that there are two apertures near the end, instead of one, which, owing to valves in them, opening different ways, become what are called a *sucking* and a *forcing* passage. When the object is to extract from the stomach, the pump is worked while its sucking orifice is in connexion with an elastic tube passed into the stomach; and the discharged matter escapes by the forcing orifice. When it is desired, on the contrary, to throw cleansing water or other liquid into the stomach, the connexion of the apertures and the tubes is reversed. As a pump may not be always procurable when the occasion for it arises, the profession should be aware, that a simple tube will, in many cases, answer the purpose as well, if not better. If the tube be introduced, and the body of the patient be so placed that the tube forms a downward channel from the stomach, all fluid matter will escape from the stomach by it, as water escapes from a funnel by its pipe; and if the outer end of the tube be immersed in liquid, there will be, during the discharge, a siphon action of considerable force. On changing the posture of the body, water may be poured in through the same tube to wash the stomach. Such a tube, made long enough, might, if desired, be rendered a complete bent siphon, the necessary preliminary suction being made by a syringe, or by the mouth through an intervening vessel.

STOMACH-STAGGERS; a dangerous disease with horses, which is even yet but little understood. In the stable, the horse dozes, and rests his head in the manger; he then wakes up, and falls to eating, which he continues to do until the distention of the stomach becomes enormous; for the peculiarity of the complaint consists in the total stoppage of digestion, and the uneasy feeling of distention, consequent to such indigestion, appears to deceive the horse, whose morbid excitement induces him to continue eating. This he does until the distention prevents the return of the blood from the head; and the animal dies from apoplexy, or his stomach bursts. When recovery has taken place, it has been only in very mild cases.

STONE, OR CALCULUS; every hard concretion, not bony, formed in the body of animals. The article *Calculus* treats of the variety and chemical composition of these concretions. We shall add here a few words respecting their probable origin, and the cure of this disease in man. These concretions originate immediately in a disturbance of the secretions; but this disturbance may, perhaps, in most cases, be caused by a disordered condition of the juices, particularly of the blood, and a want of due assimilation. This may be supposed, because, in the complaints of the gravel and the gout, which frequently interchange, the digestion almost always suffers, and acid is found in the primæ viæ; also, because cattle often have biliary calculi in the spring, which disappear after they have fed for a time on green fodder. Calculi form themselves in those secreted fluids which contain many ingredients, and which have an inclination to assume a solid form, especially in such as are collected in particular receptacles (the gall bladder and urinary bladder); and they have even been found in the salivary ducts. They consist of a nucleus and several surrounding coats similar or various in their nature. Their component parts vary according to the fluid in which they have been formed. They obstruct the passages, and prevent the discharge of the secreted fluid; they irritate the vessels in which they are contained, and thereby cause convulsions, pains, inflammations and suppurations; they also affect, indirectly, other organs, e. g. the stomach, producing sickness and vomiting; the stones in the bladder occasion itching in the glands of the genitals, pains in the loins, testicles, &c. The most common calculi are, *A.* biliary calculi, often found in great numbers in the bile, sometimes in the liver, from the size of a pea to that of a hazel-nut. They are dark, brown, black, and usually polished on several parts of the surface, and generally occasion disease only when they move, and are very jagged. But in such cases violent pains exist, which extend from the right side to the centre of the body. They also sometimes cause periodical and obstinate jaundice. The convulsions and pains which they occasion frequently require the application of particular medicines to relieve the immediate suffering, besides those directed against the disease itself; the patient is often relieved from them by vomiting or by stool. *B.* Urinary calculi are sometimes a kind of coarse sand, called *gravel*, which sinks immediately to the bottom of the vessel in which the urine is left. Sometimes they are real stones, of the size of a pea, of a walnut, or even of the fist. They are found either about the kidneys, and then cause pains, inflammations, and suppuration, or in the pelvis of the kidneys. In this case, from time to time, single stones pass into the bladder, with violent pains extending from the region of the kidneys downward or backward, and are carried off with the urine; or they originate in the bladder itself, where they often acquire a very considerable size. They cause pains in the region of the bladder and in the perinæum, and great suffering during the discharges of the urine. It often happens that this can be discharged only in certain positions, and drop by drop, with great pain; is slimy, smells offensively, and is mixed with blood and gravel. The examination by the catheter affords the most certain information respecting the existence of calculi, if, as sometimes happens, the stone does not lie enclosed (encysted) in a certain part of the bladder. To destroy urinary stones, internal means have been recommended; but they are little to be depended on. If the stone in the bladder increases so much that it prevents entirely the discharge of the urine, it is necessary to remove it by the knife (lithotomy), or by breaking it to pieces in the bladder (lithotrity). The operation

of lithotomy may be performed in four different ways: 1. By the apparatus minor, an operation described by Celsus, and very simple, requiring few instruments; whence the name. The operator introduces his middle finger and fore finger up the anus, and endeavours to bring the stone toward the neck of the bladder. He then cuts on the left side of the perinæum, directly on the stone. 2. In the high operation, the bladder is opened on the opposite side, over the pubes. 3. When the apparatus major is applied, the urethra is widened so much, that a forceps can be introduced, and the stone extracted. The name of apparatus major is used on account of the number of instruments required. 4. The lateral operation is generally considered as the safest and most effectual, and is the most common. Its object is to divide that part of the urethra which suffered extremely in the application of the apparatus major, from the means used to distend it; and as the lower side of the urethra cannot be divided far enough, without the rectum being wounded, the cut is directed sideways. This is the reason of the name. Lately, the operation of cutting the bladder through the rectum has been introduced.

STONE WARE. Under the denomination *stone ware* are comprehended all the different artificial combinations of earthy bodies which are applied to useful purposes. See *China Ware* and *Pottery*.

STONES, Precious. See *Gems*.

STONES, Showers of. See *Meteoric Stones*.

STONEHENGE. See *Salisbury Plain*.

STOOL OF REPENTANCE. See *Cutty Stool*.

STOP; a word applied by violin and violoncello performers to that pressure of the strings by which they are brought into contact with the finger-board, and by which the pitch of the note is determined. Hence a string, when so pressed, is said to be *stopped*.—*Stop of an organ;* a collection of pipes similar in tone and quality, which run through the whole, or a great part, of the compass of the instrument. In a great organ, the stops are numerous and multifarious.

STOP-LAWS. See *Execution*.

STORAX; gum-resin, obtained by incisions in the branches of a small tree (*styrax officinalis*), which grows wild in the countries about the Mediterranean. The leaves are alternate, oval, petiolate, green above, whitish and downy beneath, resembling those of the quince. The flowers are disposed in racemes, white, and very much resemble those of the orange. The fruit is whitish and downy, juiceless, and contains one or two angular nuts. The storax of commerce is chiefly obtained from Asiatic Turkey. It has a fragrant odour, and an agreeable, slightly pungent, and aromatic taste; is stimulant, and in some degree expectorant. Formerly it was much employed in medicine, but now is little used, except in perfumes. *Benzoin* is a gum-resin, obtained, in a similar manner, from a species of *styrax*, growing wild in the East Indies.

STORK (*ciconia*). These tall and stately birds are easily distinguished from the herons by the small mouth, the angle not reaching beyond the eyes, as with the last; the beak is also destitute of the nasal furrow, but is similar in other respects, is straight, long, pointed, and compressed. Most of them inhabit Europe, especially between the tropics. They walk slowly, with measured steps; but their flight is powerful and long continued. They have no voice, but produce a clattering with their bills, by striking the mandibles together. Their food consists of fish, reptiles, small quadrupeds, worms, and insects. The common stork of Europe (*C. alba*) is about four feet in length, from the tip of the beak to the extremity of the nails. The prevailing colour of the plumage is white, with some black about the wings. It is found throughout the greater part of Europe, but passes the winter in Africa. It takes up its residence and breeds in the midst of cities, and is everywhere protected, as it renders important services in destroying noxious animals. Among the ancients, to kill them was considered a crime, which, in some places, was punished even with death; and, like the ibis, this bird became an object of worship. The stork is remarkable for its great affection towards its young, but especially for its attention to its parents in old age. The gigantic stork, or adjutant of Bengal (*C. argala*), is a celebrated bird, very common about the mouths of the Ganges, and even in the streets of Calcutta, where it is protected by law, as also in other parts of the East Indies. It is stoutly framed, and the extreme length is nearly seven feet. The head and neck are destitute of feathers, and covered with a reddish and callous skin; and from the middle of the latter hangs a fleshy appendage. The bill is enormously large. It lives on reptiles, fish, &c., and even on quadrupeds, whose bones it breaks previously to swallowing. In captivity its gluttony is extreme.

STORR, Gottlob Christian, doctor of theology, consistorial counsellor and first minister to the court at Stuttgart, was born, in 1746, at Stuttgart, where he died in 1805. Storr was distinguished for his pious life, and faithful fulfilment of his duties as professor of theology and preacher at Tübingen, as well as for his great learning, exhibited in various works, among which are his Observations on the Syriac Translations of the New Testament, in 1772, and on the Arabian Gospels, in 1775, both in German; *Observationes ad Analogiam et Syntaxin Hebraicam pertinentes* (1779); his Commentary on the Epistle to the Hebrews; his learned treatise On the true Object of Christ's Death (2d ed. Tübingen, 1809); On the Object of the Evangelical History, and the Epistles of John (1786); New Defence of the Revelation of John (1783), the *Dissertationes in Apocalypsis quædam Loca* belonging to it, and his *Doctrinæ Christianæ Pars theoret. e sacr. Lit. repetita* (1793).

STORTHING; the Norwegian diet (from *Thing*, assembly, and *stor*, great, elevated). The citizens qualified to vote choose electors, who, from among themselves or their constituents, select the representatives, whose number is not to be under seventy-five, nor above one hundred. A member of the *storthing* must be thirty years old; must have resided ten years in the realm; must hold no office, civil or military; must not be attached to the court, nor receive a pension. Generally the *storthing* is held every third year, at the beginning of February, in the capital, Christiania. After the *storthing* is opened by the king or his deputy, it chooses one fourth part of its members to form the *logthing:* the other three fourths form the *odelsthing*. Each *thing* holds its sessions separately, and with open doors, and the debates are published, unless a resolution to the contrary be passed. The *storthing* is authorized to make and abolish laws; to impose taxes; open loans; see that the finances are properly administered; grant the civil list, &c. The government protocols, and all public papers, including treaties with foreign powers, must be laid before

them, the secret articles only excepted, and these must not be contrary to the public ones; it may summon any body before it, except the king and viceroy; and it confers naturalization. Laws are proposed in the *odelsthing*, by its members, or by a counsellor of state: if they pass there, they go to the *logthing*. The king is to sign the bills, or to decline so doing. If a bill, twice rejected by the king, is adopted without alteration by a third regular *storthing*, it becomes a law, even without the king's sanction. In this manner nobility was abolished in Norway.

STOSCH, PHILIP, baron von, a distinguished numismatist, born 1691, at Cüstrin, in Germany, studied at Frankfort on the Oder, and was designed for the ecclesiastical profession; but his taste led him to devote his time to numismatics. In 1708, he visited Jena, Dresden, Leipsic, and other places in Germany, for the purpose of examining cabinets of medals and antiquities. In 1710, the Dutch statesman Fagel employed him on a mission to England, where he became acquainted with Sir Hans Sloane, lords Pembroke, Winchelsea, Carteret, and other virtuosi. In 1714, he went to Rome; and, returning to Germany, he engaged in collecting other antiques, particularly engraved gems. At Augsburg he discovered the celebrated "*Peutinger Table.*" (q. v.) He was afterwards English resident at Rome, for the purpose of observing the conduct of the Pretender and his adherents. This post becoming hazardous after the accession of pope Clement XII., who favoured the Stuarts, baron Stosch withdrew to Florence, where he died in 1757. His collections, and especially those of cameos and engraved gems, were peculiarly valuable. A catalogue of the latter was drawn up by Winckelmann. The baron himself published two volumes of plates, representing his gems, engraved by Picart and Schweikart.

STOVES. Stoves differ from fire-places (q. v.) by enclosing the fire so as to exclude it from sight, the heat being given out through the material of which the stove is composed. The common Holland stove, of which we have an almost infinite variety of modifications, is an iron box, of an oblong square form, intended to stand in the middle of a room. The air is admitted to the fire through a small opening in the door, and the smoke passes off through a narrow funnel. The advantages of this stove are, 1. that, being insulated, and detached from the walls of the room, a greater part of the heat produced by the combustion is saved. The radiated heat being thrown into the walls of the stove, they become hot, and, in their turn, radiate heat on all sides to the room. The conducted heat is also received by successive portions of the air of the room, which pass in contact with the stove. 2. The air being made, as in furnaces, to pass through the fuel, a very small supply is sufficient to keep up the combustion, so that little need be taken out of the room. 3. The smoke, being confined by the cavity of the stove, cannot easily escape into the room, and may be made to pass off by a small funnel, which, if sufficiently thin and circuitous, may cause the smoke to part with a great portion of its heat, before it leaves the apartment. These circumstances render the Holland stove one of the most powerful means we can employ for keeping up a regular and effectual heat, with a small expense of fuel. The disadvantages of these stoves are, that houses containing them are never well ventilated, but that the same air remains stagnant in a room for a great length of time. A dryness of the air is also produced, which is oppressive to most persons, so that it often becomes necessary to place an open vessel of water on the stove, the evaporation of which may supply moisture to the atmosphere. Stoves are very useful in large rooms, which are frequented occasionally, but not inhabited constantly; as halls, churches, &c. In cold countries, where it is desirable to obtain a comfortable warmth, even at the sacrifice of other conveniences, various modifications of the common stoves have been introduced, to render them more powerful, and their heat more effectual. The Swedish and Russian stoves are small furnaces, with a very circuitous smoke flue. In principle, they resemble a common stove, with a funnel bent round and round, until it has performed a great number of turns or revolutions, before it enters the chimney. It differs, however, in being wholly enclosed in a large box of stone or brick work, which is intersected with air pipes. In operation, it communicates heat more slowly, being longer in becoming hot, and also slower in becoming cold, than the common stove. Russian stoves are usually provided with a damper, or valve, at top, which is used to close the funnel or passage, when the smoke has ceased to ascend. Its operation, however, is highly pernicious, since burning coals, when they have ceased to smoke, always give out carbonic acid in large quantities, which, if it does not escape up chimney, must deteriorate the air of the apartment, and render it unsafe.

Cellar Stoves and Air Flues. Such is the tendency of heated or rarefied air to ascend, that buildings may be effectually warmed by air flues communicating with stoves in the cellar, or any part of the building below that to be warmed. A large suit of apartments may be sufficiently heated in this way by a single stove. The stove, for this purpose, should be of a kind best adapted to communicate heat. It should be entirely enclosed in a detached brick chamber, the wall of which should be double, that it may be a better non-conductor of heat. The space between the brick chamber and stove should not exceed an inch. In the apparatus of the Derbyshire and Wakefield infirmaries, the whole of the air is repeatedly conducted, by numerous pipes, within half an inch of the stove and its cockle. For the supply of fuel, the same door which opens into the chamber, should open also into the stove, that there may never be any communication with the air of the cellar. A current of external air should be brought down by a separate passage, and delivered under the stove. A part of this air is admitted to supply the combustion; the rest passes upward in the cavity between the hot stove and the wall of the brick chamber, and, after becoming thoroughly heated, is conducted through passages in which its levity causes it to ascend, and be delivered into any apartment of the house. Different branches being established from the main pipe, and commanded by valves or shutters, the hot air can be distributed at pleasure to any one or more rooms at a time. This plan is very useful in large buildings, such as manufactories, hospitals, &c., on account of the facility with which the same stove may be made to warm the whole, or any part of them. The advantage of a long vertical draught enables us to establish a more forcible current of warm air. The rooms, while they are heated, are also ventilated, for the air which is continually brought in by the warm

pipes, displaces that which was previously in the room, and the air blows out at the crevices and key-holes, instead of blowing in, as it does in rooms with common fire-places.

STOW, JOHN; an English historian and antiquary, born about 1525, in London. His father, a tailor, brought him up to his own business; but his mind early took a bent towards antiquarian researches. About the year 1560, he formed the design of composing the annals of English history, for the completion of which he quitted his trade. For the purpose of examining records, charters, and other documents, he travelled on foot to several public establishments, and purchased old books, manuscripts, and parchments, until he had made a valuable collection. Being thought to be favourable to the ancient religion, an information was laid against him, in 1568, as a suspicious person, who possessed many dangerous books. The bishop of London accordingly ordered an investigation of his study, in which, of course, were found many popish books among the rest; but the result has not been recorded. Two years afterwards, an unnatural brother, having defrauded him of his goods, sought to take away his life by preferring one hundred and forty articles against him, before the ecclesiastical commission; but he was acquitted. He had previously printed his first work, entitled a Summarie of the Englyshe Chronicles, compiled at the instance of Dudley, afterwards earl of Leicester, which was published in 1565, and afterwards continued by Edmond Howes, who printed several editions. He contributed to the improvement of the second edition of Holinshed, in 1587, and gave corrections and notes to two editions of Chaucer. At length, in 1598, appeared his Survey of London, the work on which he had been so long employed, and which came to a second edition during his life-time. He was very anxious to publish his large chronicle, or history of England, but lived only to print an abstract of it, entitled *Flores Historiarum*, or Annals of England. From his papers, Howes published a folio volume, entitled Stow's Chronicle, which does not, however, contain the whole of the larger work, which he had left, transcribed for the press, and which is said to have fallen into the possession of Sir Symonds Dewes. A license was granted him by James I., "to repair to churches or other places, to receive the charitable benevolence of well-disposed people," in the seventy-eighth year of his age. He died, afflicted by poverty and disease, in 1605, at the age of eighty. Stow's Survey has run through six editions, the last in 1754, with considerable additions, and a continuation of the useful lists.

STOWE; a parish in Buckinghamshire, England, two miles north-west of Buckingham, containing the celebrated seat, garden and pleasure-grounds of the duke of Buckingham. The house, situated on an eminence rising from a lake, measures 916 feet from east to west: the saloon, sixty feet long, forty-three feet broad, and fifty-six and a half feet high, cost about £13,500; the state drawing-room, fifty feet by thirty-two, and twenty-two feet high, contains a collection of fine pictures, mostly by the old masters. The library consists of 10,000 printed volumes, with many valuable manuscripts. The house is approached through a Corinthian arch, sixty feet high by sixty wide. The gardens comprise four hundred acres of highly decorated grounds. Temples, obelisks, statues, grottoes, &c., scattered around in great profusion, seem to realize the descriptions of enchanted gardens. The Elysian fields, watered by a small rivulet, issuing from a grotto, and emptying into a lake, contain the figures of heroes, poets and philosophers. In the temple of Ancient Virtue, a circular building of the Ionic order, stand the statues of Homer, Lycurgus, Socrates, and Epaminondas. The temple of British worthies contains busts of Shakspeare, Milton, Pope, Newton, Bacon, Locke, &c. The temple of Concord and Virtue is a handsome building, of an oblong shape, surrounded with twenty-eight fluted Ionic columns. Lord Cobham's pillar is a column 115 feet high, surmounted by a statue. The Gothic temple, a triangular building, with a tower at each end, is richly adorned with old painted glass.

STRABO, a distinguished Greek geographer, was born at Amasia, in Cappadocia, about 19 A. D., studied rhetoric and the Aristotelian philosophy, and afterwards embraced the Stoic doctrines. He travelled through Greece, Italy, Egypt, and Asia, endeavouring to obtain the most accurate information in regard to the geography, statistics and political conditions of the countries which he visited. The time of his death is unknown. His great geographical work, in seventeen books, contains a full account of the manners and governments of different people; his materials were derived from his own observations and inquiries, or from the geographical works of Hecatæus, Artemidorus, Eudoxius, and Eratosthenes, now lost, and the writings of historians and poets. His work is invaluable to us. The last editions are those of Siebenkees (continued by Tzschucke, but not completed, Leipsic, 1796—1811, 7 vols.) and of Coray (4 vols., Paris, 1819.) Those of Casaubon (1620, fol.) and Almeloveen (Amsterdam, 1707, 2 vols., fol.) are also highly esteemed.

STRADA, FAMIANUS; an Italian historian, and elegant writer of modern Latin poetry, born at Rome, in 1572. He entered into the society of the Jesuits in 1592, and became professor of rhetoric at the Roman college, where he resided till his death, in 1649. His most famous works are a History of the Wars in the Netherlands, in Latin, and *Prolusiones Academicæ*, which have been repeatedly published. In one of these prolusions, he has introduced ingenious imitations of the style of the most celebrated Roman poets, of which there are many translations, including those published by Addison, in the Guardian.

STRAFFORD, SIR THOMAS WENTWORTH, earl of, an eminent minister and statesman, was the eldest son of Sir William Wentworth, of an ancient family in Yorkshire. He was born in London, in 1593, and entered of St John's college, Cambridge. After leaving the university, he travelled, and, on his return, received the honour of knighthood. The death of his father, in 1614, gave him possession of a large fortune; and he was soon after appointed *custos rotulorum* of the west riding of Yorkshire, in lieu of Sir John Savile. In 1621, he was chosen member of parliament for the county of York; and when Charles I. asserted that the commons enjoyed no rights but by royal permission, Sir Thomas Wentworth, already distinguished for ability, strenuously called upon the house to maintain that their privileges were rights by inheritance. In 1622, he lost his first wife, of the noble family of Clifford, and in 1625, married Arabella, second daughter of Holles, earl of Clare. On the convening of the new parliament, in the same year, he was one of the six popular members who were prevented

serving their country in that assembly, by being appointed sheriffs for their respective counties. He submitted to this arbitrary act in silence; and, soon after, the duke of Buckingham, alarmed at the measures taken against him in parliament, made him overtures, which proved ineffectual, and the favourite revenged himself by obliging him to restore his office of *custos rotulorum* to Sir John Savile. When Charles, among other expedients for raising money, had recourse to a forced general loan, Wentworth refused to pay his contribution, and was first imprisoned in the Marshalsea, and then confined to a range of two miles round the town of Dartford. This restraint was, however, removed when it became necessary to summon a new parliament, in 1628; and he again took his seat for Yorkshire, and became one of the most conspicuous advocates of the petition of right. As he had now proved the strength of his abilities, high terms were offered him by the court, which he finally accepted; and, in 1628, he was created baron Wentworth, and some months afterwards a viscount and privy-counsellor, and on the resignation of lord Scrope, nominated president of the north. The assassination of Buckingham, soon after, freed him from a powerful enemy at court, and he became so influential in the king's council, that his powers in the four northern counties, over which he presided, became enormous; and his commission contained fifty-eight instructions, of which scarcely one did not exceed or violate the common law. In the exercise of this authority, he displayed equal haughtiness, impetuosity, and ability, and, by his strictness in levying exactions, increased the revenue in his district to four or five times the previous amount. Having assiduously cultivated the friendship of archbishop Laud, he was selected by that prelate to proceed to Ireland, as lord-deputy, in 1632. He greatly improved the state of the country, both as regarded law, revenue, and trade (the manufacture of linen being of his own creation); but, at the same time, nothing could be more arbitrary than his system of government, it being his boast that he had rendered the king as absolute in Ireland "as any prince in the whole world could be." On the first symptoms of resistance to the royal authority, he counselled the strongest measures; and after the failure of the king's first expedition against Scotland, he was sent for from Ireland, and created earl of Strafford, and knight of the garter. He returned with the full title of lord lieutenant, with a view to gain subsidies and troops, in which he fully succeeded; and, again repairing to England, took the command in the north, but found himself obliged to retire before the Scottish army, and retreat to York. Charles was now by his necessities obliged to call the long parliament; on which Strafford, aware of the enmity which he had inspired among the popular leaders, wished to return to his government; but the king, hoping that his great talents would be serviceable, encouraged him by a solemn promise that "not a hair of his head should be touched by parliament." Strafford's apprehensions were well founded. The very first movement of the party opposed to arbitrary power, was to impeach him of high treason, with which charge Pym appeared at the bar of the house of lords, November 18, 1640. The articles of impeachment, at first nine in number, were afterwards increased to twenty-eight, the object of which was to convict him of an attempt to subvert the fundamental laws of the country. As in the case of Laud, it was easy to prove that he acted as a friend and promoter of arbitrary measures, but not to substantiate any particular fact to justify a capital charge. Although treated with the extreme of legal rigour, and debarred the assistance of counsel, his own great abilities and force of mind supplied every deficiency; "And never man," says Whitelock, the chairman of the impeaching committee, "acted such a part, on such a theatre, with more wisdom, consistency and eloquence, or with greater reason, judgment and temper." His defence, indeed, was so strong, that the original impeachment was deserted, for the unjustifiable proceeding of a bill of attainder. The bill passed by a great majority: and so great was the animosity borne towards him, that the house of lords was intimidated into compliance. The king, who had imprudently endeavoured to stop the bill by his personal interference, had not sufficient firmness to redeem the pledge of safety which he had previously given, but yielded to the advice of his counsellors, backed by a letter from Strafford himself, who urged him, for his own safety, to ratify the bill. This act has the semblance of being truly heroical; yet it is probable that he did not think that the king would have been swayed by it, since, being assured of the fatal truth, he lifted his eyes to heaven, and, with his hand on his heart, exclaimed, "Put not your trust in princes, nor in the sons of men; for in them there is no salvation." His conduct, from this time to his execution, was in the highest degree composed and noble. At the scaffold, he addressed the people, expressing entire resignation to his fate, and asserting the good intention of his actions, however misrepresented. He fell in the forty-ninth year of his age, lamented by some, admired by more, and leaving behind a memorable but certainly not an unspotted name. The parliament, not long after his death, mitigated his sentence as regarded his children; and in the succeeding reign, his attainder was reversed. He married three times, and, by his second wife, left an only son, and several daughters. See Macdiarmid's *Lives of British Statesmen*.

STRALSUND; a town of Prussian Pomerania, capital of a government of the same name, formerly capital of Swedish Pomerania, on a strait which separates the island of Rugen from the main land; 120 miles east of Hamburg; lon. 13° 32′ E.; lat. 54° 19′ N. population, 15,800. It has a safe and capacious harbour, admitting ships of fifteen feet draught. It was formerly one of the principal Hanse towns. (See *Hansa*.) It has considerable trade. Corn is the principal article of export, of which there are sometimes shipped from 30 to 40,000 quarters. It contains a government house, town house, public library, &c. The aspect is gloomy, the streets narrow, the houses low, built of brick, and remarkable for being pointed at the top. See *Pomerania*.

STRAMONIUM (sometimes called *Jamestown-weed*), a species of *datura*, is now common in waste places throughout the United States, as well as in Europe. It belongs to the *solaneæ*, the same natural family with the tobacco and nightshade, and amply sustains the poisonous character of the tribe. The stem is herbaceous, fleshy, two or three feet high, and branching, furnished with large angular and dentate leaves. The flowers are large, and the corolla funnel-shaped. All parts of the plant exhale a strong and nauseous odour. It is one of the most dangerous of narcotic poisons; and when taken internally, produces vertigo, torpor, and

death. Goats, however, eat it with impunity. In small doses, it has been employed with advantage in convulsive and epileptic affections; and smoking the dried leaves has proved beneficial in asthmatic complaints.

STRAND; a street in London, running from Westminster to London proper. It was formerly the road which connected the two towns, when they were entirely distinct from each other, and received its name from its position along the Thames.

STRANGLES; a disorder which attacks most horses, and generally between the ages of three and five years. When strangles occurs in the stables, and now and then also in the field, it proves a severe disease, and shows itself under the appearance of a cold, with cough, sore throat, swelling of the glands under the jaws, or behind and under the ears. Sometimes there is not much external swelling, and the tumours break inwardly, and nature effects a cure. At others, they break outwardly, and sometimes disperse. When the swelling lingers, poultices are preferable to fomentations. Peal recommends blistering the part, to promote suppuration. The horse should be kept very cool, and bran mashes, with warm water, should be his principal support, unless the complaint last long, and produce much weakness, when malt mashes should be substituted. Bleeding is only advisable when the early symptoms are violent.

STRANRAER. See *Wigtonshire*.

STRAPPADO; a barbarous military punishment, now abandoned. It consisted in having the hands of the offender tied behind his back, by which he was drawn to a certain elevation, by a rope, and then left to run suddenly towards the ground, when, being stopped with a sudden jerk, his shoulders were dislocated. This was also one of the punishments of the inquisition, and of criminals in Italy.

STRASBURG, (anciently *Argentoratum*); a city of France, capital of Lower Rhine, formerly capital of Alsace, situated at the conflux of the Brusche and Ille, half a mile west of the Rhine; lon. 7° 45′ E.; lat. 48° 35′ N.; population, 50,000, of which one third are Protestants. It is an ancient, strong, and commercial city, of semicircular form, built on a plain, and divided into several parts, by canals, over which are several bridges. The houses are chiefly of a red stone, lofty, but often heavy and inelegant, built after the German manner; the language and customs of a majority of the inhabitants being still German. A few streets are wide and straight, but most of them are narrow. The fortifications are extensive, divided into the old and new. The citadel is a regular pentagon, lying to the east, and with its out-works extending almost to the Rhine. Strasburg is a bishop's see, and contains a cathedral, six Catholic churches, seven Lutheran, and one reformed, two hospitals, two theatres, two public libraries, a botanic garden, a medical school, a high school, a royal and a Lutheran academy, or university. The cathedral, or minster, founded in 1015, and not completely finished till 1365, is one of the most distinguished specimens of Gothic architecture existing. Its tower, 474 feet high, is ascended by a stairway of 725 steps, and is a masterpiece of architecture, being built of hewn stone, cut with such nicety as to give it at a distance some resemblance to lace. The tower was planned and begun by Erwin of Steinbach, after whose death, in 1318, it was continued by his brother John. The clock is also a masterpiece of mechanism, for, besides the hour of the day, it describes the motions of the planets. The Protestant church of St Thomas contains a splendid monument, erected by Louis XV. to marshal Saxe. This city is famous in the history of the reformation; and the two principal Protestant seminaries in France are at Strasburg and Montauban. It is favourably situated for trade, in a fertile and well-cultivated country, the Rhine connecting it with Switzerland on the one side, and with Netherlands on the other. The exports are corn, flax, hemp, wine, and spirituous liquors; also linen, sail-cloth, blankets, carpets, hardware, leather, cotton, lace, tobacco, and snuff. Guttenberg is said to have invented the art of printing at Strasburg, in 1436. (See *Printing*). The ancient bishopric of Strasburg, in Alsace, lying on both sides the Rhine, has been secularized, and is now incorporated with France and Baden. (See *Alsace*.) It contained 500 square miles, with a population of 30,000 souls.

STRATEGY (from the Greek στρατηγία, military command, military skill); the art and science of leading armies, the art of conducting military operations; a branch of military science, which has only of late been treated separately, and in a certain sense contradistinguished to tactics, which treats of the mode of disposing troops for battle, of directing them during its continuance, and of all the exercises, arms, &c., necessary to fit them for action. Some writers on strategy have run into extremes, as is usual in treating of subjects whose limits have not been settled. Bülow, for instance, has attempted to reduce this branch of the military art to the geometrical calculation of angles, lines, &c., in his Theory of Modern Warfare—a work which was opposed by Henry de Jomini and other French writers. The latter, in his *Traité des grandes Opérations Militaires*, avoids Bülow's fault of theorizing, and founds his views more on the results of actual experience, especially on the campaigns of Frederic the Great and Napoleon, but falls, in his turn, into partial views, by insisting constantly on the principle of keeping forces concentrated, and leading them by the shortest possible way to meet the enemy. He has forgotten that all armies are not so trained for battle as the troops of those two great generals, and that the forte of all generals does not lie in the conduct of an engagement. His theory of internal lines of operations, therefore, though correct in certain cases, cannot hold good so universally as he represents. Though the principles of Bülow will never be adopted in their whole extent, yet he did considerable service to military science, by directing attention to what is now called strategy, as a particular branch. To the works mentioned in the articles *Bülow* and *Jomini*, we may add the archduke Charles's Principles of Strategy, illustrated by the Description of the Campaign of 1796, in Germany.

STRATFORD UPON AVON; a town in Warwickshire, upon the Avon, ninety-three miles northwest of London, celebrated as the birth-place and burial-place of Shakspeare. The house in which he is said to have been born, is still shown; that in which he resided after his return to Stratford, and died, was pulled down, in 1759, by a clergyman who bought the place a few years before. The same person cut down the famous mulberry tree, planted by Shakspeare. The church contains the monument and bust of Shakspeare. The latter was originally coloured to resemble life, and, in 1793, was painted white, by order of Malone. These coats of paint have much disfigured the characteris-

tic markings of the bust. This monument was erected within seven years after his death, and contains the Latin distich cited in the article *Shakspeare*. On the grave-stone beneath are the following lines, attributed to himself:

> Good friend, for Jesus' sake, forbear
> To dig the dust enclosed here;
> Blest be the man that spares these stones,
> And curst be he that moves my bones.

Stratford on Avon was a place of considerable consequence previous to the conquest, and was famous for a monastery, founded in the reign of Ethelred. It suffered severely by fire in the reign of Elizabeth, by a flood in 1588, and also by the effects of the civil wars between Charles I. and the parliamentary forces. The town is well built and paved, and consists of twelve principal streets. The trade consists chiefly in corn and malt, and considerable quantities of grain and flour are sent to Birmingham and its neighbourhood. The Avon is navigable to the Severn, and a canal opens a communication with the northern parts of the kingdom, since the completion of which the trade has been rapidly improving. The townhall is a fine modern building of the Tuscan order, erected in 1768, and in the following year dedicated to the memory of the immortal bard, by David Garrick, who honoured it with the name of Shakspeare's Hall, and presented a grand statue of the poet, which is placed in a niche at the north end of the building. The principal room is sixty feet long, and thirty wide, and contains whole-length portraits of Queen Anne, John Frederick, Duke of Dorset, Shakspeare, and Garrick. Here are also two public libraries, one of which is called the Shakspearian library, and a neat theatre, built on the site of a part of Shakspeare's garden. Population of the town in 1831, 3,488.

STRATH, in Scotland, is generally understood to mean a valley broader than a dale or glen, which receives its peculiar appellation from a river passing through it, as *Strathbogie*, *Strathspey*, &c., or some particular characteristic, as *Strathmore*, the Great Valley, &c., which traverses Scotland on the south side of the Grampian mountains.

STRATUS. See *Clouds*.

STRAW. In the manufacture of straw hats, the culms of several kinds of grasses are used. The Leghorn straw is the culm of a sort of wheat sown on poor soils, and cut green. Rye straw is much used in this manufacture. The straw is cut at the joints; and the outer covering being removed, it is sorted of equal sizes, and made up into bundles of eight or ten inches in length, and a foot in circumference. They are then to be dipped in water, and shaken a little, so as not to retain too much moisture: the bundles are afterwards to be placed on their edges, for the purpose of bleaching, in a box which is sufficiently close to prevent the evaporation of smoke. In the middle of the box is an earthen dish, containing brimstone, broken in small pieces: this is set on fire, and the box covered over and kept in the open air several hours. It is the business of one person to split and select the straws for fifty others, who are braiders. The splitting is done by a small machine, made principally of wood. The straws, when split, are termed *splints*, of which each worker has a certain quantity: on one end is wrapped a linen cloth, and they are held under the arm, and drawn out as wanted. Plaiters should be taught to use their second fingers and thumbs, instead of the fore-fingers, which are often required to assist in turning the splints, and thus much facilitate the plaiting; and they should be cautioned against wetting the splints too much. The finest hats are made in the neighbourhood of Leghorn, whence they are exported in great numbers. The Dunstable manufacturers in Bedfordshire, England, are of a fine quality. In the English plait, the straws are flattened in a hand mill, previous to working; but in the Leghorn, the pressure is applied after the plaiting is made.

STRAWBERRY (*fragaria*). This is one of the most wholesome and most delicious of our fruits. The pulp is light, melting, and, notwithstanding, but little watery, and does not undergo the acetous fermentation in the stomach. It exhales a most delightful perfume, and the flavour is exquisite, especially immediately after being plucked from the stem. The plant belongs to the natural family *rosaceæ*, together with the rose and raspberry. The root gives out several long, slender, creeping shoots, which take root at intervals, and form so many new stocks; the leaves are composed of three leaflets, supported on a long foot-stalk, which is provided with stipules at the base. From the midst of the leaves arise two or three simple, slender, silky stems, from four to six inches high, and terminated by a few white flowers, disposed in a sort of corymb. After flowering, the receptacle increases, acquires a pulpy and succulent consistence, and finally a red colour, when the strawberries have attained maturity. The strawberry is easily cultivated, and numerous varieties have been produced; some of great excellence have been obtained recently. It forces well, and, with a little trouble in choosing a succession of sorts, may be had almost every month in the year. An open situation, and rich, loamy soil, rather strong, is required for most varieties; and from their large mass of foliage and flowers, they must, till the fruit is set, have copious supplies of water. The row culture is most convenient, and frequent renewal ensures vigorous plants and large fruit. A palatable jam, wine and vinegar are prepared from strawberries; and they are sometimes preserved entire, in sirup or in wine.

STREAKS; the uniform ranges of planks on the bottom or sides of a ship, or the continuations of planks joined by the ends to each other, and reaching from the stem, which limits the vessel forward, to the stern-post and fashion pieces, which terminate her length abaft.

STREETS, PAVEMENT OF. See *Pavement*.

STRELITZ (Russian, *strielzi*, or *strelzi*, guards); the life-guards of the Russian czars, until the reign of Peter the Great. They were instituted in the latter half of the sixteenth century, by Ivan Wasiliewitsch, and formed, also, the standing infantry of the empire, amounting, sometimes, to 40,000 men. Their numerous privileges and their frequent insurrections, rendered them as formidable as the Roman pretorians or the Turkish janizaries. Peter the Great dissolved the corps in 1697, in consequence of an insurrection, put several thousands to death, and banished the rest to Astrachan. Having been guilty of some disturbances here, they were entirely dispersed and destroyed in 1705.

STRENGTH OF MATERIALS. [The following article is extracted from Arnott's *Elements of Physics*.] "*Strength depends on the magnitude, form and position of bodies, as well as on the degree of cohesion in the material.*"—*Of similar bodies the largest is proportionally the weakest.* Suppose two

blocks of stone left projecting from a rock that has been hewn, of which blocks one is twice as long, and deep, and broad, as the other. The larger one will by no means support as much more weight at its end than the other, as it is larger; and for two reasons: 1. In the larger, each particle of the surface of attachment, in helping to bear the weight of the block itself, has to support by its cohesion twice as many particles beyond it, in the double extent of projection, as a particle has to support in the shorter block; and, 2. both the additional substance, and any thing appended at the outer extremity of the larger, are acting with a double lever advantage to break it, that is, to destroy the cohesion. Hence, if any such projection be carried out very far, it will break off or fall by its own weight alone. What is thus true of a block supported at one end, is equally true of a block supported at both ends, and, indeed, of all masses, however supported, and of whatever forms. That a large body, therefore, may have proportionate strength to a smaller, it must be made still thicker and more clumsy than it is made longer; and, beyond a certain limit, no proportions whatever will keep it together, in opposition merely to the force of its own weight. This great truth limits the size and modifies the shape of most productions of nature and of art,—of hills, trees, animals, architectural or mechanical structures, &c.

Hills. Very strong or cohesive material may form hills of sublime elevation, with very projecting cliffs and very lofty perpendicular precipices; and such are seen, accordingly, where the hard granite protrudes from the bowels of the earth, as in the Andes of America, the Alps of Europe, the Himalayas of Asia, and the Mountains of the Moon in Central Africa. But material of inferior strength exhibits more humble risings and more rounded surfaces. The gradation is so striking and constant from granite mountains down to those of chalk, or gravel, or sand, that the geologist can generally tell the substance of which a hill is composed by the peculiarities of its shape. Even in granite itself, which is the strongest of rocks, there is a limit to height and projection; and if an instance of either, much more remarkable than now remains on earth, were by any chance to be produced again, the law which we are considering would prune the monstrosity. The grotesque figures of rocks and mountains seen in the paintings of the Chinese, or actually formed in miniature for their gardens, to express their notions of perfect sublimity and beauty, are caricatures of nature, for which originals can never have existed. Some of the smaller islands in the Eastern ocean, however, and some of the mountains of the chains seen in the voyage towards China, along the coasts of Borneo and Palawan, exhibit, perhaps, the very limits of possibility in singular shapes. In the moon, where the weight of gravity of bodies is less than on the earth, on account of her smaller size, mountains might be many times higher than on the earth; and observation proves that the lunar mountains are much higher than ours. By the action of winds, rains, currents and frost upon the mineral masses around us, there is unceasingly going on an undermining and wasting of supports, so that every now and then immense rocks, or almost hills, are torn by gravity from the station which they have held since the earth received its present form, and fall in obedience to the law now explained.

The size of vegetables, of course, is obedient to the same law. We have no trees reaching a height of 300 feet, even when perfectly perpendicular, and sheltered in forests that have been unmolested from the beginning of time; and oblique or horizontal branches are kept within very narrow limits by the great strength required to support them. The truth that, to have proper strength, the breadth or diameter in bodies must increase more quickly than the length, is well illustrated by the contrast existing between the delicate and slender proportions of a young oak or elm, while yet in the seedsman's nursery, and its sturdy form when it has braved for centuries all the winds of heaven, and has become the monarch of the park or forest.

Animals furnish other interesting illustrations of this law. How massive and clumsy are the limbs of the elephant, the rhinoçeros, the heavy ox, compared with the slender forms of the stag, antelope and greyhound! And an animal much larger than the elephant would fall to pieces from its own weight alone, unless its bones were made of much stronger materials. Many have questioned whether the mammoth, or antediluvian elephant, could have lived on dry land, or must have been amphibious, that its great body might generally be borne up by water. The whale is the largest of animals, but feels not its mighty weight because lying constantly in the liquid support of the ocean. A cat may fall with impunity where an elephant or ox would be dashed to pieces. The giants of the heathen mythology could not have existed upon this earth, for the reason which we are now considering; although on our moon, where, as already stated, weight is much less, such beings might be. In the planet Jupiter, again, which is many times larger than the earth, an ordinary man from hence would be carrying, in the simple weight of his body, a load sufficient to crush the limbs which supported him. The phrase *a little compact man*, points to the fact that such a one is stronger in proportion to his size than a taller man. The same law limits the height and breadth of architectural structures. In the houses of fourteen stories, which formerly stood under the castle of Edinburgh, there was danger of the superincumbent wall crushing the foundation.

Roofs. Westminster hall approaches the limit of width that is possible without very inconvenient proportions or central supports; and the domes of the churches of St Peter, in Rome, and St Paul, in London, are in the same predicament.

Arches of a Bridge. A stone arch much larger than those of the magnificent bridges in London, would be in danger of crushing and splintering its material.

Ships. The ribs of timbers of a boat have scarcely a hundredth part of the bulk of the timbers of a ship ten times as long as the boat. A ship's yard of ninety feet contains, perhaps, twenty times as much wood as a yard of thirty feet, and, even then, is not so strong in proportion. If ten men may do the work of a three-hundred-ton ship, many more than three times that number will be required to manage a ship three times as large. Very large ships, such as the two built in Canada in the year 1825, which carried each nearly 10,000 tons, are weak from their size alone; and the loss of these two first specimens of gigantic magnitude will not encourage the building of others like them.

The degree in which the strength of structures is dependent on the form and position of their parts, will be illustrated by considering the two cases of longitudinal and transverse compression; and the

rule for giving strength will be found to be, to cause the force tending to destroy, to act, as equally as may be, on the whole resisting mass, at the same time, and with as little mechanical advantage as possible. In *longitudinal compression*, as produced by a body on the top of a pillar, the weight, while the support remains straight, can only destroy the support by crushing it in opposition to the repulsion and impenetrability of all its atoms. Hence a very small pillar, if kept perfectly straight, supports a very great weight; but a pillar originally crooked, or beginning to bend, resists with only part of its strength; for the whole weight above is supported on the atoms of the concave side only, which are therefore in greater danger of being overpressed and crushed, while those on the convex side, separated from their natural helpmates, are in the opposite danger of being torn asunder. The atoms near the centre, in such a case, are almost neutral, and might be absent without the strength of the pillar being much lessened. Long pillars or supports are weaker than short ones, because they are more easily bent; and they are more easily bent because a very inconsiderable, and therefore easily affected, yielding between each two of many atoms, makes a considerable bend in the whole; while in a very short pillar, there can be no bending without a great change in the relation of proximate atoms, and such as can be effected only by great force. The weight or force bending any pillar may be considered as acting at the end of a long lever, reaching from the end of the pillar to its centre, against the strength resisting at a short lever from the side to the centre. The strength, therefore, has relation to the difference between these. Shortness, then, or any stay or projection at the side of the pillar, which, by making the resisting lever longer, opposes bending, really increases the strength of a pillar. A column with ridges projecting from it is, on this account, stronger than one that is perfectly smooth. A hollow tube of metal is stronger than the same quantity of metal in a solid rod, because its substance, standing farther from the centre, resists with a longer lever. Hence pillars of cast-iron are generally made hollow, that they may have strength with as little metal as possible. In the most perfect weighing-beams for delicate purposes, that there may be the least possible weight with the required strength, the arms, instead of being of solid metal, are hollow cones, in which the metal is not much thicker than writing paper. Masts and yards for ships have been made hollow, in accordance with the same principle. In nature's works, we have to admire numerous illustrations of the same class. The stems of many vegetables, instead of being round externally, are ribbed or angular and fluted, that they may have strength to resist bending. They are hollow, also, as in cornstalks, the elder, the bamboo of tropical climates, &c., thereby combining lightness with their strength. A person who visits the countries where the bamboo grows, cannot but admire the almost endless uses to which its straightness, lightness and hollowness, make it applicable among the inhabitants. Being found of all sizes, it has merely to be cut into pieces of the lengths required for any purpose; and nature has already been the turner, and the polisher, and the borer, &c. In many of the Eastern islands, bamboo is the chief material of the ordinary dwellings, and of the furniture,—the tasteful chairs, couches, beds, &c. Flutes and other wind instruments there are merely pieces of the reed, with holes bored at the requisite distances. Conduits for water are pipes of bamboo; bottles and casks for preserving liquids are single joints of larger bamboo, with their partitions remaining; and bamboo, split into threads, is twisted into rope, &c. From the animal kingdom, also, we have illustrations of our present subject—the hollow stiffness of the quills of birds; the hollow bones of birds; the bones of animals generally, strong and hard, and often angular externally, with light cellular texture within, &c.—*Transverse Pressure.* When a horizontal beam is supported at its extremities, its weight bends it down more or less in the middle, the particles on the upper side being compressed, while the parts below are distended; and the bending and tendency to break are greater, according as the beam is longer and its thickness or depth *is less*. The danger of breaking, in a beam so situated, is judged of, by considering the destroying force as acting by the long lever reaching from the end of the beam to the centre, and the resisting force or strength as acting only by the short lever from the side to the centre, while only a little of the substance of the beam on the under side is allowed to resist at all. This last circumstance is so remarkable, that the scratch of a pin on the under side of a plank resting as here supposed, will sometimes suffice to begin the fracture. Because the resisting lever is small in proportion as the beam is thinner, a plank bends and breaks more readily than a beam, and a beam resting on its edge bears a greater weight than if resting on its side. Where a single beam cannot be found deep enough to have the strength required in any particular case—as for supporting the roof of a house—several beams are joined together, and in great variety of ways, as is seen in house-rafters, &c., which, although consisting of three or more pieces, may be considered as one very broad beam, with those parts cut out which do not contribute much to the strength.—The *arched form* bears transverse pressure so admirably, because, by means of it, the force that would destroy, is made to compress all the atoms or parts at once, and nearly in the same degree. The atoms on the under side of an arch, resting against immovable abutments, must be compressed about as much as those on the upper side, and cannot therefore be torn or overcome separately. The whole substance of the arch, therefore, resists, almost like that of a straight pillar under a weight, and is nearly as strong. To be able to adapt the curve to the size of an arch, and to the nature of the material, requires in the architect a perfect acquaintance with measures, &c. An error which has been frequently committed by bridge-builders is, the neglecting to consider sufficiently the effect of the horizontal thrust of the arch on its piers. Each arch is an engine of oblique force, pushing the pier away from it. In some instances, one arch of a bridge falling, has allowed the adjoining piers to be pushed down towards it, by the thrust, no longer balanced, of the arches beyond, and the whole structure has given way at once, like a child's bridge built of cards. It is not known at what time the arch was invented, but it was in comparatively modern times. The hint may have been taken from nature; for there are instances, in alpine countries, of natural arches, where rocks have fallen between rocks, and have there been arrested and suspended, or where burrowing water has at last formed a wide passage under masses of rock, which remain balanced, among themselves, as an

arch above the stream. Nothing can surpass the strength and beauty of some modern stone bridges—those, for instance, which span the Thames as it passes through London. Iron bridges have been made with arches twice as large as those of stone, the material being more tenacious, and calculated to form a lighter whole. That of three fine arches, between the city of London and Southwark, is a noble specimen; and, compared with the bridges of half a century ago, it appears almost a fairy structure of lightness and grace. The great domes of churches, as those of St Peter's in Rome and St Paul's in London, have strength on the same principle as simple arches. They are, in general, strongly bound at the bottom with chains and iron bars, to counteract the horizontal thrust of the superstructure. The Gothic arch is a pointed arch, and is calculated to bear the chief weight on its summit or key-stone. Its use, therefore, is not properly to span rivers as a bridge, but to enter into the composition of varied pieces of architecture. With what effect it does this, is seen in the truly sublime Gothic structures which adorn so many parts of Europe. The following are instances, in smaller bodies, of strength obtained by the arched form: A thin watchglass bears a very hard push; a dished or arched wheel for a carriage is many times stronger to resist all kinds of shocks than a perfectly flat wheel; a full cask may fall with impunity where a strong square box would be dashed to pieces; a very thin globular flask or glass, corked and sent down many fathoms into the sea, will resist the pressure of water around it, where a square bottle, with sides of almost any thickness, would be crushed to pieces. We have an illustration, from the animal frame, of the arched form giving strength, in the cranium or skull, and particularly in the skull of man, which is the largest in proportion to its thickness: the brain required the most perfect security, and by the arched form of the skull, this has been obtained with little weight. The common egg-shell is another example of the same class: what hard blows of the spoon or knife are often required to penetrate this wonderful defence provided for the dormant life! The weakness of a similar substance, which has not the arched form, is seen in a scale from a piece of freestone, which so readily crumbles between the fingers. To determine, for particular cases, the best forms of beams and joists, and of arches, domes, &c., is the business of strict calculation, and belongs, therefore, to mathematics, or the science of measures. It was a beautiful problem of this kind, which Mr Smeaton solved so perfectly in the construction of the far-famed Eddystone light-house. See *Light-House*.

STRENGTH, FEATS OF. Doctor Brewster, in his work on *Natural Magic*, gives some striking instances of muscular strength, and also of the effects produced by applying the principles of the mechanical powers to the human frame, from which we extract the following:—Firmus, a native of Seleucia, who was executed by the emperor Aurelian for espousing the cause of Zenobia, was celebrated for his feats of strength. In his account of the life of Firmus, who lived in the third century, Vopiscus informs us, that he could suffer iron to be forged upon an anvil placed upon his breast. In doing this, he lay upon his back, and, resting his feet and shoulders against some support, his whole body formed an arch, as we shall afterwards more particularly explain. Until the end of the sixteenth century, the exhibition of such feats does not seem to have been common. About the year 1703, a native of Kent, of the name of Joyce, exhibited such feats of strength in London and other parts of England, that he received the name of the *second Samson*. His own personal strength was very great; but he had also discovered, without the aid of theory, various positions of the body, in which men even of common strength could perform very surprising feats. He drew against horses, and raised enormous weights; but as he actually exhibited his power in ways which evinced the enormous strength of his own muscles, all his feats were ascribed to the same cause. In the course of eight or ten years, however, his methods were discovered, and many individuals of ordinary strength exhibited a number of his principal performances, though in a manner greatly inferior to Joyce. Some time afterwards, John Charles van Eckeberg, a native of Harzegerode, in Anhalt, travelled through Europe, under the appellation of *Samson*, exhibiting very remarkable examples of his strength. This, we believe, is the same person whose feats are particularly described by doctor Desaguliers. He was a man of the middle size, and of ordinary strength; and, as doctor Desaguliers was convinced that his feats were exhibitions of skill, and not of strength, he was desirous of discovering his methods; and, with this view, he went to see him, accompanied by the marquis of Tullibardine, doctor Alexander Stuart, and doctor Pringle, and his own mechanical operator. They placed themselves round the German so as to be able to observe accurately all that he did; and their success was so great, that they were able to perform most of the feats the same evening by themselves, and almost all the rest when they had provided the proper apparatus. Doctor Desaguliers exhibited some of the experiments before the royal society, and has given such a distinct explanation of the principles on which they depend, that we shall endeavour to give a popular account of them. 1. The performer sat upon an inclined board with his feet a little higher than his hips. His feet were placed against an upright board well secured. Round his loins was placed a strong girdle with an iron ring in front. To this ring a rope was fastened. The rope passed between his legs through a hole in the upright board, against which his feet were braced, and several men or two horses, pulling on the rope, were unable to draw him out of his place. 2. He also fastened a rope to a high post, and, having passed it through an iron eye fixed in the side of the post some feet lower down, secured it to his girdle. He then planted his feet against the post near the iron eye, with his legs contracted, and, suddenly stretching out his legs, broke the rope, and fell backwards on a feather bed. 3. In imitation of Firmus, he laid himself down on the ground, and when an anvil was placed upon his breast, a man hammered with all his force a piece of iron, with a sledge-hammer, and sometimes two smiths cut in two with chissels a great cold bar of iron laid upon the anvil. At other times, a stone of huge dimensions was laid upon his belly, and broken with a blow of the great hammer. 4. The performer then placed his shoulders upon one chair, and his heels upon another, forming with his backbone, thighs, and legs, an arch. One or two men then stood upon his belly, rising up and down while the performer breathed. A stone one and a half feet long, one foot broad, and half a foot thick, was then laid upon his belly and broken by a sledge-

hammer—an operation which was performed with much less danger than when his back touched the ground. 5. His next feat was to lie down on the ground. A man being then placed on his knees, he drew his heels towards his body, and, raising his knees, he lifted up the man gradually, till, having brought his knees perpendicularly under him, he raised his own body up, and, placing his arms around the man's legs, rose with him, and set him down on some low table or eminence of the same height as his knees. This feat he sometimes performed with two men in place of one. 6. In his last, and apparently most wonderful performance, he was elevated on a frame work, and supported a heavy cannon placed upon a scale at some distance below him, which was fixed to a rope attached to his girdle. Previous to the fixing of the scale to the rope attached to his girdle, the cannon and scale rested upon rollers; but when all was ready, the rollers were knocked away, and the cannon remained supported by the strength of his loins. These feats may be briefly explained thus:—The feats No. 1, 2, and 6, depend entirely on the natural strength of the bones of the pelvis, which form a double arch, which it would require an immense force to break, by any external pressure directed to the centre of the arch; and as the legs and thighs are capable of sustaining four or five thousand pounds when they stand quite upright, the performer has no difficulty in resisting the force of two horses, or in sustaining the weight of a cannon weighing two or three thousand pounds. The feat of the anvil is certainly a very surprising one. The difficulty, however, really consists in sustaining the anvil; for when this is done, the effect of the hammering is nothing. If the anvil were a thin piece of iron, or even two or three times heavier than the hammer, the performer would be killed by a few blows; but the blows are scarcely felt when the anvil is very heavy, for the more matter the anvil has, the greater is its enertia, and it is the less liable to be struck out of its place; for when it has received by the blow the whole momentum of the hammer, its velocity will be so much less than that of the hammer as its quantity of matter is greater. When the blow, indeed, is struck, the man feels less of the weight of the anvil than he did before. because, in the reaction of the stone, all the parts of it round about the hammer rise towards the blow. This property is illustrated by the well-known experiment of laying a stick with its ends upon two drinking glasses full of water, and striking the stick downwards in the middle with an iron bar. The stick will in this case be broken without breaking the glasses or spilling the water. But if the stick is struck upwards, as if to throw it up in the air, the glasses will break if the blow be strong, and if the blow is not very quick, the water will be spilt without breaking the glasses. When the performer supports a man upon his belly, he does it by means of the strong arch formed by his back-bone and the bones of his legs and thighs. If there were room for them, he could bear three or four, or, in their stead, a great stone, to be broken with one blow. A number of feats of real and extraordinary strength were exhibited about a century ago, in London, by Thomas Topham, who was five feet ten inches high, and about thirty-one years of age. He was entirely ignorant of any of the methods for making his strength appear more surprising; and he often performed by his own natural powers what he learned had been done by others by artificial means. A distressing example of this occurred in his attempt to imitate the feat of the German Samson by pulling against horses. Ignorant of the method which we have already described, he seated himself on the ground, with his feet against two stirrups, and by the weight of his body he succeeded in pulling against a single horse; but in attempting to pull against two horses, he was lifted out of his place, and one of his knees was shattered against the stirrups, so as to deprive him of most of the strength of one of his legs. The following are the feats of real strength which doctor Desaguliers saw him perform:—1. Having rubbed his fingers with coal ashes to keep them from slipping, he rolled up a very strong and large pewter plate. 2. Having laid seven or eight short and strong pieces of tobacco-pipe on the first and third finger, he broke them by the force of his middle finger. 3. He broke the bowl of a strong tobacco-pipe, placed between his first and third finger, by pressing his fingers together sideways. 4. Having thrust such another bowl under his garter, his legs being bent, he broke it to pieces by the tendons of his hams, without altering the bending of his leg. 5. He lifted with his teeth, and held in a horizontal position for a considerable time, a table six feet long, with half a hundred weight hanging at the end of it. The feet of the table rested against his knees. 6. Holding in his right hand an iron kitchen poker three feet long and three inches round, he struck upon his bare left arm, *between* the elbow and the wrist, till he *bent the poker* nearly to a right angle. 7. Taking a similar poker, and holding the ends of it in his hands, and the middle against the back of his neck, he brought both ends of it together before him; and he then pulled it almost straight again. This last feat was the most difficult, because the muscles which separate the arms horizontally from each other, are not so strong as those which bring them together. 8. He broke a rope about two inches in circumference, which was partly wound about a cylinder four inches in diameter, having fastened the other end of it to straps that went over his shoulder. 9. Doctor Desaguliers saw him lift a rolling stone of about 800 pounds weight with his hands only, standing in a frame above it, and taking hold of a frame fastened to it. Hence doctor Desaguliers gives the following relative view of the strengths of individuals.

Strength of the weakest men, ...	125 lbs.
Strength of very strong men, ...	400 —
Strength of Topham, ...	800 —
The weight of Topham was about . .	200 —

One of the most remarkable and inexplicable experiments relative to the strength of the human frame, is that in which a heavy man is raised with the greatest facility, when he is lifted up the instant that his own lungs and those of the persons who raise him are inflated with air. The heaviest person in the party lies down upon two chairs, his legs being supported by the one and his back by the other. Four persons, one at each leg, and one at each shoulder, then try to raise him; and they find his dead weight to be very great, from the difficulty they experience in supporting him. When he is replaced in the chair, each of the four persons takes hold of the body as before, and the person to be lifted gives two signals by clapping his hands. At the first signal, he himself and the four lifters begin to draw a long and full breath; and when the inhalation is completed, or the lungs filled, the

second signal is given for raising the person from the chair. To his own surprise and that of his bearers, he rises with the greatest facility, as if he were no heavier than a feather. When one of the bearers performs his part ill, by making the inhalation out of time, the part of the body which he tries to raise is left, as it were, behind. Among the remarkable exhibitions of mechanical strength and dexterity, we may enumerate that of supporting pyramids of men. This exhibition is a very ancient one. It is described, though not very clearly, by the Roman poet Claudian; and it has derived some importance in modern times, in consequence of its having been performed in various parts of Great Britain by the celebrated traveller Belzoni, before he entered upon the more estimable career of an explorer of Egyptian antiquities. The simplest form of this feat consists in placing a number of men upon each other's shoulders, so that each row consists of a man fewer, till they form a pyramid terminating in a single person, upon whose head a boy is sometimes placed with his feet upwards.

STRETTO (*Italian*) signifies, in music, that the movement to which it is prefixed is to be performed in a quick concise manner.

STRIKE; a measure of capacity, containing four pecks.

STRIKE, among seamen, is a word variously used. When a ship, in a fight, or on meeting with a ship of war, lets down or lowers her top-sails at least half mast high, she is said to *strike*, meaning that she yields, or submits or pays respect to the ship of war. Also, when a ship touches ground in shoal water, she *strikes*. And when a top-mast is to be taken down, the word of command is, *Strike the top-mast*, &c.

STROGANOFF; a distinguished Russian family, descended from a merchant, Anika Stroganoff, who, in the sixteenth century, resided at Solwytschegodzka, and gave rise to the discovery of Siberia. The czar Ivan granted to Jacob and Gregory Stroganoff the desert country along the Kama, from Perm to the Sstilwa river, and on the banks of the Tschussowa. They were originally fur-traders, but, to defend themselves against the Siberian and Nogaian robbers, were allowed to build forts, and collect troops. They also administered justice, suppressed insurrections, and, in fact, protected the north-east of Russia. They had extended the Muscovite territory to the chain of the Ural; and when the Mongolian conqueror of Siberia, Kutschjum, intended to destroy the settlements of the Stroganoffs, on the Kama, they received, May 30, 1574, a grant of the enemy's country, which allowed them to settle on the banks of the Tobol, to wage war with Kutschjum, and to work mines. They offered five bands of robbers, commanded by revolted Cossack hetmanns, employment in their service, urging them to give up their dishonest mode of life. Thus the Cossack Jermack, and his companions were induced to leave the Wolga, and, being joined by many additional forces collected by the Stroganoffs, entered Siberia. The country was conquered after three battles, the taking of Kutschjum's camp by storm. The capital, Sibir, was captured, October 26, 1581. (See the *Chronicle of the Stroganoffs*, Müller's *History of Siberia* (in German), and Karamsin's *History of Russia*.) A descendant of Anika, baron Gregory Stroganoff, since 1827 a member of the council of the Russian empire, is proprietor of the important salt and iron works in Perm, established by his ancestors. From 1805 to 1808, he was Russian ambassador at Madrid; afterwards at Stockholm, and in the memorable period of 1821, at Constantinople, where he distinguished himself by talent, firmness, and humanity, in the most critical conjunctures, and laboured strenuously to protect the Greeks and the Greek church.

STROKE OF THE SUN (*coup de soleil*). When the direct rays of the sun, during the hot season of the year, are allowed to strike for some time upon the skin, an inflammation is produced, accompanied with blisters and sharp pains. After a few days, the inflammation ceases, and the epidermis peels off. If the head is exposed to the sun, the brain is sometimes affected in a similar manner. The blood collects in great quantities, the vessels become swollen, the face and eyes appear red, and violent pains in the head follow. A feverish heat pervades the whole body; lethargy, or suffering which prevents sleep, apoplexy, with or without extravasation of blood, or an inflammation of the blood ensues, and often terminates fatally. Exposure by sleeping in the sun is particularly dangerous.

STROMBOLI. See *Lipari Islands*.

STRONG BEER. See *Brewing*.

STRONTITES; a peculiar earth, discovered in 1793, and thus named by doctor Hope of Edinburgh, in allusion to its having been first noticed in a mineral first brought from Strontian, in Argyleshire. Klaproth examined the mineral the same year, without a knowledge of the experiments of doctor Hope, and called the earth *strontian*. Pure strontites is of a greyish-white colour, possesses a pungent, acrid taste, and when powdered in a mortar, the dust which rises irritates the lungs and nostrils. It is an unusually heavy earth, approaching barytes in specific gravity. It requires rather more than 160 parts of water at 60° to dissolve it; but of boiling water much less. On cooling, it crystallizes in thin, transparent, quadrangular plates, seldom exceeding a quarter of an inch in length, and frequently adhering together. These crystals contain about 68 parts in 100 of water; are soluble in little more than twice their weight of boiling water. The solution of strontites has the property of converting vegetable blues to green. It tinges the flame of a candle of a beautiful red colour. The experiment may be made by putting a little of the salt composed of nitric acid and strontites into the wick of a lighted candle, or by setting fire to alcohol holding muriate of strontites in solution.* Sir H. Davy decomposed this earth by means of the same processes as he employed in the decomposition of the other earths. To the metallic base of it he gave the name of *strontium*, which is a white, solid metal, much heavier than water, and bears a close resemblance to barium in its properties. When exposed to the air, or when thrown into water, it rapidly absorbs oxygen, and is converted into strontian. The salts of strontites are in general more soluble than the salts of barytes, but less so than the salts of lime. The *sulphate* of strontites is of a pure white colour, and is not sensibly soluble in water. *Anhydrous nitrate* of strontites may be prepared by dissolving carbonate of strontites in nitric acid, evaporating the solution to dryness, re-dissolving and evaporating slowly, till the salt crystallizes. It crystallizes

* The beautiful red fire, which is now so frequently used at the theatres, is composed of the following ingredients:—forty parts dry nitrate of strontites, thirteen parts of finely powdered sulphur, five parts of chlorate of potash, and four parts of sulphuret of antimony. No other kind of mixture than rubbing together on a paper is required.

in regular octahedrons, which are perfectly transparent. It is soluble in little more than its own weight of water, at the temperature of 60°; but it is insoluble in alcohol. The *hydrous nitrate* of strontites is formed occasionally, when a solution of nitrate of strontites, sufficiently concentrated, is set aside for crystallization. Its crystals are oblique, rhombic prisms. About one quarter of its weight is water. The *carbonate* of strontites is slightly soluble in water impregnated with carbonic acid. It is easily formed by pouring an alkaline carbonate into a solution of nitrate of strontites. *Muriate* of strontites is formed by dissolving carbonate of strontites in muriatic acid, and concentrating the solution till it crystallizes. The crystals are very long needles, consisting, most commonly, of six-sided prisms. Water, at the temperature of 60°, dissolves one and a half times its weight of this salt. Boiling water dissolves any quantity whatever. The crystals slowly deliquesce in a moist atmosphere, When heated, they undergo the watery fusion, and then are reduced to a white powder. In a strong red heat, it melts into liquid.

Native salts of strontites.—1. *Celestine* is found in right rhombic prisms of 104°—the primitive form of the species—which are sometimes terminated by dihedral summits, and also have their acute lateral edges truncated, besides presenting various other partial modifications. Cleavage takes place readily, parallel with all the faces of the primary figure; lustre vitreous, inclining to resinous, sometimes, also, a little to pearly, upon the lateral faces of the prism; colour white, passing to sky and smalt-blue; also reddish-white; transparent or translucent; brittle; hardness between calcareous spar and fluor; specific gravity 3·8. Besides occurring in perfect crystals, celestine is found in broad, foliated, in columnar and fibrous masses, as well as compact; the latter, however, appears to be a mixture of celestine and common limestone. It is composed of strontites 56, and sulphuric acid 42. Before the blow-pipe, it decrepitates and melts, without perceptibly colouring the flame, into a white friable enamel. Reduced to powder, it phosphoresces upon red-hot iron. Celestine is most commonly found in kidney-shaped masses, disseminated through the more recent limestones, sandstones, and amygdaloidal rocks. It also occurs in gypsum rocks, along with marl. Beautiful crystals, of a prismatic form and massive columnar varieties, occur in the sulphur mines of Sicily; also, under the same circumstances, at Bex in Switzerland, and near Cadiz, in Spain. Tabular crystals and lamellar masses are found at Monte Viale, and in the Bristol channel in England. But the most magnificent crystals come from Strontian island, in lake Erie. Handsome, blue foliated specimens are also found at Lockport, in New York. It is also found in several other countries.

2. *Strontianite* is found regularly crystallized in the form of six-sided prisms, modified on the edges, and terminated in a pyramid. It affords, on cleavage, a right rhombic prism for its primary form, whose angles are 117° 32′ and 62° 28′. But regular crystals are very uncommon. Lustre vitreous, slightly inclining to resinous; colour asparagus or apple-green, pale yellowish-brown, yellow and gray; white; streak white; transparent or translucent; hardness intermediate between calc-spar and fluor; specific gravity 3·6. Strontianite is found, for the most part, in fibrous masses, the fibres slightly diverging. It is composed of

Strontites,	69·50
Carbonic acid,	30·00
Water,	·50
	100·00

It is soluble with effervescence in the muriatic and nitric acids; and paper dipped into this solution and afterwards dried, will burn with a red flame. It melts before the blow-pipe, and intumesces, at the same time phosphorescing with a red light. It is dissolved by borax, with a violent effervescence, into a clear globule. Strontianite occurs in metallic veins, traversing primitive and transition mountains. It is found at Strontian, in Scotland; at Briiunsdorf, in Saxony; at Leogang, in Salzburg; and also in Peru.

STROPHADES; four small, rocky islands in the Mediterranean, west of the Peloponnesus; according to the ancient poets, the residence of the Harpies. The largest abounds in olives and other fruits, and produces a little corn, hardly sufficient for its few inhabitants; 26 miles south of Zante; lon. 21° 12′ E.; lat. 37° 29′ N.

STROPHE (from the Greek στρεφω, from στρεφω, I turn); a systematic union of several verses. According to the prevailing metre in the verses, strophes are called *Alcaic*, *Asclepiadæan*, &c. The dithyrambus with the Greeks was confined to no precise rhythm, and rolled along without any division into strophes. But the hymns and choruses, with which the tragedies were interspersed, consisted mostly of long strophes and antistrophes, of uniform measure, with which, also, sometimes alternate pro-odes, mesodes, or epodes, of various measure. The single verses of such poems, considered as mere members of strophes, were called *cola*. As the length of the verses is determined by the number of feet, so the length of strophes is determined by the number of cola. *Monocola* are lyric poems, in which verse of a uniform character is used, without division into strophes. *Dicola* are poems in which the strophes contain verses of but two different kinds. Sometimes these verses interchange in equal number: sometimes two or three verses of the same kind are followed by one of a shorter measure. So there are *tricola*, *tetracola*, &c. The system of strophes, antistrophes, &c., appears to be most developed in the dramatic choruses of the Greeks. The singing of the strophes on the stage, was accompanied with a motion or turn from right to left, towards the images of the gods placed on the sides of the orchestra (in the ancient sense of this word); but the singing of the antistrophe, with a contrary motion, from the left to the right; hence the appellations of *strophe* and *antistrophe*, which seems to have been given to these performances of the dramatic chorus alone, as *ode* and *antode* were applied to the song, unaccompanied with mimic representations. The chorus originally consisted of fifty persons, but, by degrees, reduced to fifteen, was sometimes divided, for the purpose of singing the strophe and antistrophe, into two semi-choruses. In the epode, these were again united. The motions were those of a rhythmic dance, and therefore accompanied by flutes, by which the movement of the verse and that of the dancers were made to harmonize, as appears from the circumstance that the leader of the chorus beat, or indicated time, with shoes, the soles of which were covered with iron.

STROZZI, Philip, a celebrated Florentine patriot, one of the richest citizens of Florence in the early part of the sixteenth century, was allied by marriage with the Medici, but was too much attached to the ancient republican constitution to

acquiesce in the domination of that house. When the sovereignty was assumed by Alessandro de' Medici, he joined the party which aimed at restoring a free government. Their application for support, to the emperor Charles V., being unattended to, Strozzi induced Lorenzo de' Medici to assassinate the duke. The only result of this action was the immediate succession of Cosmo, whom he opposed at the head of a body of troops; but, being defeated at the battle of Marona, he was made prisoner. Apprehending that he would be put to the torture, to force a disclosure of his accomplices, he anticipated the trial by a voluntary death, with a poniard. Having first traced, with the point of it, the line from Virgil—*Exoriare aliquis nostris ex ossibus ultor!*—he pierced his breast and immediately expired (1538).

STRUENSEE AND BRANDT. John Frederic, count of Struensee, born at Halle, in 1737, after having completed his medical studies, entered upon the practice of physic at Altona, where he formed an acquaintance with the count of Rantzau-Aschberg and Brandt. In 1768, he received the appointment of physician to Christian VII., king of Denmark, whom he accompanied on his travels though Germany, England and France. After Christian's marriage with Caroline Matilda, a coolness arose between the royal pair, of which the queen dowager took advantage to promote the interests of her son, Christian's half brother. The birth of a crown prince, (*Frederic VI.*), widened the breach between Caroline and the queen-dowager, without reconciling Christian to his wife. The nation was divided into two great parties—that of the king, at the head of which was the young count Holk, the royal favourite, and that of the queen-dowager, at Friedensburg. Caroline Matilda aimed at effecting the removal of Holk, with the hope of regaining the king's favour, while Holk endeavoured to increase the distance between her and the king. Thinking Struensee to be as warmly opposed to the queen as he was himself, he advised Christian to employ him in his messages to the queen. But this proved the ruin of Holk: the king became more and more attached to Struensee, and the queen, who observed the change, and contrasted the respectable deportment of Struensee with the arrogance of the favourite, soon admitted him to her confidence; and he effected a reconciliation between her and the king. Struensee now pursued his ambitious plans with redoubled zeal. Bernstorf was removed; Brandt succeeded Holk as director of the theatre and *maitre des plaisirs*, and the friends of the queen were brought into office. To secure his influence, Struensee endeavoured to occupy the king with amusements, and particularly to prevent him from communicating directly with his ministers. In 1770, at the instigation of Struensee, the king abolished the council of state, establishing, in place of it, a committee of conference, consisting of the heads of the different departments of the administration, who were only occasionally assembled, and had neither rank nor influence. This measure threw all authority into the hands of the queen and the favourite, and roused the indignation of the Danish nobility, which had enjoyed a seat and vote in the council. Struensee next procured the removal of the old ministers; and all affairs were now administered in the name of the king, by his personal attendants. But the favourite had neither prudence nor firmness to support him in this situation. He became overbearing and impatient of contradiction, and attempts to introduce reformations in the finances, the army, law, &c., raised him up many enemies. He now caused himself to be created count, and, not satisfied with this, procured the dignity of cabinet-minister, with such powers as no Danish minister had ever before possessed. When his enemies attempted to expose his usurpations, the freedom of the press, which he had himself introduced, was subjected to restrictions. But the friends of Struensee were already becoming indisposed towards him, and the people began to show symptoms of dissatisfaction. Struensee was conscious of his danger, and took some precautions to defend himself. But on the night of January 16, 1772, the queen, the favourite, Brandt, and their other partisans, were seized. The officer who commanded the guard (an old enemy of Struensee) had led his officers into the palace, declaring that the king had commanded him to arrest the queen. Count Rantzau-Aschberg then penetrated to the chamber of the king, waked him, and told him that his life was in danger, and that he must sign an order, which the count presented to him. The feeble king obeyed, and the queen was conducted to Kronenburg. An extraordinary commission was instituted for the trial of Struensee, consisting in part of his personal enemies. The proceedings were pushed with severity; and, on the 25th of April, he was condemned to loose his right hand and his head, his body to be quartered and exposed upon the wheel, and his head and hand to be stuck upon a stake. When informed that the king had confirmed the sentence, he received the news with composure, and was executed on the 28th of April, 1772.—See Höst's *Count Struensee and his Ministry* (in Danish, 1824, and more complete in German, 1826), and *Mémoires de Falkenskiold* (Paris, 1826).

STRUTT, JOSEPH, an English antiquary, born in 1749, at Springfield, in Essex, was articled to an engraver, and obtained the gold and silver medals of the royal academy. He published, in 1773, his work entitled the Regal and Ecclesiastical Antiquities of England (4to.), containing representations of the English monarchs from Edward the Confessor to Henry VIII. This was followed by *Horda Angel Cynnan*, or a complete view of the manners, customs, arms, habits, &c., of the English, from the arrival of the Saxons to the times of Henry VIII., &c. (1774, 1775 and 1776, 3 vols. with 157 plates). In 1777 and 1778, he published a Chronicle of England, which he meant to extend to six volumes, but dropped the design for want of encouragement. His Biographical Dictionary of Engravers appeared in 1785 and 1786, in two vols., and his Complete View of the Dresses and Habits of the People of England, &c., in 1796 and 1799 (4to.). In 1801, he published his last and favourite work, entitled the Sports and Pastimes of the People of England (with forty plates, new octavo edition, with 140 plates, 1827.) He died in London, in October, 1802, aged fifty-three. His modest character scarcely met, during his life-time, with the encouragement it deserved. He left some manuscripts, from which have since been published his Queen Hoo Hall, a romance, and Ancient Times, a drama (4 vols. 12mo.); also the Test of Guilt, or Traits of Ancient Superstition, a dramatic tale.

STRYCHNIA; a vegetable alkali, found in the fruit of two species of the *strychnos*. It is obtained by the following process: The bean is rasped down

as small as possible, and exposed to the action of nitric ether in a Papin's digester. What remains after the digestion is treated with alcohol, and the alcohol is evaporated to dryness, and the residue dissolved in water. To the aqueous solution potash is added, which throws down the strychnia in the form of a white crystalline precipitate. This alkali has also been extracted from the upas poison. The properties of strychnia, in a state of perfect purity, are as follows: It has a crystalline structure (often presenting four-sided prisms, terminated by four-sided pyramids), is of a white colour, has an intolerably bitter taste, and leaves a metallic impression in the mouth; it is destitute of odour, and is not altered by exposure to the air; it is neither fusible nor volatile, except at temperatures at which it undergoes decomposition. It is very little soluble in cold water, 100,000 parts of that liquid dissolving only fifteen parts of the alkali; but it dissolves in 2500 times its weight of boiling water. When it is introduced into the stomach, it acts with prodigious energy. A locked jaw is induced in a very short time, and the animal is speedily destroyed. Half a grain of strychnia blown into the throat of a rabbit, proved fatal in five minutes, and brought on locked jaw in two minutes. A great variety of salts of this alkali may be obtained by treating it with the different acids, and by double decomposition. Sulphate of strychnia crystallizes in cubes, and is soluble in less than ten times its weight of cold water. It consists of sulphuric acid 90·5 and strychnia 9·5. Muriate of strychnia crystallizes in very small needles, and is more soluble in water than the sulphate. Nitrate of strychnia acts with more violence upon animals than the pure alkali. Solutions of the salts of strychnia, when exposed to a heat of 212°, become volatile.

STRYPE, JOHN, a voluminous contributor to English ecclesiastical history and biography, was born in 1643, and educated at St Paul's school, whence, in 1661, he was removed to Jesus college, and afterwards to Catharine hall, Cambridge. He graduated M. A. in 1666, and, taking orders, was nominated to the perpetual curacy of Theydon Boys, in Essex. His works are, Ecclesiastical Monuments (in 3 vols., folio); Annals of the Reformation (4 vols., folio, 1709—1731); an augmented edition of Stow's Survey of London (in 2 vols., folio, 1720); and Lives of Cranmer, Parker, Grindal, Whitgift, Sir John Cheke, Sir Thomas Smith, and bishop Aylmer. He was for many years rector of Hackney, in which he spent the latter part of his life, which was prolonged to the age of ninety-four.

STUART. The Stuart or Stewart family was descended from the great Anglo-Norman family of Fitz Alan, in England. The dignity of seneschal or steward of the king's household, having become hereditary in a branch of this family, settled in Scotland, the title was converted into a surname. Walter, the sixth high steward, married Marjory, daughter of Robert (see *Bruce, Robert*); and, on the extinction of the male line of Bruce, Robert Stewart, their only son, ascended the Scottish throne (1371) under the title of Robert II. His grandson, James I., was murdered at Perth, in 1437. His successors were James II., killed in a war with England (1460); James III., who fell in battle against his rebellious subjects (1488); James IV., who perished fighting against the English (1513); James V. died of chagrin on account of the rebellion of his subjects. His last words were, on hearing of the birth of his daughter Mary, "God's will be done. It came with a lass; it will go with a lass,"—alluding to the crown, which had come into his family by marriage. That daughter (see *Mary Stuart*) perished on the scaffold, and her son James VI. (I. of England) united the crowns of England and Scotland (1603). James I., Charles I., Charles II., James II., Mary and Anne (see the articles) wore the double crown of the two kingdoms until 1714, 343 years from the period when the family ascended the Scottish throne, and 111 from the time of its accession to that of England. James II. was deposed in 1688, and his son James Edward (see *Stuart, James Edward*), who styled himself James III., died in exile, after ineffectual attempts to regain the throne of his ancestors. James III.'s son, Charles Edward (see *Edward, Charles*), died childless, in 1788. His only brother, Henry, cardinal of York, died in 1807, and with him the house of Stuart became extinct. See *Scotland*, division *History*.

STUART, JOHN, earl of Bute. See *Bute*.

STUART, ARABELLA. See *Arabella Stuart*.

STUART, JAMES EDWARD FRANCIS; the eldest son of James II., by his second wife, Mary of Modena, born in London, June 10, 1688. He was but five months old when his father was dethroned; and his mother, with her infant, fled to France, where Louis XIV. afforded an asylum to the exiled family at St Germains. (See *James II.*) An attempt was made at the peace of Ryswick, in 1697, to ensure the restoration of this young prince to the throne of his ancestors, which was defeated only by the opposition of his father—as William III. had agreed to procure the recognition of the prince of Wales, as he was styled, as his successor; but James II. rejected the proposal, observing that he could support with resignation the usurpation of his son-in-law, but he could not suffer his son to become a party to it. On the death of the ex-king, in 1701, Louis XIV. recognised his son as king of England, by the title of James III., and a proclamation, in the name of the latter, was addressed to the English nation; but no effective measures were adopted in his favour. The death of William III. revived the hopes of his party; but nothing beyond unavailing negotiation took place till 1708, when a maritime expedition against Scotland was fitted out, in which the prince embarked, under the command of the chevalier Forbin. This armanent, however, being attacked by an English fleet of superior force, returned to France without landing the invading forces; and the young adventurer (who assumed the name of the chevalier de St George) joined the French army in Flanders, and distinguished himself by his valour at the battle of Malplaquet. In the latter part of the reign of Anne, repeated intrigues were set on foot to secure the restoration of her brother, or his succession to the crown after her death; but they proved entirely abortive, and, on the treaty of Utrecht taking place, in 1713, he was obliged to submit to a temporary retirement from France; and when he returned to Paris, he resided there incognito. Had not the decease of queen Anne been speedily followed by that of Louis XIV., in 1715, the invasion of Scotland by the Pretender, as he was called, might have led to a very different result from that which actually took place. (See *Anne*.) The regent duke of Orleans wished to maintain peace with George I., and the British ambassador at Paris was informed of the projects of

the chevalier de St George by the abbé Strickland, one of his agents, who betrayed his confidence. The earl of Mar, in Scotland, raised the standard of revolt against the house of Hanover, proclaiming the heir of the Stuarts king, under the title of James III.; and the latter, embarking at Dunkirk, made a descent on the Scottish coasts; but he soon perceived that success was hopeless, and was obliged to return to France. Even that kingdom no longer yielded him an asylum, and he was forced to remove, first to Avignon, and then to Rome. In consequence of the disputes which occurred between the duke of Orleans and cardinal Alberoni, the prince was, a few years after, invited to Spain, where he was well received by Philip V.; but the visit had no important influence on his affairs, and Rome again became his retreat, as it was his future residence. In 1720, he married the princess Mary Casimira Sobieska, grand-daughter of the famous John Sobieski, king of Poland. This union was not attended with domestic happiness, and a separation between the husband and wife was with difficulty prevented by the interference of cardinal Alberoni, then a resident at Rome. He took no active part in the expedition against Scotland, under his son, in 1745; and the latter part of his life was dedicated to exercises of piety. He died January 2, 1766.

STUART, Charles Edward. See *Edward, Charles.*

STUART, Henry Benedict Maria Clement, cardinal of York, younger son of James Edward, and the last descendant of the royal line of the Stuarts, was born at Rome, in 1725, and, being destined for the church, the pope bestowed on him the right to hold benefices without receiving the ecclesiastical tonsure. In 1745, when the last effort was made for the restoration of his family, he assumed the command of troops assembled at Dunkirk, to aid the operations of his brother in Great Britain; but the news of the battle of Culloden prevented the embarkation of this armament, and prince Henry returned to Rome. The visions of regal splendour, in which he might have indulged, being thus dissipated, he took holy orders, and, in 1747, pope Benedict XIV. raised him to the purple. He was subsequently made chancellor of the basilica of St Peter, and bishop of Frascati. On the death of his brother, in 1788, he assumed the barren title to which the family had aspired, and caused a medal to be struck, with the inscription, *Henricus Nonus Angliæ Rex*, and on the obverse, *Gratia Dei, non Voluntate Hominum.* When the French conquered Italy, he was obliged to flee to Venice, and was indebted for his support to a pension from the English court. His death took place in 1807. The valuable papers of his grandfather and his father, which had remained in his possession, were, after his decease, sent to England.

STUART, Dr Gilbert, an eminent historical writer, born at Edinburgh, in 1742, was educated in the university of that city, where his father was professor of humanity, and was destined for the legal profession, which he relinquished for that of an author. In 1767, he published an Historical Dissertation concerning the Antiquity of the British Constitution, the merit of which procured him the degree of LL.D. This was followed, a few years after, by his View of Society in Europe, in its Progress from Rudeness to Refinement. Being disappointed in an attempt to obtain the professorship of public law in the university of Edinburgh, he removed to London; and, from 1768 to 1774, he was a contributor to the Monthly Review. He then returned to his native city, and established the Edinburgh Magazine and Review; but his illiberal and virulent criticisms ruined the credit of the work, which was discontinued in 1776. About this time, he published his Observations concerning the Public Law and Constitutional History of Scotland (8vo.); the History of the Reformation in Scotland (1780, 4to.); and the History of Scotland (1782, 2 vols.) In the year last mentioned, he again repaired to London, and engaged as a writer; but habits of intemperance had undermined his constitution, and he once more returned to his native place, where he died in 1786. His works display erudition, industry, and sound judgment, wherever the latter quality is not influenced by his jealousy and hatred of contemporary writers.

STUART, James; a distinguished antiquarian and architectural draughtsman, born in London, in 1713. His father having died when he was young, he assisted his mother by practising fan-painting. Prompted by his inclination, he studied anatomy, geometry, and other branches of science; and having, by his industry, provided for the support of his younger brother and sister, set out, with a very small supply of money, for Rome. He supported himself during his travels by the exercise of his talents, and at Rome made acquaintance with Nicholas Revett, a skilful architect, with whom he went to Athens, in 1751. Here they remained till the latter part of 1753, making drawings and taking measurements of architectural relics. After visiting Salonica, Smyrna, and some of the Ægean islands, they returned to England, in the beginning of 1755. The result of their labours appeared in the work entitled the Antiquities of Athens (1st vol. 1762, folio; 4th vol. 1816). A new and improved edition of this valuable work has recently been published. Stuart died in 1788.

STUCCO (*Italian*) in architecture; a composition of white marble pulverised and mixed with plaster of lime, which, being sifted and wrought up with water, is used like common plaster. Architectural and sculptural ornaments, such as fruits, flowers, garlands, festoons, &c., are made of it. In the interior of buildings, stucco work is generally applied to the ceilings of apartments, the mouldings, &c. On the exterior, it should be confined to those parts which are not much exposed to the rain. In some countries, a stucco of common mortar and of plaster is applied to the outside of houses, and is extremely durable. Vitruvius seems to mention stucco in the second, third, and sixth chapters of the seventh book, under the name of *opus albarium*, or *opus coronarium*. Immediately after the stucco is mixed, it forms a very soft and ductile paste, which, however, soon hardens, and then the desired form is given to it with moulds or with a little spatula of iron. During this operation, it continues to harden, and may even be cut; and at this period, those parts of the ornaments are executed which demand a nice finish. In a few days, it acquires the consistence of dry clay, and ultimately becomes hard like stone, and takes a beautiful polish.

STUDDING-SAILS; certain sails extending, in moderate and steady breezes, beyond the skirts of the principal sails, where they appear as wings to the yard-arms. The top-mast and top-gallant studding-sails are those which are set on the outside of the top-sails and top-gallant sails.

STUDIES. See *Drawing*.

STUFF, in commerce, is a general name for all kinds of fabrics of gold, silver, silk, wool, hair, cotton, or thread, manufactured on the loom; of which number are velvets, brocades, mohair, taffeties, cloth, serges, &c. The term is also used more particularly to denote slight woollen articles used principally for linings and women's apparel.

STUHLWEISSENBURG; or, in Hungarian, SZEKES FEJERVAR; in Sclavonic, BIELIGRAD; a royal free town of Hungary, capital of a county of the same name, thirty miles south-west of Buda; lon. 18° 25′ E.; lat. 47° 12′ N.; population, 12,244. It was built in the eleventh century, and, during five centuries, was the place where the kings of Hungary were crowned, and on that account called *Alba Regalis*. It is now declined from its former importance, and has a mean appearance, though it contains some good buildings. It has a Catholic gymnasium and some manufactures.

STUM, in the wine trade, is a name for the unfermented juice of the grape, when it has been several times racked off and separated from the sediment. The casks are, for this purpose, well fumigated with brimstone, in order to prevent fermentation, through which the juice would become wine.

STURDY, STAGGERS, GID, TURNSICK, GOGGLES, WORM UNDER THE HORN, WATERY HEAD, and PENDRO, are all popular names for hydatids, caused by an animal now known as the *tænias globulus*, which, by some unaccountable way, finds entrance into the brain of the sheep, and settles there, either in some of its ventricles, or more frequently in its substance. Their size varies from that of the smallest speck to that of a pigeon's egg; and the sheep attacked are generally under two years old. These animals are likewise occasionally found in all the natural cavities of the body. Stupidity, a disposition to sit on the rump, to turn to one side, &c., are the indications of this disease, which is not incurable, as has been supposed, but can be cured only by a manual operation—instruments are thrust through the skin and skull, or a wire through the nostrils, and the hydatid is thus destroyed. The latter is called by the English shepherds *wiring*. It is always fatal, if not relieved by art.

STURGEON (*acipenser*). A genus of cartilaginous fishes, allied somewhat to the shark and ray, but differing essentially in structure, as well as in the habits of the species. The mouth is situated beneath the snout, is small, retractile, and destitute of teeth; there are several fleshy beards also beneath the snout, and anterior to the mouth; the body is massive, elongated, and furnished with several longitudinal rows of bony plates implanted in the skin; the gill openings are very large. The sturgeons inhabit the ocean, Mediterranean, Red, Black, and Caspian seas, and the Canadian lakes, keeping in inaccessible depths during the winter season, and in the spring ascending the larger rivers. The common sturgeon of Europe (*A. sturio*) is found in most of the large rivers of that continent, and sometimes is excessively multiplied in the more northern countries. Its flesh is delicate and well flavoured, somewhat resembling veal, and has been esteemed in all ages; but modern nations do not consider it so great a luxury as the ancients, especially the Romans. Its fishery is an object of importance, and caviar is sometimes made of the eggs of the female.

The isinglass sturgeon, or *beluga* of the Russians (*A. huso*), is the largest species. It is not so extensively diffused as the former, and is chiefly found in the Black and Caspian seas, ascending the tributary streams in immense multitudes. It frequently attains the length of twenty or twenty-five feet: and individuals have been taken weighing nearly three thousand pounds. It enters the rivers in the middle of winter, while they are still covered with ice, is very voracious, and pursues all the smaller fishes, but feeds likewise on vegetables. The fishery of this species is vastly important in the south of Russia; and upwards of a hundred thousand are taken yearly. The caviar of commerce is chiefly made from its eggs, which exist in such abundance as to constitute nearly one third of the total weight. This is a very common aliment in Turkey, Russia, Germany, Italy, and especially in Greece, and forms an important article of commerce, very profitable to Russia. The flesh is white, fat, resembling veal, very wholesome, nutritious, and agreeably tasted. The isinglass of commerce is prepared from the air bladder. The fat is also agreeable to the taste, and may be used as a substitute for butter or oil. A kind of leather is made from the skin, and that of the young ones, cleaned and dried, is used for window-glass in some parts of Russia and Tartary. There are a few other species of sturgeon in the rivers of Europe.

STURLASON, SNORRO, a native of Iceland, of an old noble family, was born in 1179. He lived for a long time at the courts of Norway and Sweden, was at last *lagmann* of Iceland, and was murdered in 1241, in his castle. He was a man of great talents, and rendered himself famous as a poet, lawgiver, zealous republican, and historian. He composed a general history of the north, from the ancient songs of the scalds, and other historical sources, with taste, and a faithful use of his sources. His history is rich in information respecting Sweden and Iceland, somewhat less so in regard to Norway, and affords some notices respecting Russia. Its title is *Heimskringla* (i. e. *Orbis Terrarum*), *edr. Noregs Konunga Soegor seu Historiæ Regum Septentrionalium a Snorrone Sturlonide conscriptæ*, edited by John Peringskiœld (Stockholm, 1697). A new edition, enlarged and corrected by G. Schöning and S. Th. Thorlacius, appeared in 3 vols., folio, at Copenhagen (1777—82). The continuation by Sturla Thoraldson (of Norway), and an unknown writer, is to be found in Christian Jakobi's *Norvegia Monarchica et Christiana* (Glückstadt, 1712, 4to.) (See our article *Scandinavian Literature*.) A long account of Snorro Sturlason is to be found in Wheaton's History of the Northmen.

STUTTERING, STAMMERING, or HESITATION OF SPEECH, are terms implying an interrupted articulation, accompanied generally with more or less of straining and distortion of feature. If owing to a vicious conformation of the tongue, or other organ of speech, it is incurable; but when merely spasmodic, the cure is possible, and sometimes easy. In some cases, stuttering is relievable at once, by avoiding carefully the usual hurried repetition of the same syllable, or by opening the mouth, and allowing simple sound to pass, when any one oral position threatens to become spasmodically permanent. Should it arise from the attempt to speak being made while drawing in the breath, it may be avoided by filling the chest well before beginning to speak. A scale of articulate

sounds, or table of articulations, with minute directions as to the proper position of the organs in producing the different sounds, may, likewise, in some instances, prove useful to the patient.

STUTTGARD, or STUTTGART; capital of the kingdom of Würtemberg, on the small river Nesenbach; lon. 9° 11′ E.; lat. 48° 46′ N.; thirty-five miles south-east of Carlesruhe, one hundred and sixteen north-west of Münich; population in 1827, 22,000; with the military and strangers, 31,330. It is situated in a valley, two miles from the Neckar, and is divided into three parts, the town proper, two suburbs adjacent to each other, and a separate suburb, called Eslingen. The town proper is badly built, the streets being narrow, and the houses frequently of wood: the suburbs have a better appearance, particularly that of Eslingen, which contains the royal palace, gymnasium, barracks, and other public buildings. The palace is a noble structure, situated near an extensive park, and contains a good collection of paintings, statues, &c. The royal library contains 200,000 volumes, including 12,000 copies of the Bible of different editions. The town has a public library, an old palace, mint, town house, great church, and royal stables. Though surrounded by a wall and ditch, Stuttgard is a place of no strength. The manufactures are on a small scale; the expenditures of the court and nobility forming the chief support of the inhabitants. The surrounding country is fertile and delightful, consisting of eminences covered with vineyards, and valleys laid out in corn-fields. The Solitude, near Stuttgard, is a beautiful country residence of the sovereign. Its name is appropriate, for it stands quite isolated in the middle of a large tract of strictly-preserved country. The deer-park attached to it contains 1700 acres, and the park for wild-hogs 700 acres. The wild-hogs have a feeding place in the forest, where the king and his court shoot, the animals being driven there by the huntsmen.

STYE (*hordeolum*); a little tumor on the eyelids, resembling a barley-corn. The stye is strictly only a little bile, which projects from the edge of the eyelids, mostly near the great angle of the eye. This little tumor is of a dark red colour, much inflamed, and a great deal more painful than might be expected, considering its small size. The latter circumstance is partly owing to the vehemence of the inflammation producing the stye, and partly to the exquisite sensibility and tension of the skin, which covers the edge of the eyelids. On this account, the *hordeolum* very often excites fever and restlessness in delicate, irritable constitutions: it suppurates slowly and imperfectly; and, when suppurated, has no tendency to burst. The stye forms an exception to the general rule, that the best mode in which inflammatory swellings can end, is resolution; for, whenever it extends so deeply as to destroy any of the cellular substance, the little tumor can never be resolved, or only imperfectly so. This event, indeed, would rather be hurtful, since there would still remain behind a greater or smaller portion of dead cellular membrane, which, sooner or later, might bring on a renewal of the stye, in the same place as before, or else become converted into a hard, indolent body, deforming the edge of the eyelid.

STYLE, from στυλος, originally the instrument with which the ancients wrote on hard substances, came afterwards to signify the peculiar way of expressing a thought or idea in language or form. Thought strives for manifestation. Its most effectual instrument is language. The object of language is to give an accurate picture of the thoughts of the speaker to the person addressed. Hence it must vary with the character of the persons spoken to. It should always, however, be the natural product of a man's own mind; and when thoughts are fully matured, they can be easily expressed by one who has the richness of a cultivated language at his command. A style of expression which betrays the effect of imitation is always disagreeable; and the more so the more perfect is the imitation. It is body without spirit, the covering of the pupa without the butterfly within. The study of the style of others can be of advantage only as it shows the connexion between their thoughts and their manner of expression. The first requisite of a good style is clear and independent thought. Some have even considered it the only thing necessary; but this is going too far. There is a certain mechanical skill required, to find the best expression of a thought in a language which is the common means of communication among millions of people, all differing in character and circumstances; and it would be mere loss of time for every one to attempt to acquire this by his own experience, for which he may not have a good opportunity; but, unless it is required, even the most highly gifted intellects can produce but an imperfect effect. This circumstance, that we speak and write for others; that our expression, as far as regards ourselves, is the effect of thought, whilst, as respects others, it is intended to become the cause of thought,—is, perhaps, the chief reason for studying style. Still, however, we must repeat, that the most important means for becoming clear to others, is to be clear to ourselves. To excel in writing or speaking, as to excel in music, painting, architecture, mathematics, &c., original talent is the first thing necessary; yet study is indispensable, and without it, hardly any progress could be made in the various branches of human activity. The collected experience of many furnishes principles for a theory of style as well as of every art; but this theory will be of advantage only to him who has the main requisites of clear and just thought. One of the best general rules of style is to be as brief as perspicuity allows; though there are some exceptions, particularly in the case of public speaking, in which it is often necessary to dwell long on important ideas, in order to afford the hearer time to comprehend them fully. In writing, there are very few exceptions to the rule. Logical correctness of thought, though essential to a good style, does not need to be particularly treated of in discussing the theory of style. It falls properly under the head of a disquisition on logic. Beauty of style consists in harmonious expression, an easy flow, and a happy connexion of ideas; in the avoidance of every thing which can offend good taste and decorum; in the use of imagery fitted to strike and gratify the imagination, &c. The two chief branches of style are those of prose and poetry. (See these articles). The ancient rhetoricians speak of a *genus dicendi tenue, medium, et sublime*, or a lower, middle, and higher style. No work, however, necessarily falls, from beginning to end, under either of these heads. Style must sink or rise with the thoughts and feelings expressed. The various relations of life, and the various modes and subjects of communication, renders the division of prose into various kinds of style necessary. Thus we have the didactic

style, the style of business, the epistolary, the historical style, and the various oratorical styles. Style began early to be cultivated. Among the Greeks, who, however, confined themselves almost entirely to oratorical expression, Aristotle, Demetrius Phalereus, Dionysius of Halicarnassus, Hermogenes, and Longinus; among the Romans, Cicero and Quinctilian, are the principal writers on style.

STYLE, in the arts. Style, or mode of representation, in the arts, depends on the character of the artist, the subjects, the art itself, the materials used, the object aimed at, &c. The style varies in different periods: thus we have the ante-Greek, or old Oriental style, in which the powerful and colossal prevails; the classical or antique style of the Greeks and Romans (see *Antique*), and the style of Christian art (the romantic or modern style). It is influenced by differences of national character. Thus we have a German, Italian, French, and English style or school. The effect of the national character is particularly apparent in certain arts, e. g. painting or music. The national style also has its periods; at one time aims particularly at the sublime or great, at other times strives after the beautiful, the pleasing, and graceful; as Winckelmann has observed in respect to the Greek plastic art. The style varies, too, with the character of the individual. Here we must distinguish between the style which proceeds from the nature of the subjects to which the genius of the artist inclines him, and his mode of representing those subjects. The latter is called more particularly *manner*. The manner of an artist may be noble or petty, strong or weak; but it is always uniform, and in a certain degree arbitrary, while the style, in its proper sense, is not. The style of great artists continues in their schools, and there usually degenerates into manner. The word *style* is also applied to the different modes of representation, occasioned by the different nature of the various arts: thus there is an architectural, a plastic, a picturesque style. The various branches of an art, too, have each its peculiar style; e. g. in poetry, there are the epic, lyric, dramatic styles; in music, the sacred, opera, concert styles, the vocal and instrumental styles, the quartetto, sonata, symphony styles, &c.; in painting, there are the historical, landscape, &c. styles.

STYLE, Old and New. See *Calendar*, and *Epoch*.

STYLES OF ARCHITECTURE. See *Architecture*.

STYLITES (from στύλος, column; in Latin, *sancti columnares*). The most singular saints of the Christian church were anchorites who, by way of penance, passed the greater part of their lives on the top of high columns. Simeon, a Syrian monk, of the fifth century, invented this insane method of self-torture, about 423. He lived, for nine years, on a column, the top of which was only two ells in circumference, in the open air, near Antioch, afterwards changed it for a higher one, and at length for one forty cubits, and only three feet in diameter at the top; when he slept, he leaned against a sort of balustrade. On this pillar he remained twenty-eight years, till his death, in 459 or 460. The whole time which he passed on the top of pillars, was about thirty-seven years. It appears, however, that he must have descended at times, since he cured the sick by his touch, and performed sundry other miracles; wrote epistles, and took part in political quarrels. The example of this strange being, who was canonized after his death, was imitated by many persons in Syria and Palestine; and the mania continued until the 12th century. The *Dictionnaire de Théologie*, a modern Catholic work, chiefly in defence of the Roman church, has a long article *Stylite*, vindicating St Simeon, as an instrument in the hands of the Creator, for the conversion of the heathen. "Shall we refuse to God," says the writer, "the liberty of attaching the grace of conversion to such means as he may choose?" The article also relates the miracles of St Simeon.

STYMPHALIDES, in mythology; certain birds of prey, which derived their name from the town or the lake of Stymphalus, in Arcadia, near which they lived; or from an ancient hero Stymphalus, whose daughters they were considered to be. They were large birds, with iron wings, beaks and claws, of the size of cranes, in form similar to the ibis, but having straight beaks. They could shoot their feathers like arrows, and thus kill men and beasts. (See *Argonauts*.) Eurystheus imposed on Hercules the task of driving them from the place of their abode, in which he succeeded.

STYMPHALUS. See *Stymphalides*.

STYPTIC; a remedy that has the virtue of stopping blood, or of closing the aperture of a wounded vessel. Many waters and powders are of this nature; but in most of them vitriol is the chief ingredient.

STYRIA. See *Stiria*.

STYX; a nymph, according to *Hesiod*, the daughter of Oceanus and Thetis, according to others, of Erebus and Night. By Pallas, she became the mother of Zelos and Cratos, Nike and Bia (Zeal, Power, Victory and Strength); according to Pausanias, she bore the Hydra to a certain Piras; and, according to Apollodorus, Proserpine to Jupiter. Her children, by Pallas (according to Hesiod), enjoyed the honour of living with Jupiter, and of being inseparably connected with him, because they and their mother assisted him in the war with the Titans. In honour of Styx herself, it was provided, that the gods should swear by her. According to another passage of Hesiod, Styx lived with her children in the region of Tartarus, in a palace of rocks, separated from the dwellings of the other deities residing there, or in a grotto resting on columns. From this rock issued a cold stream, which flowed far under the earth unseen. It was the tenth arm of Ocean. Nine of them flowed around the earth, and the sea, and then emptied into the tenth, which (the Styx) descended to the lower regions, where it formed the celebrated Stygian pool. By this the gods swore; and if any god violated his oath, he was banished from Olympus, stretched out lifeless, and became overgrown with mould. In this state he remained a year; after which, he suffered other torments for nine years, and, during this period, was excluded from the society of the gods. Styx was originally a rivulet in Arcadia, springing from a high rock, near the town of Nonacris. Its water was considered poisonous to men and beasts, metals were corroded, and vessels burst to pieces by it.

SUABIA, or SWABIA (in German *Schwaben*); one of the ten circles into which the German empire was divided, previous to its dissolution in 1806. It lay in the south-western part of Germany, comprising some of the most fertile and beautiful parts of the country, traversed from south-west to north-east by the Danube. The Black Forest (q. v.), or

Schwarzwald, intersects the western part of the country, and the Suabian Alps (see *Alps, Suabian*) stretch through the interior. The circle of Suabia, comprising 13,150 square miles, with 2,200,000 inhabitants, was surrounded by France, Switzerland, the Austrian territories, Bavaria, Franconia, and the circles of the Rhine. The soil is fertile, the face of the country mountainous. The circle comprised the sovereign bishoprics of Augsburg and Constance, the princely provostship of Elwangen, and the princely Abbey of Kempten; the abbeys of Salmansweiler, Weingarten, Ochsenhausen, Elchingen, Irsee, Ursperg, Kaisersheim, Roggenburg, Roth, Weissenau, Schussenried, Marchthal, Petershausen, Wettenhausen, Zweifalten and Gengenbach, Neresheim, Heggbach, Guttenzell, Rothmünster, Baindt, Söflingen, Isni, Lindau and Buchau; the duchy of Würtemberg; the margraviate of Baden; the principalities of Hohenzollern and Lichtenstein; the landgraviates of Klettgau, Stühlingen and Baar; the Teutonic commandery of Alschhausen; the counties (*grafschaft*) of Thengen, Heiligenberg, Œttingen, Friedberg-Scheer, Königsegg, Eberstein, Hohenems, Bondorf, Hohengeroldseck; the lands of the counts Fugger; the county and lordships of Truchsess of Waldburg: the lordships of Trochtelfingen, Jungnau, Wiesensteig, Hausen, Möskirch, Tetnang, with Argen, Mindelheim, Schwabeck, Gundelfingen, Justingen, Eglof, Tannhausen and Burg, with Neusickingen, and the thirty-one imperial free cities of Augsburg, Ulm, Esslingen, Reutlingen, Nördlingen, Hall, Ueberlingen, Rotweil, Heilbronu, Gemünd, Memmingen, Lindau, Dünkelsbühl, Biberach, Ravensburg, Kempten, Kaufbeuern, Weil, Wangen, Isny, Leutkirch, Wimpfen, Giengen, Pfullendorf, Buchhorn, Aalen, Bopfingen, Buchau, Offenburg, Gengenbach, Zell on the Hammersbach. Of these numerous sovereignties, the possessions of the Würtemberg, Baden and Fürstenberg houses were the most extensive. Würtemberg, Baden, the two Hohenzollern lines, and Lichtenstein are the only ones that have not been mediatized. (See *Mediatization*). The diets of the circle were commonly held at Ulm, and in time of peace twice a year. *Austrian Suabia* was composed of the hereditary states of the house of Hapsburg, comprising Burgau, Nellenburg, the prefectorate of Suabia, Hohenberg, the Brisgau, Ortenau, and some towns and convents, containing in all a population of about 170,000; but these have been renounced or exchanged. The kingdom of Würtemberg and the grand duchy of Baden comprise at present the greater part of Suabia. The kingdom of Bavaria includes a part on the east side; and other portions are subject to the princes of Hohenzollern and Lichtenstein. (See Pfister's *History of Suabia*, and Leichtlen's *Suabia under the Romans*, both in German). See also our articles *Germany*, and *Hohenstaufen*.

SUABIAN ALPS. See *Alps, Suabian.*

SUABIAN POETS. See *Minnesingers.*

SUADA, OR SUADELA; with the Greeks, Peitho, the goddess of persuasion, whose worship Theseus is said to have established at Athens, in memory of the union of the scattered population of Attica into one state. A statue of this goddess, made by Praxiteles, stood in Athens, in the temple of Aphrodite (Venus). She was represented as belonging, with the Graces, to the company of Venus. Some make Suada herself one of the Graces.

SUARD, JEAN BAPTISTE ANTHONY, a French miscellaneous writer, born at Besançon, in 1733, was the editor of the *Journal de Paris*. During the revolution, he conducted a publication entitled *Nouvelles Politiques*, which professing to oppose democracy, was suppressed, and he was forced to quit France. When Bonaparte was first consul, he returned, and became member of the legion of honour, and of the national institute, and perpetual secretary of the class of French literature. He then established a journal called the *Publiciste*, which was soon given up for the *Archives Littéraires*, and the *Opuscules Philosophiques*. Suard was familiar with English literature, and translated Robertson's Charles V., and History of America, with several other English works. Many of the notices of Englishmen in the *Biographie Universelle* are from his pen. See Garat's *Mémoires historiques sur Suard* (1820). He died at Paris in 1817.

SUBHASTATIO, in the civil law, is the public sale of immovable property, to the highest bidder, as auction, in that law, is the sale of *mobilia*, or personal property. The *jus primi liciti* in some countries, allows the first bidder at an auction sale to take the article at the highest price bid; but he must declare his intention before the hammer falls. The name *subhastatio* originated from the Roman usage of planting a spear (*hasta*) on the spot where a public sale was to take place.

SUBJECT, in philosophy. (See *Object.*) In ethics, *subject* often designates a free agent, in contradistinction to things inanimate. In music, the theme of a fugue is called *subject*. In politics, all the people who owe allegiance to a monarch, have been heretofore called the monarch's *subjects*, even when his authority rested on a contract with the people, and his power was limited. But the French seem unwilling to allow this name to be applied to them since the revolution of 1830. The use of the word in this application, by the minister Montalivet, in the session of January 4, 1832, caused much excitement in the chamber of deputies, and ministers have since avoided it. Those persons who are under the sway of a republic, without participating in all the rights of those in whom the sovereignty rests, are also called *subjects*. Thus Hamburg calls the inhabitants of Ritzebüttel *subjects*.

SUBJECTIVE, AND SUBJECTIVITY. See *Object.*

SUBLIMATE, CORROSIVE. See *Mercury.*

SUBLIMATION; a process by which volatile substances are raised by heat, and again condensed in a solid form. This chemical process differs from evaporation only in being confined to solid substances. It is usually performed either for the purpose of purifying certain substances, and disengaging them from extraneous matters, or else to reduce them into vapour, and combine them under that form. As all fluids are volatilized by heat, and consequently capable of being separated, in most cases, from fixed matters, so various solid bodies are subjected to a similar treatment. Fluids are said to *distil*, and solids to *sublime*, though sometimes both are obtained in one and the same operation. If the subliming matter concretes into a solid, hard mass, it is commonly called a *sublimate;* if into a powdery form, *flowers*. The principal subjects of this operation are, volatile alkaline salts; neutral salts, composed of volatile alkali and acids, as sal ammoniac; the salt of amber, and flowers of benzoin, mercurial preparations, and sulphur. Bodies of themselves

not volatile, are frequently made to sublime by the mixture of volatile ones; thus iron is carried over by sal ammoniac, in the preparation of the *flores martiales*, or *ferrum ammoniatum*. The fumes of solid bodies in close vessels rise but a little way, and adhere to that part of the vessel where they concrete.

SUBLIME PORTE. See *Turkey*.

SUBORNATION OF PERJURY. See *Perjury*.

SUBSIDIES. With the Romans, the third line of troops (*corps de reserve*), which, in case of necessity, assisted the two first, was called *subsidium*. Hence *subsidiary* is used in the sense of *auxiliary*. The substantive *subsidy* is used to denote the pecuniary assistance afforded, according to treaty, by one government to another, sometimes to secure its neutrality, but more frequently in consideration of its furnishing a certain number of troops. *Subsidies*, or *supplies*, in England, also denotes the money granted by parliament to the government.

SUBSTANCE (*substantia*), in a philosophical sense, is contradistinguished to *accident*, and signifies that which exists independently and unchangeably; whilst *accident* denotes the changeable phenomena in substance, whether these phenomena are necessary or casual, in which latter case they are called *accidents*, in a narrower sense. The relation of accident to substance is called the relation of inherence, and corresponds to the logical relation of subject and predicate; because the substance is the subject, to which are assigned the qualities, states and relations as predicates: substance itself is the essence, which is capable of these phenomena, and, in spite of these changes, remains the same. Some schoolmen gave the name of substance to that in which exists our ideal of perfection; others to a thing which exists through itself and for itself. Leibnitz calls *substance* that which contains in itself the cause of its changes. In natural science and in common life, *substance* is used to designate material beings, especially simple, inorganic bodies, and the fundamental constituents of organic bodies; e. g. a liquid *substance*. But every substance which falls within the scope of our observation, if we understand by *substance* that which is unchangeable in its phenomena, is only a relative one; i. e. is such only in respect to some others, and is not unconditionally independent, but must be conceived dependent upon one original cause of things. In contradistinction to the *relative* substance, therefore, we speak of *absolute* substance, as the one original essence of all things; and the relation of the latter to the former has been variously considered. Spinoza has treated particularly of the one absolute substance, and given to it infinite thought and infinite extension as inseparable attributes.

SUBSTANTIVE. See *Noun*.

SUBSTITUTION, in the civil law, is the appointment of an heir to succeed in case of the failure of one previously appointed. If the second person is to succeed in case of the death of the first, or of his not accepting the inheritance, the substitution is called *direct*, if the first heir is bound to convey the inheritance to the *substitute* or second heir. This is a *fidei-commissary substitution*. (See *Fidei Commissa*.) The former kind comprises the *vulgar substitution*, which is merely the appointment of a second heir in case the first should not inherit, and the *pupillary substitution*, which is the appointment of an heir, by a father or grandfather, in the name of a minor child, over whom he has paternal power, in case the latter should die a minor. The mother cannot make a pupillary substitution. The latter ceases, 1. by the death of the minor in question before the death of the testator; 2. by his arriving at full age; 3. by the paternal appointment failing to take effect; 4. by the withdrawing of the minor from the paternal power. The quasi pupillary substitution (*substitutio exemplaris*) is the appointment of an heir by parents for an idiot child, in case the child should die in a state of idiocy. If the child has lucid intervals, the parents are not allowed to make such substitution; otherwise, even the mother may do it.

SUBTANGENT OF A CURVE, in the higher geometry, is the line which determines the intersection of the tangent with the axis, or that determines the point where the tangent cuts the axis prolonged.

SUBTENSE, in geometry; the same with the *chord* of an arch.

SUCCESSION POWDER. See *Poudre de Succession*.

SUCCINIC ACID; an acid derived from the distillation of amber. By adding one twelfth part of sulphuric acid, diluted with an equal weight of water, the yield of acid is much increased. The acid, being dissolved in hot water, and filtered, is to be saturated with potash or soda, and boiled with charcoal. The solution being filtered, nitrate of lead is added; whence results an insoluble succinate of lead; from which, by digestion in the equivalent quantity of sulphuric acid, pure succinic acid is separated. It is in white transparent crystals, which possess a sharp taste, and powerfully redden tincture of turnsole. It is soluble in both alcohol and water. It forms salts with the alkalies and oxides. The succinates of potash and ammonia are crystallizable and deliquescent. That of soda does not attract moisture. The succinate of ammonia is useful in analysis to separate oxide of iron.

SUCCORY. See *Endive*.

SUCHET, Louis Gabriel, duke of Albufera, marshal of France, born at Lyons in 1770, entered the military service at an early age (1790), and passed rapidly through the inferior ranks. In 1796, he was attached to the army of Italy, and attracted the notice of general Bonaparte, by his courage, boldness and caution. He then served with distinction under Masséna and Joubert, and was one of the most active and successful of Napoleon's generals in the campaigns of 1805 and 1806. In 1808, he received the command of a division in Spain, and was almost constantly victorious till after the battle of Vittoria. His brilliant services in that country obtained him the marshal's staff, and the title of duke. After the restoration, Suchet was created peer of France. Having accepted, under Napoleon, a command during the hundred days, he was deprived of his seat on the second restoration, but re-admitted in 1819. He died in 1826.

SUCKING FISH. See *Echeneis*.

SUCKLING, Sir John, a wit, courtier, and dramatist, son of a knight of the same name, was born in 1613, at Witham, in Middlesex. He is said to have spoken Latin fluently at five years old, and written it with ease and elegance at nine. After lingering some time about the court, he was despatched upon his travels, and served a campaign under the celebrated Gustavus Adolphus, in the course of which he was present at three battles and

several sieges. At the time of the Scotch war, Sir John raised a troop of horse for the king's service, who behaved so badly in the field as to disgrace both themselves and their commander. An abortive attempt to effect the escape of the earl of Strafford, confined in the Tower under articles of impeachment from the commons, implicated Sir John so seriously, that he thought it advisable to retire to France, where he died in 1641. His writings consist of letters written with ease and spirit; some miscellaneous poems; Aglaura, a play; Brennoralt, a tragedy; the Sad One, a tragedy left incomplete; and the Goblins, a tragi-comedy.

SUCRE, Antonio Jose de, was born in 1793, at Cumana, in Venezuela. He was educated at Caracas, and entered the army in 1811, where he served with credit under the orders of the celebrated Miranda. Afterwards he became favourably known for activity, intelligence and courage, under Piar, the mulatto general. From 1814 to 1817, Sucre served in the staff of the army, and displayed the zeal and talent which characterized him. In 1819, he had attained the rank of brigadier-general, and was one of the commissioners appointed, after the battle of Bojaca, to negotiate a suspension of hostilities with Morillo. Subsequently to this, he received the command of a division sent from Bogota to assist the province of Guayaquil. He met with a severe check at Huachi, but succeeded, late in the year 1821, in concluding an armistice with Aymerich, the royalist general, which was, in its effects, equivalent to a victory. It enabled the Peruvian division, under Santa Cruz, to form a junction with the Colombians. Hostilities recommenced in February, 1822, and the united armies were so fortunate as to achieve the decisive victory of Pichincha, May 24, 1822, which was immediately followed by the capitulation of Quito. This brilliant success fixed the public attention upon Sucre, and raised expectations of his future eminence, which the event fully justified. Meanwhile Bolivar had proceeded to the south, at the head of a large army destined to act against the Spanish forces in that quarter; and, in July, 1822, had an interview with the protector, San Martin, at Guayaquil. Early in 1823, Sucre was despatched to Lima as Colombian envoy, accompanied by an auxiliary Colombian army of 3000 men. Lima, having been left unprotected, at this time, by the departure of Santa Cruz to reduce the southern provinces, was retaken by Cantarac, and abandoned by the president, Riva-Aguero, and the Peruvian congress, June 18, 1823. Hereupon Sucre was appointed commander-in-chief of the forces, and, a few days afterwards, supreme military chief, with powers almost unlimited. He retired to Callao, which was invested by the royalists, until the successes of Santa Cruz in the south obliged Cantarac to evacuate Lima, July 17, 1823. Sucre then determined to place himself at the head of an expedition sent against Arequipa, and to cooperate with Santa Cruz. But the total destruction of the patriot army, under the latter, in Upper Peru, made it necessary for Sucre to re-embark, and return to Callao. In September, general Bolivar made his public entry into Lima, having obtained permission from the Colombian government to prosecute the war in Peru, and was immediately invested with supreme authority in military and political affairs. Of course, general Sucre now became only second in command of the liberating army, consisting of 10,000 men, assembled at Huaras, preparatory to commencing offensive operations. But after the battle of Junin, gained by the patriots, August 5, 1824, Bolivar quitted the army, and went to Lima, to attend to affairs on the coast, leaving the prosecution of the war with Sucre. In the arduous and masterly movements which followed, Sucre displayed the skill of a consummate general. The scene of operations was the mountainous region of Peru. It was necessary that he should march and counter-march, for the space of two months, over this difficult ground, in the face of a much superior army, commanded by the ablest royalist generals in America, whose aim it was to cut off his resources, and reduce him without the hazard of a battle. But the impatience of the troops on each side brought on a general engagement in the field of Ayacucho, December 9, 1824, the most brilliant ever fought in South America. Both armies consisted of veteran troops, well appointed and disciplined, who fought with undaunted courage. The battle resulted in the capture of the viceroy La Serna, and the loss of 2000 of the royalists in killed and wounded; and on the same day general Cantarac, with the rest of the army, comprising fifteen general officers and nearly 4000 men in all, surrendered themselves prisoners of war, by capitulation. Sucre promptly followed up this glorious victory, and his troops entered Cuzco on the 12th of December in triumph. As Olaneta, with a small body of royalists in Upper Peru, refused to comply with the terms of the capitulation of Ayacucho, Sucre was obliged to march upon Puno, which he entered in February, and thence proceeded to Chuquisaca. The death of Olaneta, who was killed in April, in an affray with his own troops, accomplished the delivery of Upper Peru. Until a regular government could be established, Sucre, of course, remained in the exercise of authority as supreme chief; but he summoned a congress to assemble, as speedily as might be, at Chuquisaca, to decide whether Upper Peru should be annexed to Lower Peru, or to Buenos Ayres, or form a republic by itself. The constituent congress decreed, August 11, 1825, to form a new republic, by the name of *Bolivia*, and to call the capital by the name of *Sucre*, in whom the government was vested for the time being, with the title of "captain-general and grand-marshal of Ayacucho." The congress, having solicited Bolivar to prepare a fundamental code for Bolivia, dissolved itself, October 6, 1825. The new congress assembled to receive it, May 25, 1826. Sucre then resigned the discretionary power, which he had exercised hitherto; but, contrary to his expressed wish, and contrary, probably, to his real desire, he was elected president of Bolivia, under the new constitution. How far apprehensions of the auxiliary Colombian army, still remaining in Upper Peru, influenced this decision of the electors, we do not know; but Sucre's reluctance to assume the presidency seems to have been sincere, because it was constantly persisted in by him, and ended in his resigning the office, and returning to Colombia. The influence of the revolution at Lima, in January, 1827, when the Colombian troops there overturned the government of Bolivar, and the people trampled under foot the Bolivian code, was of course felt in Bolivia. But Sucre endeavoured to guard against the example being followed in Bolivia, and at the same time gave the strongest assurances to the new government of Peru, of his determination to maintain a strict neutrality. This did not prevent uneasiness and disturbances from growing up, which eventuated

in a serious insurrection, and an attack upon Sucre, in which he was dangerously wounded, and lost an arm. If his resolution had not already been taken, these events would have served to hasten his departure, with that of the auxiliary Colombian army, which took place in August, 1828, in consequence of some hostile movements of the anti-Colombian party, aided by general Gamarra, from Peru. Notwithstanding this reverse in Bolivia, fortune soon threw a new field of distinction in the way of Sucre, in the war which now broke out between Peru and Colombia. He was made commander of the Colombian army of the south, and political chief of the southern departments of the Colombian republic, and led the troops in the series of military operations which terminated in the battle of Tarqui, and the humiliating defeat and capitulation of the Peruvians under general La Mar, February 26, 1829. Sucre became a member of the constituent congress of 1830, and, on his return to Quito from that body, was assassinated in the neighbourhood of Pasto, in June, 1830, whether by private enemies among the Pastusos, or by the instigation of some of his political rivals, is not ascertained. It probably was the act of some of the Pastusos, who remembered the severities which the Colombian army inflicted on them in the campaign of 1822, under the orders of Sucre.

SUDERMANNLAND. See *Sweden*.

SUEABORG, OR SWEABORG; the northern Gibraltar; a fortress of Russian Finland, on the gulf of Finland; three miles south of Helsingfors; population, exclusive of the garrison, 3500. The harbour is capable of containing seventy men-of-war, easily defended by batteries that sweep the channel, forming the only entrance for large ships. It is formed by several small islands, of which the principal, called Margöe, contains the arsenals, docks, basins, and magazines for fitting out or repairing men-of war.

SUETONIUS. Caius Suetonius Tranquillus, a Roman writer, born of a plebeian family, flourished about 100 A. D. Little is known of the circumstances of his life. He distinguished himself as an advocate, obtained the tribuneship through the influence of Pliny the younger, and was appointed secretary (*magister epistolarum*) to the emperor Adrian. From an expression of Spartian in his Life of Adrian, we learn that Suetonius lost this place, on account of his intimacy with the empress Sabina; but the particulars of the affair are unknown to us. Of the works of Suetonius, only the Lives of the Twelve Cæsars, and Notices of celebrated Grammarians, Rhetoricians, and Poets, are yet extant. The former work gives an interesting account of the private life and personal character of the twelve first Roman emperors, from Julius Cæsar to Domitian, and is of great value to us from the light which it throws on domestic manners and customs. The best editions of Suetonius are those of Pitiscus (1714), Burmann (1736), Oudendorp (1751), Wolf (1802), and Baumgarten-Crusius (1816 seq.) There is an English translation by Thomson.

SUEUR, LE. See *Lesueur*.

SUEVI; the general name of a number of united tribes, who, before the Christian era, inhabited the greater part of Germany. The Hermunduri, Semnones, Lombards, Angles, Vandals, Burgundians, Rugii, and Heruli, were the most important, at least the most known. In Cæsar's time, they advanced to the Neckar and the Rhine. Tacitus says that their name was derived from the cue in which they tied their hair. In the great migration of the northern nations, the Suevi joined the Alani, entered Gaul, and, in 409, Spain. After the Vandals had gone to Africa, the Suevi spread as far as Portugal. The Visigoths overcame them entirely in 586, and their empire and name disappeared from Spanish history. Those of them who remained in Germany were the ancestors of the present Suabians.

SUEZ, a city of Egypt, on the borders of Arabia (lon. 32° 28′ E.; lat. 29° 59′ N.), is remarkable for its situation at the north end of the Red sea, and on the south border of the isthmus to which it gives name. It was formerly a flourishing mart, being at once the emporium of the trade with India, and the rendezvous of the numberless pilgrims, who, from various parts of the Turkish empire, resorted to Mecca. The assemblage of these, though the stationary population was never large, produced an immense crowd. When Niebuhr was there, Suez appeared to him as populous as Cairo. Since that time, it has greatly declined, in consequence both of the diminution of the general trade of the Red sea, and of the concourse to Mecca. It also sustained great injury from the French. The population is now only about 500. Suez, though a maritime place, is so situated that vessels cannot approach nearer than two and a half miles. The surrounding country is a mere bed of rock, slightly covered with sand. It is, however, the channel of much of the trade of Cairo to Arabia and India, and of the whole of that to Syria and Palestine. It is without walls; has 500 stone houses, of which more than one half were destroyed by the French, and still continue in ruins. The canal which formerly connected the gulf of Suez with the Nile, is now choked up.

SUFFETES. See *Carthage*.

SUFFOCATION. The three ordinary modes of suffocation, or death by the interruption of the breath, are, hanging, drowning, and the respiration of fixed air, or carbonic acid gas. The same result takes place from either of these causes, which is described under the article *Drowning*, and the same process is required for the restoration of animation. In the instance of suffocation by carbonic acid air, whether arising from mines, lime-kilns, or vats of fermenting liquor, the vital powers become more speedily extinct.

SUFFOLK; a maritime county of England, bounded on the east by the German ocean, on the south by Essex, on the north by Norfolk, and on the west by Cambridgeshire. It extends about forty-eight miles in length, and twenty-seven in breadth. It is divided into twenty-one hundreds, and 575 parishes, which are governed ecclesiastically by the bishop of Norfolk, aided by the archdeacons of Sudbury and Suffolk. The county is bounded both on the south and west by navigable rivers, and is intersected by numerous streams. The navigable rivers are, the Lark, which joins the Great Ouse near Mildenhall; the Waveny, which runs due north to the Yar; the Stour, which rises on the western border, passes by Sudbury, Nayland, and after receiving the Breton from the north-west, forms a wide estuary opening to the sea at Harwich; the Gipping, which is formed by the union of three small streams, near Stow-Market, runs south-eastward, by Needham-Market, to Ipswich, where it takes the name of the Orwell, and expanding into an estuary, unites with that of the Stour to form

the harbour of Harwich. The Deben has its source near Debenham, and passing Woodbridge, widens into Woodbridge haven, and enters the sea about ten miles below that town. The Ald, rising northward of Framlingham, and taking its course southeastward, after approaching very near the sea at Aldeburgh, where it expands greatly, turns towards the south, and meets the sea below Orford. The Blythe, rising at Laxfield, flows by Halesworth to the sea at Southwold. The only canal in Suffolk runs from Ipswich to Stow-Market.

Suffolk generally presents a level surface, the eminences being inconsiderable. The soil varies much in different parts, and the kinds of land may be distributed into clay, sand, loam, and fen. In the interior is a tract, extending from north to south, consisting chiefly of a strong clay, fertile in a great degree for all the objects of husbandry. A part of it, styled High Suffolk, has a soil so heavy and tenacious, that in wet seasons the by-roads are scarcely passable. Here is made much butter for the London markets; the quantity sent annually to the metropolis being about 40,000 firkins. The sandy districts occupy the eastern and western borders of the county: that towards the coast being highly cultivated, the soil having in many parts been much improved by the addition of shell marl. Great changes have taken place on the Suffolk coasts in consequence of the encroachments of the sea, which have caused the partial destruction of some once considerable towns, as Dunwich and Aldeburgh. On the opposite side of the county the sands are spread over nearly the whole of the north-west angle, in which are a few spots of rich land, but the county chiefly consists of barren heaths and sheep-walks; and towards the Norfolk border the sand is light and blowing, or subject to be driven by the wind, as is also the case with the south-eastern sandlands, between Woodbridge, Orford, and Saxmundham. In these sandy districts are many extensive rabbit warrens. The loam districts are found almost exclusively on the borders of the rivers.

The manufactures of Suffolk consist principally of wool-combing and spinning, making light stuffs, buntings, crapes, and hempen cloth for home consumption; and at Mildenhall and Sudbury are silk-works. The trade of the seaports depends greatly on the exportation of corn and malt; fine sea-salt is made on the coast; the herring and mackerel fisheries are carried on at Lowestoff; and in the Orford river is an oyster-fishery.

Suffolk has seven boroughs: Aldeburgh, Bury St Edmond's, Dunwich, Eye, Ipswich (the county town), Orford, and Sudbury. The market-towns are: Beccles, Bildeston, Botesdale, Brandon, Bungay, Clare, Debenham, Framlingham, Hadleigh, Halesworth, Haverhill, Ixworth, Lavenham, Lowestoff, Mendlesham, Mildenhall, Nayland, Needham-market, Saxmundham, Southwold, Stow-market, and Woodbridge; but the markets of Bildeston, Botesdale, Debenham, Ixworth, Lavenham, Mendlesham, and Nayland, are discontinued or very inconsiderable. Population of the county in 1831, 296,304.

SUFFRAGANS. See *Bishops.*

SUFFRAGIUM (Latin for *vote;* hence the English *suffrage*), with the Romans, signified particularly the vote which every Roman citizen had a right to give in the *comitia*, in regard to the introduction or abolition of laws, the appointment to offices, or any similar business. The citizens assembled, on such occasions, in the *Campus Martius*, every one in his century, which proceeded in its turn to the *ovile*, the place assigned for voting. At the entrance there were small bridges, upon which certain persons (*diribitores*) gave them small ballots; if a new law was to be introduced, two ballots, one with the letters U. R. (*Uti rogas*, Let it be as proposed), the other with the letter A. (*Antiquo*, I leave it as it is); or, if an officer was to be chosen, as many ballots were given as there were candidates. The majority then decided.

SUFISM; the pantheistic mysticism of the East, which strives for the highest illumination of the mind, the most perfect calmness of the soul, and the union of it with God, by an ascetic life, and the subjugation of the appetites. This pantheism, clothed in a mystico-religious garb, has been professed, since the ninth and tenth centuries, by a sect which at present is gaining adherents continually, among the more cultivated Mohammedans, particularly in Persia and India, and about twenty years ago, comprehended 80,000 disciples in Persia, who had renounced Mohammedism. One of the most zealous Sufis is the Arabian Azzeddin, born at Jerusalem, in the twelfth century, whose work Birds and Flowers, a moral allegory, has been translated by Garcia de Tassy (Paris, 1821). All religious persons who live together in a monastic way, devoted to an ascetic life, are called in the East *Sufis*. Some have derived this word from the circumstance that they dress in wool only: but Joseph von Hammer (q. v.), has disproved this derivation, in the Vienna Journal of Art, Literature, the Theatre, &c. (1828, No. 59), and maintains that the name *Sofi* is related to the Greek σοφος, wise, and σαφης, clear, on account of the mirror which the Sofi carried as a symbol, as well as to the Arabian *safi* (pure). The Arabians had, from the earliest times, an inclination to a life of religious contemplation and monastic solitude. Hence as early as under the first caliphs, religious fraternities were formed, which renounced every thing earthly. As the four orthodox Mohammedan sects established several systems of scholastic philosophy, and a number of monkish orders grew up, in the second century or Hegira, devout persons, perplexed by this labyrinth of discordant theological opinions, found consolation in pious mysticism. This was the origin of the Sufis, whose idea of a mystical union of man with God (which, however, is not founded in the doctrines of Mohammedanism, but according to Langlès, Reiske, Hammer, and Malcolm, is of Indian origin) gave rise to fanaticism, similar to that of the Christian mystics. The Sufis teach their doctrine under the images of love, wine, intoxication, fire, &c.; and the songs of Hafiz, one of the most distinguished Sufis, which seem to be Anacreontic strains in praise of love and wine, should rather be considered as setting forth the mystic doctrines of his sect. Even the dances of the Mohammedan monks have a mystic meaning. By the Devil, the Sufis generally understand the sensual appetite; they acknowledge no other devil than the darkness of the soul, unenlightened by truth. In the first volume of the Transactions of the learned society at Bombay (London, 1819) is an important treatise on the mystic doctrine of the Sufis, by Graham. The doctrines of the Oriental mystics have also been illustrated by Silvestre de Sacy, in the *Pendnamch*, by Erskine, in several treatises in the Bombay Transactions, by Hammer, in his History of Persian Belles-lettres (under the heads of *Dschelaleddin*, *Rumi*, and *Dschami*), and particu-

larly by Tholuck, in his *Sufismus Persarum*, &c. (Berlin, 1821), from Oriental manuscripts. The most important information on this subject is contained in the Drops of the Well of Life, a Persian work, translated into Turkish, and published, in 1820 (Hegira 1236), at Constantinople (printed at Scutari), a work of the greatest authority with the Persians and Turks. (See Hammer's remarks in the Leipsic Literary Gazette of 1822, p. 2054.) Hussein, known under the name of *Sufi*, wrote a History of the most famous Sheiks of the Order of the Dervises (*Nacshbendi*) in the year 1503 (Hegira 909). The order of *Nacshbendi* originated, indeed, as late as the time of sultan Osman (1319; Hegira 709); but all the Mohammedan religious orders trace their doctrines, and their claims to mystic power (transmitted by the communication of the breath and mantle), to Abubeker and Ali, the disciples of the prophet. Mohammed had said, indeed, "There is no monasticism in the Islam:" but the spirit of monasticism, which originally had its seat in India and Upper Asia, soon penetrated into his religion, when the Arabians, having become acquainted with Indian, Greek, and Persian literature, began to devote themselves to study and contemplation. Thus originated the Mohammedan ascetics. But the pantheistic doctrine of the modern Sufis, subsequently introduced, agrees so remarkably with the doctrine of the Indian Vedanta, that the Indian origin of Sufism cannot be denied.

SUGAR. This important substance is a constituent part of a number of plants. It is afforded especially by the sugar cane, the maple, and the beet. When the cane is ripe, it is cut down, and crushed between iron cylinders, moved by the steam-engine, water, or animal strength. The juice is received in a shallow trough, placed beneath the cylinders; whence it is conveyed into boilers, where it is heated with lime, care being taken to remove the scum as it rises. After having undergone considerable evaporation, it is called *syrup*, and is poured into a vessel called the *cooler*, where it is agitated with wooden stirrers, which break the crust as it forms on the surface. It is afterwards poured into casks, to accelerate its cooling; and while it is still warm, it is conveyed into barrels, standing upright over a cistern, and pierced through their bottom with several holes stopped with cane. The syrup, which is not condensed, filters through these canes, into the cistern beneath, and leaves the sugar in the state called *Muscovado*. This sugar is yellow, and is further purified by various processes, as that of boiling with bullock's blood, or with animal charcoal (bone black); and the passing of the syrup through a system of canvas filters, aided by the intermixture with it of a small quantity of pasty, gypsum and alumina, made by saturating a solution of alum with quicklime. Loaf sugar is procured by putting the sugar, after it has been thus purified, into unglazed earthen, conical-shaped vessels, having a hole at the apex, but placed in an inverted position; the base, after the sugar is poured in, is covered with clay. When thus drained of its impurities, it is taken out of the mould, wrapped in paper, and dried or baked in an oven. It is now loaf sugar, and, according to the number of processes which it undergoes, is called *single* or *double refined*. Sugar candy is formed by dissolving loaf sugar in water, over a fire, boiling it to a syrup, and then exposing it to crystallize in a cool place. This is much esteemed in the East. The syrups which cease to afford sugar, are sold by the name of *molasses*.

Every description of mechanism that is used in refining has been applied to the evaporation of cane juice in the West Indies; but a firm, well-defined crystal has only been obtained by the direct application of flame to evaporation. This method is therefore almost universally adopted; and the more rapid the action, the better is the produce. If the process be retarded by the use of bad fuel, or any other cause, the crystal is soft; the decomposition in the process of draining is great, and the sugars are deteriorated by moist, or sea air, in transit to market. Similar causes produce similar effects to a certain extent in Britain; and for this reason, confectioners prefer sugars that are refined by the direct action of flame, to those operated upon in any manner by steam; these last, when intended for exportation, require to be highly dried, and by much the greater proportion exported are operated upon in the old way.

The manufacture of sugar from the beet, which has now become so extensive in France, is a more complicated process. The beet roots are pulled out of the ground, and their necks and rootlets cut off. They are then washed, reduced to a pulp by a rasping machine, and pressed to obtain their juice, which scarcely differs from that of the cane, except in being somewhat less rich in sugar. The juice is transferred to a copper boiler, furnished with two stop-cocks, the one of which is fixed near the bottom, and the other a few inches higher up, being previously mixed with one four-hundredth part of sulphuric acid, and a quantity of cream of lime, rather more than enough for the saturation of the acid. Heat is now applied as briskly as possible to the copper. A solid thick froth, of a greenish-gray colour, forms and deposits to a considerable amount, and the juice assumes a yellow hue, and becomes clarified. After an hour or two, the scum is removed and thrown on drainers, to save as much of the juice as possible. The clear juice is now run off successively, by the two stop-cocks, beginning with the higher, and the sediment is added to the froth on the filters. The juice is next transferred to a boiler, built on a level below the first, and is there evaporated by a quick fire. Whenever its density reaches to 1·12 (24° of Twaddel's hydrometer), animal charcoal is introduced in powder, and the concentration carried on, till its specific gravity is 1·24 (48° of Twaddel). The froth is removed as it forms. About two parts of animal charcoal are usually added to 100 of juice. The syrup is now filtered through woollen cloth, and allowed to cool. In the course of the night a considerable quantity of sulphate of lime is deposited, which must be carefully separated, prior to boiling up the liquor for crystallization. This concluding stage of the process is the same as that employed for the juice of the sugar cane. The refining of the raw beet sugar is conducted in the same way as that of the cane, and the results are described as being equally productive. The extraction of sugar from the juice of the maple is exceedingly simple. At the commencement of the spring, in the Northern States and Canada, the sugar maple trees are tapped near the ground, by numerous apertures, and the sap is collected in wooden troughs; two hundred pounds of which afford, by evaporation, fifteen pounds of a brownish sugar, which is capable of being refined in the same manner as the sugar from the cane and the beet.

Pure sugar occurs as a white granular solid, but may be crystallized in four or six-sided prisms, ter-

minated by two-sided, or by three-sided summits. Its specific gravity is 1·4′ to 1·6′. The crystals are nearly anhydrous. When exposed to heat, sugar swells up, is decomposed with a peculiar smell, and finally bursts into flames at a temperature somewhat below ignition. When dissolved in one third its weight of water, it forms a syrup, which keeps well in close vessels; but if considerably diluted with water, it rapidly changes, particularly with contact of air, becoming sour and mouldy. Sugar is hardly soluble in pure alcohol, though proof spirit dissolves it in considerable quantity. Syrups, which have been rendered uncrystallizable, bitter and astringent by combination with lime, barytes, and strontites, resume their original properties, when these bases are separated by the equivalent quantity of sulphuric acid. The same holds true with regard to potash and soda. When quicklime is left for several months in combination with syrup, carbonate of lime is deposited in very acute rhomboids, and the sugar is converted into a mucilaginous jelly, of the consistence of paste. Several other oxides, and especially that of lead, have the power of combining with sugar. Thus, when ground litharge is heated with sugar and water, it is dissolved; but after a while the liquor becomes opaque, and lets fall a white, insipid, light powder, insoluble in even a great quantity of boiling water, and which is a compound, in its dried state, of 100 of sugar, and 139·6 of oxide of lead. This saccharate of lead is decomposed by the feeblest acids, which seize the lead. Subacetate of lead does not precipitate sugar from its solution; and as this salt throws down almost every other vegetable and animal substance, it may be employed to separate sugar from other matters. Sugar has no action on salts, except at an elevated temperature. With the aid of water, it then reduces muriate of gold, the nitrates of mercury, and silver, the sulphate of copper, and reduces to the lowest term of oxidation several other salts. Sugar has been analyzed by several chemists. The following is a general view of the results:

	G. Lussac and Thenard.	Berzelius	Prout.	Ure.
Oxygen,	50·63	49·856	53·35	50·33
Carbon,	42·47	43·265	39·99	43·38
Hydrogen,	6·90	6·879	6·66	6·29
	100·00	100·00	100·00	100·00

M. Braconnot has recently extended our views concerning the artificial production of sugar and gum. Sulphuric acid (specific gravity 1·827) mixed with well dried elm dust, became very hot, and on being diluted with water, and neutralized with chalk, afforded a liquor which became gummy on evaporation. Shreds of linen triturated in a glass mortar, with sulphuric acid, yields a similar gum. Nitric acid has a similar power. If the gummy matter from linen be boiled for some time with dilute sulphuric acid, we obtain a crystallizable sugar, and an acid, which M. Braconnot calls the vegeto-sulphuric acid. The conversion of wood, also, into sugar, will no doubt appear remarkable; and when persons not familiar with chemistry, are told that a pound of rags can be converted into more than a pound of sugar, they may be disposed to consider the statement as a piece of pleasantry, though nothing can be more true.

SUGAR-CANE (*saccharum officinarum*). The art of cultivating the sugar-cane has been practised in China from the highest antiquity. It was unknown to the ancient Egyptians, Jews, Greeks, or Romans, and did not pass into Arabia till the end of the thirteenth century. From Arabia it was carried into Egypt, Nubia, and Ethiopia. The Moors obtained it from Egypt, and the Spaniards from the Moors. In the fifteenth century, the cane was introduced into the Canary islands by the Spaniards, and into Madeira by the Portuguese, and thence into the West India islands and the Brazils. Previous to the year 1466, sugar was known in England chiefly as a medicine; and, though cultivated in a few places on the Mediterranean, it was not more generally used on the continent. Now, in point of importance, it ranks next to wheat and rice, among all the products of the vegetable world, and has become the first article of maritime commerce. The Atlantic has been the principal theatre of this trade, which, more than any other circumstance, contributed to give a new spring to commerce in Europe, and to engraft the curse of slavery upon the new world. The sugar-cane, like the bamboo and Indian corn, belongs to the family of the grasses. It grows to the height of seven or eight feet or more, and its broad leaves, and large, silky panicles, give it a beautiful aspect. The stems are very smooth, shining, and filled with a spongy pith; the flowers are small, and very abundant, clothed externally with numerous silky hairs. The sugar-cane flowers only after the lapse of an entire year. In the West Indies, it is propagated by cuttings from the root end, planted in hills or trenches in the spring or autumn. The cuttings root at the joints under ground, and from those above, send up shoots, which, in eight, twelve, or fourteen months, are from six to ten feet long, and fit to cut down for the mill. A plantation lasts from six to ten years. (For the process of making sugar, see the preceding article.) The juice of the sugar-cane is so palatable and nutritive, that, during the sugar harvest, every creature which partakes freely of it, whether man or animal, appears to derive health and vigour from its use. The meagre and sickly negroes exhibit at this season a surprising alteration; and the labouring horses, oxen, and mules, though constantly at work, yet, as they are allowed to eat, almost without restraint, of the refuse plants and scummings from the boiling house, improve infinitely more than at any other period of the year. The sugar-cane is now cultivated in all the warm parts of the globe. Its growth is constant, but varies in rapidity according to the situation, the season, or the weather. The variety from Otaheite has lately elicited some attention, as it is said to succeed in soils too poor for the common variety, and to produce four crops, while the other yields only three: the crystallization is also more regular. The consumption of England alone now amounts to upwards of 400,000,000 pounds, which gives an average of about thirty pounds for each individual. In some parts of the U. S. sugar is manufactured to considerable extent from the sap of two species of maple. This is superior to the common brown sugar of the West Indies, but probably will eventually be superseded by that article, on account of its cheapness. See *Maple*.

SUGAR OF LEAD. See *Lead*.

SUHL, OR SUHLA; a town in the government of Erfurt, in the Prussian province of Saxony, lying in a romantic valley on the Lauter, on the south-west side of the Thuringian forest. It owes its importance to the mines which were discovered here in the fourteenth century. The iron works, and the manufacture of arms, form the chief employment of the inhabitants. The fire-arms made

here are highly esteemed. Population, 5800; twenty-eight miles south-west of Erfurt.

SUHM, Peter Frederic von, Danish chamberlain and historiographer at Copenhagen, born in 1728, was a philosopher, poet and historian. His father, a Danish admiral, educated him carefully. He died, in 1798, at Copenhagen. Suhm possessed a large fortune, which he used in aid of charitable objects and literary enterprises. He acquired reputation, as a critic and philosopher, by his moral essays and treatises of practical utility, as a poet, by his Northern Idyls and Tales, and as a classical historian, by his works on the history of his country. His library contained 100,000 volumes. He supported a librarian, and paid large sums for copying manuscripts, and in aid of poor students. The library was open to every one. Of his numerous works we need only mention his *Scriptorum Rerum Daniæ Medii Ævi;* his Introduction to the Critical History of Denmark (1769—73, 5 vols., 4to.); the Critical History of Denmark during the Pagan Ages (1774—81, 4 vols.); the Modern History of Denmark (of which seven volumes have been published, the first of which appeared in 1782). His miscellaneous works were collected and reprinted, with an account of his life, at Copenhagen (1788—98, 15 vols.).

SUICIDE. See *Homicide.*

SUIDAS; a Greek grammarian, who lived, according to some, in the eleventh century, according to others, in the tenth. He wrote an encyclopedia, particularly relating to geographical and historical subjects, which, though not perfectly accurate, is yet important, as it contains many things not to be found elsewhere. The best edition is that of Küster (Cambridge, 1705, 3 vols., folio).

SUIR; a river of Ireland, which takes its rise in the Keeper Mountains, in the county of Tipperary, and flowing past the towns of Thurles, Cashel and Cakir, reaches Clonmel, where it becomes navigable by large barges. At Canick sloops may float, and at Waterford quay vessels of the largest class lay along side the wharf in deep water. After a course of ninety miles the Suir is augmented by the water of the Nore and Barrow, and their united volumes poured on into the Lea in the haven of Water.

SUIT AT LAW. See *Action.*

SULIOTS; a mixed people of Arnaout and Greek descent, speaking the Arnaout and the Romaic dialects. They derive their origin from Arnaout and Grecian shepherds, who, in the seventeenth century, settled in the Cassiopeian mountains, occupying a wild valley, enclosed on three sides by almost inaccessible mountains, and accessible on the fourth only by a narrow defile. Here their numbers had increased, towards the end of the last century, to 10,000 souls, in seventy villages, of which Suli or Souli was the capital of the district. The Suliots are of the Greek church; their government was republican. They are brave, hardy, active, resolute and faithful. When, after a struggle of twelve years, Ali Pacha (q. v.) had rather reduced them to despair than conquered them (1803), they abandoned their country, and entered the service of the powers who had possession of the Ionian Islands. But when Ali found himself hard pressed by the Turks and deserted by the Albanians, he recalled the Suliots to his assistance. Their brave leader, Marco Botzaris, gained some brilliant successes; but the tyrant, who trusted neither the Suliots nor the other Greeks, perished in 1822. The Albanians then joined the Turks; but the Suliots remained true to the cause of Grecian liberty. Suli, however, was reduced by famine, September 4, 1822, and 3000 Suliots embarked in British ships for Cephalonia: the rest dispersed themselves in the mountains. The younger Marco Botzaris, son of the above mentioned leader of the same name, threw himself into Missolonghi, which he successfully defended, and afterwards fell at Carpinitzi. (See *Greece, Revolution of.*) His uncle, Noto Botzaris, defended Missolonghi in 1826. (See *Missolonghi.*) The corps of 500 men, raised and equipped by lord Byron at his own expense, was composed of Suliots, for whom he had a great admiration. See *Byron.*

SULLA, or SYLLA, Lucius Cornelius, Roman dictator, was born at Rome, U. C. 617 (B. C. 137), of the old and noble, but reduced, family of the Cornelii. He received a good education, but indulged himself in excessive dissipation and debauchery. A large fortune, partly left him by a courtesan, and partly obtained by marriage, enabled him to take a distinguished rank among the Roman knights, and to turn his attention to the career of ambition. He served, with brilliant success, as questor in Africa; and it was through his instrumentality that Bocchus was prevailed upon to surrender Jugurtha to the Romans—an event which terminated the Numidian war. Sulla next served under Marius in the Cimbrian war, until, to avoid the jealousy of the latter, he joined the army of the consul Catulus, and having twice defeated the Samnites, was chosen pretor. Having passed the year of his pretorship at Rome, he was, at the expiration of his term, appointed to the government of Asia Minor, where he established Ariobarzanes upon the throne of Cappadocia, and completely subdued Gordius, guardian of a son of Mithridates, then on the throne, in a single battle. He then concluded an alliance with the king of the Parthians, and conducted himself with so much haughtiness that one of the Cappadocians present exclaimed, "Surely this man is or will be master of the world." In the social war, in which Sulla and Marius were at the head of two separate armies, the indefatigable activity and daring courage of the former threw the reputation of the latter into the shade. Yet he himself declared that fortune had a greater share in his success than his own merit; and he readily accepted the surname of Felix (fortunate.) The consulship was the reward of his services (B. C. 88); and the province of Asia, with the conduct of the war against Mithridates, fell to his lot. But Marius was also ambitious of this command, and procured a decree of the people that it should be intrusted to him. Sulla therefore entered Rome at the head of his army, and, after setting a price on the head of his enemy, finally sailed for Greece, a great part of which had been conquered by Mithridates. Here his good fortune still followed him. He expelled Mithridates from Europe, pursued him into the heart of his Asiatic dominions, was victorious in every direction, and finally granted peace, on his own terms, to the enemy, on account of the state of affairs in Italy. During his three years' absence from Italy, his enemies had regained the superiority in Rome. Marius had been recalled; the blood of the friends of Sulla had been shed in torrents; he himself had been proscribed, and his property confiscated. Marius, exhausted by age and tortured by a guilty conscience, left his bed to oppose the return of his rival (see *Marius*), but died soon after entering upon his seventh consulship.

The leaders of his party, Cinna and Carbo, still, however, continued to conduct the public affairs, when Sulla, having intrusted the chief command in Asia to Murena, hastened to Italy at the head of 40,000 men. He landed at Brundusium, and was joined by many of his friends who had been banished from Rome. His enemies were much superior in numbers; but his courage and address rendered him victorious. After having gained four battles over the Roman forces in person, besides several through his generals, and, at the close of the war, defeated a Samnite army under Telesinus, before the walls of Rome, and having witnessed the destruction, captivity, or flight of his enemies, he entered the city as a master. One of his first acts was, to put to death between 6000 and 7000 prisoners of war in the circus; and when the senate, assembled in the temple of Bellona, testified their horror at hearing the shrieks of the victims, he coldly said, "Regard it not, fathers; it is only a few rebels who are punished by my orders." Rome and all the provinces of Italy were filled with the most revolting scenes of cruelty. After satisfying his vengeance by the murder or proscription of several thousands, destroying all the cities of Samnium except three, and massacring the whole population of Preneste, he celebrated a triumph, exceeding in splendour any that had preceded it, and caused himself to be named dictator for an indefinite period (B. C. 81). He now ruled without restraint; repealed and made laws; abolished the tribuneship; added 300 knights to the senate, and admitted 10,000 slaves of persons proscribed to the rights of citizenship. After a few years, to the astonishment of all, he laid down his dictatorship (B. C. 79), and declared himself ready to answer for his actions, although he had caused above 100,000 men, among whom were ninety senators, fifteen men of consular rank, and 1600 knights, to be put to death. Retiring to Puteoli, and abandoning himself to all sorts of debauchery, he died, the following year, of a disgusting disease, occasioned by his excesses. Naturally insinuating and persuasive, Sulla endeavoured, in his youth, to please universally. He spoke of himself with modesty, but was lavish of praises, and even of money, towards others. With the common soldiers he was familiar, adopting their customs, drank with them, and partook of their amusements and hardships. At times, he was severe, active, and vigilant, and impenetrable even to the companions of his excesses. He lent a ready ear to soothsayers and astrologers; and his character was stained by sensuality, avarice, and cruelty. Yet he had sufficient self-control to tear himself from his pleasures when ambition commanded. He was an able general and a great statesman; cruel, but faithful to his promises; calm and cold, but inflexible in his purposes. He sacrificed even his friends to the laws which he himself made and violated, and compelled his fellow citizens to be better than himself. He ordered it to be inscribed on his tomb, that no man had ever equalled him in doing evil to his enemies, nor in doing good to his friends.

SULLY, Maximilian de Bethune, duke de; marshal of France, and first minister of Henry IV.; one of the most estimable men that ever guided the helm of state. He was born at Rosny, of an ancient and noble family, in 1559, and educated in the Protestant (Calvinistic) faith. At the age of eleven years, he was presented by his father to the queen of Navarre, and her son Henry, with whom he was educated. In 1572, he accompanied the young prince to Paris, for the purpose of pursuing his studies there, and was preserved, during the massacre of St Bartholomew's, by the president of the college of Burgundy, who concealed him for three days. In the service of the young king of Navarre (see *Henry IV.*), the baron de Rosny, as he was then styled, distinguished himself, on several occasions, by a bravery approaching to rashness. At Ivry (1590), where he took the standard of the duke of Maine, he was most dangerously wounded. In 1591, he took Gisors; and the capture of Dreux in 1593, Laon in 1594, La Fere in 1596, Amiens in 1597, and Montmelian in 1600, added to his reputation as a warrior. But his abilities as a diplomatist and financier were no less remarkable. In 1586, he concluded a treaty with a Swiss, for a supply of 20,000 troops for his master's service; and in 1597, he was placed at the head of the department of finance, and two years after, he was declared superintendent. About the same time (1599), he also negotiated the marriage of Henry with Mary de' Medici. In his embassy to England, after the death of queen Elizabeth, (1603), he displayed great penetration and address, and concluded a treaty with James I., advantageous to the interests of both countries. In addition to his other offices, he was appointed grand surveyor of France, grand master of the artillery, governor of the Bastile (1602), and superintendent of fortifications throughout the kingdom. His labours, as minister of finance, were attended with the happiest success; and the revenues of the government, which had been reduced to a state of complete dilapidation, by the combined effects of civil anarchy and open warfare, were by his care restored to order, regularity, and affluence. With a revenue of thirty-five millions, he paid off, in ten years, a debt of two hundred millions, besides laying up thirty-five millions. Though frequently thwarted in his purposes by the rapacity of the courtiers and mistresses of the monarch, he nobly pursued his career, ever distinguishing himself as the zealous friend of his country, and not the temporizing minister of his master. His industry was unwearied. He rose every morning at four o'clock, and, after dedicating some time to business, he gave audience to all who solicited admission to him, without distinction of persons. After his return from his mission to England, he was made governor of Poitou, and grand master of the ports and harbours of Provence; and the territory of Sully-sur-Loire was erected into a duchy in his favour, in 1606. On the murder of Henry IV. he was obliged to retire from court (1611); but, after some years, he was recalled by Louis XIII.; and, on making his appearance in the royal circle, the courtiers did not treat him with that respect to which he thought himself entitled; on which he said to the king, "Sire, when your father did me the honour to consult me, we never spoke on business till he had dismissed his flatterers and buffoons to the antechamber." In 1634, he received the staff of a marshal, in exchange for the office of grand master of the artillery. His death took place at Villebon, December 22, 1641. Although Sully approved Henry's conversion to the Catholic faith, yet he himself remained true to his Protestant principles. The courtiers, dissatisfied with his strictness, often ridiculed and complained of him; but even the king's most favoured mistress could not prejudice his royal master against him. (See *Estrées.*)

Sully's *Mémoires des sages et royales Economies d'Etat, domestiques, politiques, et militaires de Henri le Grand*, was printed at Sully, under the eye of the author, in 1636. The second and third volumes did not appear till 1662. There have been many re-impressions, some of which have been mutilated by other hands. These memoirs give us a vivid and accurate picture of the courts of Charles IX., Henry III., and Henry IV., and particularly of the character, habits, public policy, and private life of the latter monarch.

SULPHATE. For the various sulphates, see the respective articles.

SULPHUR. We shall first give the mineralogical history of this substance. It occurs abundantly in nature, both crystallized and massive. The form of its crystals is an acute octahedron, either perfect, or variously modified, and derivable from an octahedron with equal and similar scalene triangular planes, of which the common base of the two pyramids is rhombic; cleavage imperfect; fracture conchoidal; lustre resinous; colour several shades of sulphur-yellow, inclining sometimes to red or green; streak sulphur-yellow, passing into white; transparent or translucent; sectile; hardness between gypsum and calcareous spar; specific gravity 2·072. The massive varieties occur in imbedded globules, also in large pieces, having a granular or impalpable composition, and an uneven or flat conchoidal fracture. The present species has usually been treated of under two divisions, viz. *common* and *volcanic* sulphur, in allusion to the geological situation of the two varieties; the volcanic sulphur being a product of sublimation, while the common sulphur is found in strata not immediately connected with volcanic rocks. Volcanic sulphur appears in the shape of crusts, superficial coatings, stalactites, or loose, mealy masses, and consists generally of columnar particles of composition, not unfrequently terminating in crystalline points. Common sulphur has been further divided into *compact* and *earthy*, the last of which comprehends those varieties which, on account of the smallness of the individuals in the granular compositions, appear as a friable, mealy powder. Sulphur is principally met with in beds of gypsum, or in the accompanying strata of clay. It is generally associated with sulphate of strontian. It also occurs with copper pyrites, galena, and orpiment. It is deposited from several springs, and in large quantities from volcanoes. In Sicily, and several provinces of Italy, sulphur is found in splendid crystals, as well as in globular concretions. It occurs in imbedded spheroidal masses of a brown colour, which is owing to bitumen, at Radoboy, near Crapina, in Croatia. The finest crystals, after those of Sicily, are brought from Conil, near Cadiz, in Spain. It occurs in veins in Suabia, Spain, and Transylvania. The earthy sulphur is found in Poland, in Moravia, and other countries; the volcanic sulphur in Iceland, near Vesuvius in the Solfatara, in fine crystals in Teneriffe, in great profusion near the volcanoes of Java, and in the vicinity of most other active volcanoes. In general, it requires to be purified, either by melting or by sublimation, in order to render it fit for use in the arts.

Sulphur, in a state of purity, is destitute of odour, and of a weak, though perceptible taste. It is a non-conductor of electricity, and of course becomes electric by friction. The specific gravity of roll sulphur varies from 1·97 to 2·00. It undergoes no change from exposure to the air, and is insoluble in water. If a considerable piece of sulphur be exposed to a sudden, though gentle heat, by holding it in the hand, for instance, it breaks to pieces with a crackling noise. When heated to the temperature of about 170°, it rises up in the form of a fine powder, which may be easily collected in a proper vessel. This powder is called *flowers of sulphur*. When heated to the temperature of 218°, it melts, and becomes as liquid as water. Between the melting point and 252°, it is as liquid as varnish, and its colour is that of amber. About the temperature of 340°, it begins to grow thick, and assumes a reddish tinge; and if we continue to increase the temperature, it becomes so thick, that the vessel containing it may be turned upside down without the risk of spilling any of it. Between the temperature of 428°, and that of 482°, it is thickest of all, and its colour is reddish-brown. From 482° to its boiling point, which is not far from 750°, it becomes thinner, but never so thin as it was when below the temperature of 248°; and its reddish-brown colour does not alter. If it be suddenly cooled while in the most liquid state, as by throwing it into water, it becomes instantly brittle; but if it was so hot as to be viscid, and be suddenly cooled, it remains quite soft; so that it may be drawn into threads. In the first case, it crystallizes; in the second, it does not. This state of softness is probably connected with the viscidity; which, when the cold is suddenly applied, prevents the possibility of the particles arranging themselves in regular order. If sulphur be melted in a ladle, or oval vessel, and, as soon as its surface begins to congeal, the liquid portion beneath the surface be poured out, the internal cavity will exhibit long, needle-shaped crystals. Alcohol, sulphuric ether and the oils dissolve a small portion of sulphur. It combines in five proportions with oxygen, and forms five compounds, which have received the names of *sulphuric acid*, *sulphurous acid*, *hyposulphurous acid*, *subsulphurous acid*, and *hyposulphuric acid*. We shall describe the *sulphurous acid* first. It is formed when sulphur is burnt, either in the open air or in oxygen gas. But the way in which it is usually obtained for experiment, is to heat a mixture of sulphuric acid and mercury in a small retort; a gas is evolved, which is sulphurous acid. It is colourless, is possessed of an exceedingly suffocating and disagreeable smell, precisely similar to that of burning sulphur. Its taste is intensely acid and sulphureous. It converts vegetable blues to red, and then gradually destroys them. Its specific gravity is 2·2293. The gas may be collected over mercury, or received into water, which, at the temperature of 61°, will absorb thirty-three times its bulk, or nearly an eleventh of its weight. It consists of sulphur 50 and oxygen 50. It is used in bleaching, particularly for silks: it likewise discharges vegetable stains and iron moulds from linen. In combination with the salifiable bases, it forms sulphites, which differ from the sulphates in their properties. The alkaline sulphites are more soluble than the sulphates; the earthy, less so. They are converted into sulphates by an addition of oxygen, which they acquire even by exposure to the air. By putting sulphuric acid and mercury into the sealed end of a recurved glass tube, then sealing the other end, and applying heat to the former, a liquid sulphurous acid may be obtained: it remains in a liquid state in the air at 0° Fahr.: it is colourless, transparent, and very volatile; specific gravity 1·45. It boils at 14°; but, in conse-

quence of the cold produced by the evaporation of the portion that flies off, the residue remains liquid. It causes a feeling of intense cold when dropped on the hand.

Sulphuric acid is obtained by burning a mixture of about seven parts sulphur, and one part nitre, in large chambers, lined with lead. By this combustion, sulphurous acid and deutoxide of nitrogen are formed. The deutoxide absorbs oxygen from the atmosphere, and is converted into nitrous acid. Both the acids are absorbed by water. The nitrous acid gives out part of its oxygen to the sulphurous acid, and converts it into sulphuric acid; and being reduced to the state of deutoxide, again flies off, unites to oxygen, is converted to nitrous acid, and absorbed by the water. This process goes on till the whole of the sulphurous acid is converted into sulphuric acid. The water, thus acidulated, is evaporated in leaden vessels to a certain point. The evaporation is then continued in glass retorts, till the acid acquires the requisite degree of strength. The ordinary form of a sulphuric acid lead chamber is the parallelopiped, and its dimensions about seventy feet long, ten or twelve high, and sixteen wide. At the middle height of one end, a small oven is built up, with a cast-iron sole, having a large lead pipe, ten or twelve inches in diameter, proceeding from its arched top into the end of the lead chamber. On the sole the sulphur is burned; the combustion being aided, when necessary, by heat applied from a little furnace below it. Above the flaming sulphur, a cast-iron basin is supported in an iron frame, into which the nitre, equal to one tenth of the sulphur, is put, with a little sulphuric acid. The combustion of the sulphur is regulated by a sliding door on the oven. In the roof of the remote end of the large chamber, a small orifice is left for the escape of the atmospheric nitrogen, and other incondensable gases. This apparatus is used for the continuous process; but there is another, or that of the intermitting combustion, which is worthy of notice. Large flat trays, containing the sulphur and nitre, are introduced into the interior of the chamber, or into the oven, and fire is applied to the materials. When the sulphur is burned, and the chamber filled with sulphurous and nitrous acids, the steam of water is thrown in, in determinate quantity, by a small pipe at the side. This causes a tumultuous motion among the gases and the atmospheric oxygen, which favours the mutual reaction. As the steam condenses, the sulphuric acid falls with it. After some time, the chamber is aired by opening valves of communication with the external atmosphere. The operation is then commenced anew. Sulphuric acid was formerly obtained by distillation from sulphate of iron; sixty-four pounds are yielded by six hundred pounds of the sulphate of iron. The following are the properties of pure sulphuric acid. It is colourless, has somewhat of an oily or glutinous consistency, and hence the ancient name of *oil of vitriol*. It speedily chars animal and vegetable substances, when placed in contact with them. It converts vegetable blues to red, and is possessed of an exceedingly acid taste. Acid of the specific gravity 1·85, boils at the temperature of 620°. The boiling point diminishes with the strength. Acid of the specific gravity 1·78, boils at 435°, and acid of the specific gravity 1·65, at 350°. The quantity of water present in one hundred parts of concentrated and pure sulphuric acid is very nearly 18·46. It consists of three proportionals of oxygen, one of sulphur, and one of water; and by weight, therefore, of 3·0 oxygen + 2·0 sulphur + 1·25 water, which equals 6·125, which represents the combining weight of the concentrated sulphuric acid; while 3 + 2 = 5, which is the equivalent of the dry acid. Sulphuric acid strongly attracts water, which it takes from the atmosphere very rapidly, and in larger quantities if suffered to remain in an open vessel—imbibing one third of its weight in twenty-four hours, and more than six times its weight in a year. If four parts by weight be mixed with one of water at 50°, they produce an instantaneous heat of 300°; and four parts raise one of ice to 212°. On the contrary, four parts of ice mixed with one of acid, sink the thermometer to 4° below 0. It requires a great degree of cold to freeze it; and, if diluted with half a part or more of water, unless the dilution be carried very far, it becomes more and more difficult to congeal; yet, at the specific gravity 1·78, it may be frozen by surrounding it with melting ice. Its congelation forms regular prismatic crystals, with six sides. All the simple combustibles decompose sulphuric acid with the assistance of heat. At about 400°, sulphur converts sulphuric acid into sulphurous acid. Several metals at an elevated temperature decompose this acid, with evolution of sulphurous acid gas, oxidizement of the metal, and combination of the oxide with the undecomposed portion of the acid. Sulphuric acid is of very extensive use in chemistry, as well as in metallurgy, bleaching, and some of the processes for dyeing. In medicine, it is given as a tonic and stimulant, and is sometimes used externally as a caustic. The combinations of this acid with the various bases are called sulphates, and constitute a very important class of salts: for an account of which, see their respective bases.—*Subsulphurous acid.* It has been found, that sulphurous acid has the property of dissolving iron, without the evolution of any gas. The acid gives out half its oxygen to the iron, and converts it into the protoxide of iron, which combines with the acid in question, and which consists of half the oxygen found in sulphurous acid. When the salt is decomposed, the subsulphurous acid is resolved into sulphurous acid and sulphur. It seems incapable of existing except in combination with a base. When insulated, half the sulphur separates, and sulphurous acid remains. —The *hyposulphurous acid* also seems incapable of existing except in combination with a base. When sulphuric acid in a slight excess is poured into a dilute solution of hyposulphite of strontites, the whole strontites is thrown down, and the filtered liquid consists chiefly of a solution of hyposulphurous acid in water. This liquid is transparent and colourless, is destitute of smell, and has an acid, astringent, and very bitter taste. On standing a few hours, it undergoes spontaneous decomposition, the liquid becomes milky, sulphur is deposited, and sulphurous acid remains in solution.—*Hyposulphuric acid.* By causing a current of the sulphurous acid gas to pass through black oxide of manganese, suspended in water, a neutral salt is formed, which, when dissolved, consists of a mixture of neutral sulphate and hyposulphate of manganese. By pouring into this solution barytes water, the whole of the sulphate of manganese is thrown down, while the hyposulphate is converted into hyposulphate of barytes, which remains in solution. A current of carbonic acid throws down any excess of barytes that may have been added; and then, by evaporating the liquid, the hyposulphate of barytes is obtained in

crystals. These crystals are dissolved in water, and the barytes they contain precipitated, by means of sulphuric acid; care being taken not to add the sulphuric acid in excess. The liquid now consists of water holding hyposulphuric acid in solution. This acid is colourless and destitute of smell. It may be concentrated till its specific gravity is 1·347. It then begins to be decomposed by heat, sulphurous acid flies off, and sulphuric acid remains behind it. It is found that it can be completely resolved into sulphurous and sulphuric acids, in the proportion of four parts of the former to five parts of the latter. Thus we know five compounds of oxygen and sulphur, all of which are acids. Their names, constituents, and combining weights, are as follows:

	Sulphur.		Oxygen.	Combining Weight.
1. Hyposulphurous acid,	2 atoms	+	1 atom	5
2. Subsulphurous acid,	1	+	1	3
3. Sulphurous acid,	1	+	2	4
4. Sulphuric acid,	1	+	3	5
5. Hyposulphuric acid,	2	+	5	9

Sulphur combines readily with chlorine, forming a liquid compound called *chloride of sulphur*. It is formed by passing a current of chlorine through flowers of sulphur, or by heating sulphur in a dry glass vessel, filled with chlorine gas. Its colour is brownish-red, and it possesses an odour similar to sea-plants. Its taste is acid, hot and bitter. It does not change the colour of litmus paper; specific gravity 1·67. When dropped into water, it is decomposed, sulphur being evolved. It is composed of sulphur 2 and chlorine 4·672. By pouring bromine on flowers of sulphur, an analogous compound is formed, called *bromide of sulphur*. Cold water has but little action on it, but, at a boiling temperature, a slight detonation takes place, and hydrobromic acid is formed, together with sulphuric acid and sulphureted hydrogen. It consists of bromine 10 and sulphur 2. Sulphur has the property of combining with iodine, and of forming a compound called *iodide of sulphur*. It is easily formed by mixing together the two constituents in a glass tube, and exposing them to sufficient heat to melt the sulphur. It is of a grayish-black colour, and has a radiated texture. It has not been analyzed. Sulphur has the property of combining with hydrogen, and of forming a gaseous compound, which has received the name of *sulphureted hydrogen*. It has also been called *hydrosulphuric acid*. It may be obtained by pouring sulphuric or muriatic acid upon several metallic sulphurets. Sulphuret of iron is commonly employed, and may be formed by heating together iron filings and sulphur in a covered crucible. Sulphureted hydrogen gas is colourless, and has a strong, fetid smell, not unlike that of rotten eggs. It does not support combustion, nor can animals breathe it without suffocation. Its specific gravity is 1·1805. It is rapidly absorbed by water, —100 cubic inches of this liquid absorbing 308 cubic inches of sulphureted hydrogen. The water thus impregnated is colourless, but it has the smell of the gas; and a sweetish, nauseous taste. It converts vegetable blue colours to red. When the gas is mixed with common air, it burns rapidly, but does not explode. When three volumes of sulphureted hydrogen gas, and two volumes of sulphurous acid gas, both dry, are mingled over mercury, they unite together, and are condensed into a solid body, which adheres firmly to the sides of the vessel. To this compound, which possesses acid properties, the name of *hydrosulphurous acid* is applied. Its taste is acid and hot; and it leaves an impression in the mouth, which continues for some time. It requires a greater heat to produce fusion than sulphur. Another compound of sulphur and hydrogen, called *bisulphuret of hydrogen*, is formed as follows: Carbonate of potash is fused with an excess of sulphur in a covered crucible, by which a sulphuret of potash is formed. A concentrated solution of this sulphuret is poured, by little and little, into dilute muriatic acid, which gives rise to a yellow, oily-looking liquid, which collects at the bottom of the vessel. This liquid is the bisulphuret of hydrogen. It cannot be kept, for it undergoes spontaneous decomposition even in well-closed vessels, being converted into sulphur and sulphureted hydrogen. Sulphur has the property of combining with carbon, and of forming a very remarkable compound, called *bisulphuret of carbon*. It is formed as follows:— Fill a porcelain tube with charcoal, and make it pass through a furnace in such a way, that one end shall be considerably elevated above the other. To the lower extremity lute a wide glass tube, of such a length and shape, that its end can be plunged to the bottom of a glass bottle filled with water. To the elevated extremity lute another wide glass tube, filled with small bits of sulphur, and secured at the further end, so that the sulphur may be pushed forward by means of a wire, without allowing the inside of the tube to communicate with the external air. Heat the porcelain tube, and, consequently, the charcoal which it contains, to redness, and continue the heat, till air bubbles cease to come from the charcoal; then push the sulphur slowly, and piece after piece, into the porcelain tube. A substance passes through the glass tube, and condenses, under the water of the bottle, into a liquid. This liquid was obtained by Lampadius in 1796, and described under the name of *alcohol of sulphur*. It is as transparent and colourless as water; its taste is acid, pungent, and somewhat aromatic; its smell is nauseous and fetid, though quite peculiar; specific gravity 1·27. It boils at 105°, and does not congeal when cooled down to 60°. It is one of the most volatile liquids known, and produces a greater degree of cold by its evaporation than any other substance. It takes fire in the open air, at a temperature scarcely above 620°. It is scarcely soluble in water; but alcohol and ether dissolve it readily. It is composed of sulphur 84·83 and carbon 15·17. Bisulphuret of carbon was found by doctor Brewster to exceed all fluid bodies in refractive power. In dispersive power, it exceeds every fluid substance except oil of cassia, holding an intermediate place between phosphorus and balsam of Tolu. Sulphur combines with *boron*, *silicon* and *phosphorus*, and forms *sulphurets* of these substances. For an account of the sulphurets of the metals, see the different metals.

SULPHURIC ACID. See *Sulphur*.

SULTAN, in Arabic, signifies *mighty*. The Turkish emperor is called *sultan*, or *grand sultan*, although the title of *padishah* is more dignified. The princes of the family of the khan of the Crim Tartars are also styled *sultan*. The pacha of Egypt is likewise honoured with this title, by the inhabitants of the country, but not at the court of Constantinople. In common life, every person is addressed, out of civility, as *sultanum* (my lord). The Europeans also call the wives of the sultan, *sultanas;* but the Turks call them merely first, second, or third wife, &c. The first is she who first bears a son to the sultan. She is likewise called by Europeans the *favourite sultana*. She has the precedency

of all the women of the seraglio, unless her son dies before the sultan, and another of the wives has a son older than any of hers surviving. The title of *sultana* is applied properly only to one of the wives, who is actually declared wife and empress; but this is rarely done, on account of the expense of a second court, which would be necessary. At Constantinople, only the daughters of the sultan are called *sultanas:* and they retain this title even after marriage with the officers of the sultan. The daughters of such a marriage are termed *kanum sultanas* (ladies of the blood). If the mother of the sultan is living, she is styled *Walidet-sultana*, or *sultana Valide*. She is treated with great respect, and her son cannot choose a new wife or concubine without her consent. (See *Harem*.) *Sultana* is also the name of a Turkish ship of war, carrying about sixty-six guns, with 800 men.

SUMACH (*rhus*); a genus of plants, belonging to the natural family *terebinthaceæ*, consisting of shrubs or small trees, with small, inconspicuous flowers, disposed in racemes or panicles, and leaves usually pinnate, somewhat resembling those of the walnut, but in some species ternate or simple. More than seventy species are known: all have a lactescent juice, more or less acrid, and containing a gum-resin.—*R. coriaria* is found in the countries about the Mediterranean. The young branches, dried and powdered, were used by the ancients for tanning leather; and at the present time, in some parts of Spain and Italy, the black morocco is chiefly prepared with this plant. The roots contain a brown, and the bark a yellow dye. The seeds are in common use at Aleppo, at meals, to provoke an appetite. Both leaves and seeds are used in medicine, as astringent and styptic.—*R. typhina* is a shrub, twelve or fifteen feet high. The young branches are thick, and covered with a dense coating of hairs; hence the common name of *stag's horn sumach*. The leaves are pinnate, and composed of eleven to fifteen serrated leaflets. The flowers are small and numerous, disposed in an upright hairy panicle, and are succeeded by small berries, which finally turn red, and render this shrub a conspicuous object in the woods. It has been long cultivated in the European gardens for ornament. The berries possess the same properties as those of the preceding, and a very abundant milky juice flows from the bark. This last is pulverized, and employed for tanning.—*R. glabra* is distinguished by the smoothness of the leaves and young shoots. The berries dye red, and the branches boiled with the berries afford a black, ink-like tincture. It is likewise cultivated for ornament, in the European gardens, and possesses the same properties as the preceding.—*R. pumila* is a low, pubescent species, which is said to be the most poisonous of the genus.—*R. venenata*, commonly called *dog-wood* or *poison sumach*, attains the height of twelve to twenty feet. The leaves are smooth and entire: the flowers greenish-white, disposed in loose panicles, and succeeded by whitish berries. The poisonous qualities of this plant are well known. Some persons are affected by touching or smelling any part of it, or even by coming within a certain distance; while others appear to be entirely exempt from its influence. When the poison has been communicated, inflammation appears on the skin, in large blotches, in a day or two; soon after, small pustules rise in the inflamed parts and fill with watery matter, attended with intolerable itching and burning, and lasting several days.—*R. copallina* is easily distinguished by the leafy expansion on each side of the common petiole. The flowers are greenish-yellow, and are disposed in panicles at the extremities of the branches.—*R. radicans*, often called *poison ivy*, is a climbing, woody vine, which adheres to the trunks and branches of trees, by means of root-like suckers. The leaves are ternate, and the flowers are disposed in little axillary racemes. It affects certain individuals in the same manner as the poison sumach; but it seems to be less virulent, and fewer persons are exposed to its influence.—*R. aromatica* differs widely in habit from the others. It is a small shrub, with ternate leaves, having the flowers disposed in aments. The berries are hairy and red. The celebrated Japan varnish is obtained from a species of *rhus*, which was formerly considered identical with our poison sumach; but now is recognised as a distinct species, having the under surface of the leaves downy and velvety. This varnish oozes from the tree, on its being wounded, and grows thick and black when exposed to the air. It is so transparent, that when laid pure and unmixed upon boxes or furniture, every vein of the wood may be clearly seen. With it the Japanese varnish over the posts of their doors and widows, their drawers, chests, boxes, cimeters, fans, tea-cups, soup-dishes, and most articles of household furniture made of wood.

SUMAROKOFF, Alexander Petrowitsch, a distinguished Russian tragic poet, who formed himself on French models, was born in 1718, and died at Moscow in 1777. His tragedies, in point of harmony, taste, and purity of style, are compared to those of Racine, though inferior in poetical inspiration. His principal works are Sineus and Truwor (which appeared in 1755); Semire, Jaropolk und Deinise, Korew and Aristone; all of which were translated into French in 1801. He also wrote Hamlet, Ritschelas, and the Pseudo-Demetrius. The last is considered his best work (translated into French in 1800, also into English). Sumarokoff also wrote comedies, fables and epigrams.

SUMATRA; an island in the eastern seas, the largest and most westerly of the Sunda islands, separated from the continent by the straits of Malacca, and from Java by the straits of Sunda. It is divided obliquely by the equator into almost equal parts, and its general direction is from N. W. to S. E.; lat. of one extremity 5° 56′ N., of the other 5° 56′ S. It is about 1000 miles long, and 165, on an average, broad; square miles, about 160,000. A chain of high mountains runs through the whole extent of the island, and the ranges are, in many parts, double and treble. Mount Ophir, immediately under the equinoctial line, is supposed to be the highest visible from the sea, its summit being elevated 13,842 feet above that level. Among the ridges of mountains are extensive plains of great elevation, and of temperate climate, the most valuable and best inhabited portion of the island. Here, too, are found many large and beautiful lakes. The ridges of mountains lie towards the western shore; in consequence, all the greatest rivers are found on the eastern side. The climate varies with the height of the ground; but on the plains, the heat is not so great as might be expected from the position; the thermometer, in the greatest heat, about two o'clock p. m., generally fluctuating from 82° to 85°: at sunrise, it is usually as low as 70°. The soil is generally fertile; the population for the most part thin; and a great portion of the island is covered with an impenetrable forest. The most

important article of cultivation is rice, of which there are many different species. Of articles of commerce, the most abundant is pepper, formerly obtained in greater quantities than at present. Other productions are, gumbenzoin, camphor, cassia, cotton, coffee, &c. The upas tree, and the gigantic rafflesia, are among the vegetable curiosities. It is rich in mineral and fossil productions; has long been famous for gold, which is still procured in considerable quantities; and has mines of iron, copper, and tin. It produces a great variety and abundance of fruits, and wild animals, as elephants, tigers, rhinoceroses, alligators, &c.; also birds of various kinds. The inhabitants are rather below the middle size: their limbs are for the most part slight, but well shaped. The women flatten the noses and compress the skulls of children newly born; and the males destroy their beards. The inhabitants have made but little progress, generally, in the arts of industry, though they excel in some particular manufactures. The Malay language is every where spoken along the coasts of Sumatra. (See *Malays*.) Among the modern political divisions of the island, the principal are the empire of Menancabow and the Malays, the Achineese (see *Acheen*), the Battas, the Rejangs, and the people of Lampong. The Dutch first began to form settlements on the coasts in 1666, and in 1685, the English also established themselves at Bencoolen. In 1825, the presidency of Bencoolen, of which the capital was Fort Marlborough, was ceded to the Dutch, in return for Malacca. The latter were already in possession of Padang, a strong fortress on the western coast, and of Palembang (25,000 inhabitants), on the eastern coast. Previous to the late revolution in the Netherlands, they were making preparations to reduce the whole island. Sir Thomas Stamford Raffles was the first European who penetrated to the interior of the island, which he crossed from Bencoolen to Pelembang. See Marsden's *History of Sumatra*, and Anderson's *Mission on the East Coast of Sumatra* (Edinburgh, 1826, 2 vols.).

SUMMER; in Great Britain, the season comprehended in the months of May, June, and July. The equinoxes and solstices divide the year into four seasons. From the vernal equinox to the summer solstice is with us the astronomical spring. From the summer solstice to the autumnal equinox is our summer. The time betwixt the autumnal equinox and the winter solstice is our autumn, and from the winter solstice to the vernal equinox is our winter. Notwithstanding the changes in the signs of the ecliptic, produced by the precession of the equinoxes, the ancient signs of summer have remained in the calendar. In the northern hemisphere, they are Cancer, Leo, Virgo; in the southern, Capricorn, Aquarius, Pisces. Our summer takes place at the time when the earth is at the greatest distance from the sun, and hence moves the slowest. The diameter of the sun, therefore, appears considerably smaller at this season than in winter, and the summer of the northern hemisphere has ninety-three and a half days,—a few days more than the winter,—and, therefore, more than the summer of the southern hemisphere. Notwithstanding the greater distance of the sun in summer, his rays have much more effect than in winter, because they fall more directly upon the northern hemisphere. He also rises much sooner, and sets much later, and, therefore, describes a much greater arc in the heavens than in winter. At the time when he has reached the tropic of Cancer, he ascends highest in the heavens, and remains longest above the horizon; and we might, therefore, suppose that this would be the period of the greatest heat. But experience shows that the greatest heat generally takes place in August, throughout the whole northern hemisphere, far beyond the polar circle. The reason of this circumstance is, that, in August, the influence of the sun's rays has been felt for a long time on the earth, and that, within the polar circle, as far as to the tenth or twelfth degree from the pole, the ice has been thawed and the temperature of the air moderated; hence the wind which blows from those northern regions to the south is milder.—See Meyer's *Manual of Physical Astronomy, Theory of the Earth*, and *Meteorology* (German, Göttingen, 1805).

SUN. This magnificent luminary, the great source of light, heat, and life, appears to us a circular and resplendent disk; from which appearance, and the observation of the solar spots (described below), it follows that this body has a form nearly spherical, and turns round its axis once in about twenty-five and a half days, because a sphere only can appear to the eye like a circular disk in all positions. The true relation of the sun, not only to our earth, but to all the planets of our system, has been known since the discoveries of Kepler. The primary planets, accompanied by their moons, revolve about the sun in elliptical orbits, which have but little eccentricity, the sun itself being situated in a focus common to all these ellipses. His mean distance from the earth, which has been finally determined, with tolerable accuracy, by the observation of his parallax (see the subsequent part of this article), amounts, in round numbers, to about 95,000,000 miles: the sun, therefore, is above 400 times farther distant from us than the moon; and a cannon ball which moves 600 feet in each second, would require about twenty-six years to reach it. The apparent diameter of the sun is pretty nearly the same as that of the moon: it is somewhat above half a degree; yet, according to the various points of the earth's orbit, from which we observe the same, varies somewhat—a necessary consequence of the elliptical form of this orbit. The conclusions which we draw from the differences in the apparent magnitude of the sun as to the different distances of this body from the earth, agree perfectly with what we learn, respecting the same subject, from other sources; so that this point may be considered as well settled. The mass of the sun, which exceeds that of all the planets together 800 times, is, in proportion to that of our earth, according to Piazzi, as 329,630 to 1; the diameter exceeds that of the earth 112 times, the surface 12,700 times, the solid contents 1,435,000 times. The earth, appears, as Biot says, by this statement, a mere grain of sand, compared to the sun, which, again, in his turn, is but a point in infinite space. Respecting the physical structure of the sun, astronomers have entertained different opinions, from times immemorial. The hypothesis of Herschel is, that the sun is an opaque body, having on its surface mountains and valleys, like the earth, the whole surrounded by an atmosphere constantly filled with luminous clouds. These sometimes open in particular places, and allow the body of the sun to be seen; hence the appearance of solar spots. This hypothesis seems to be preferable to that of Laplace (who imagines the sun to be a burning body), because it allows us to con-

ceive that the sun is inhabited, which better agrees with the wise use made of space by a beneficent Omnipotence.

Parallax of the Sun. Parallax and horizontal parallax have been explained in the article *Parallax*. The horizontal parallax of the sun has been known with greater accuracy since the transit of Venus over the sun's disk in 1761 and 1769. As the orbit of the earth includes that of Venus, the latter must sometimes appear between us and the sun. The duration of such a transit for the centre of the earth may be calculated; and on comparing this with the duration actually observed on the surface of the earth, the difference of the two results enables us to deduce the horizontal parallax of the sun, and hence the distance of the two luminaries from each other. In this way the mean horizontal parallax of the sun has been estimated by Durejour at 8′ 8″ and by Biot at 8′ 7″, which makes the mean distance of the sun from the earth amount to 23,439 times the radius of the earth (which is about 4000 miles in length), or, in round numbers, 94,000,000 miles. If this horizontal parallax is taken but one tenth of a second smaller, we must add to this distance an amount equal to 215 times the radius of the earth, which explains the difference in the statements of the distance. This distance having been ascertained with tolerable accuracy, we possess the measure of our whole planetary system, as, according to the second law of Kepler (q. v.), the cubes of the mean distances of the planets from the sun are as the squares of the periods of their revolutions (which have long been known). Therefore the determining of this distance is of the highest importance. Respecting the transit of Venus, see Lalande's *Astronomie*, Encke's *Distance of the Sun from the Earth, by the Transit of Venus in* 1761, *and the Transit of Venus in* 1769 (in German). See *Transit*.

Spots on the Sun.—Spots of irregular form are often observed in the disk of the sun, in greater or less number. They appear in the centre dark, and towards the margin have a whitish-gray umbra, which, however, is often observed spreading over large surfaces, without that black centre. They originate and disappear, sometimes quickly, and without apparent cause, in the middle of the disk; but more frequently are observed to rise on the eastern margin, and move towards the western, where, thirteen days after being first seen, they disappear, and again appear on the eastern margin after a little longer period. The spots appear to revolve round the sun in about twenty-seven days. At particular seasons, they move over the sun in straight lines; at all other times, in lines more or less curved; and the paths described by different spots observed at the same time are always parallel to each other, and always have their curvature and position determined by the season. They appear broadest when near the middle point of their passage. All this is satisfactorily explained, if the spots are considered to adhere to the sun, and the latter is considered to turn according to the order of the signs round its axis, which is inclined at an angle of 82½° to the ecliptic of the earth. The real duration of this rotation, as deduced from the apparent rotation of twenty-seven days, is equal to twenty-five days. This difference is occasioned by the fact that the earth, from which this rotation is observed, is itself moving in the mean time. Herschell's opinion on the nature of these spots we have mentioned in the previous part of this article.

SUN-DIAL. See *Dial*.

SUNDA ISLANDS; a group of islands lying to the south of Farther India. The principal islands of the group are Sumatra, Borneo, and Java. (See the articles). The *straits of Sunda* lie between Sumatra and Java.

SUNDAY; the first day in the week, which has its name from the *sun*, as this day was already called *dies solis* with the Romans. It is celebrated by Christians in commemoration of Christ's having risen on the first day of the week. It was also on the first day of the week that the Holy Ghost was poured out upon the disciples. We have given a history of the Christian Sunday under the article *Sabbath*, and shall here only refer the reader, for more information on some points, to Hallam's *Constitutional History of England* (ch. vii. viii.) In the church services of Europe, the Sundays are named from the feasts which precede them, or from the collects or passages of Scripture with which the religious service was formerly commenced on the several Sundays:—1. *Sunday after New Year*, so called when new year begins on one of the four last days of the week. 2. *Sundays after Epiphany*, which vary from one to six, according to the time of Easter. 3. *Septuagesima*, *Sexagesima*, and *Esto miki* (in the English church, *quinquagesima Sunday*). The third has its Latin name from the beginning of the lesson of the day (Psalm lxxi, 3). 4. *Sundays in Lent*. Their names are taken from the words with which the lessons of the day begin: *Invocavit* (Psalm xci, 15); *Reminiscere* (Psalm xxv, 6); *Oculi* (Psalm xxv, 15); *Lætare* (Isaiah lxvi, 10); *Judica* (Psalm xliii, 1); *Palmarum*, Palm Sunday. 5. *Sundays after Easter*, six in number, which almost all have names of rejoicing: *Quasimodogeniti* (1 Peter ii, 2), or Whitsunday (see *Pentecost*); *Misericordias Domini* (Psalm xxiii, 6, or Psalm lxxxix, 2); *Jubilate* (Psalm lxvi, 1); *Cantate* (Psalm xcvi, 1); *Rogate* (Matt. vii, 7); *Exaudi* (Psalm xxvii, 7). 6. *Sundays after Trinity*. The feast of Trinity was established in 1150. The greatest number of these Sundays is twenty-seven: the number depends upon the time of Easter. The later Easter falls, the more Epiphany Sundays and the fewer Trinity Sundays are there. 7. *Sundays in Advent*. (See *Advent*.) 8. *Sunday after Christmas*, so called when this festival falls upon one of the first four days of the week, reckoned from Monday. (See *Festivals*.) In the English church, the sixth Sunday after Easter is called *Sunday after Ascension*, and the seventh *Whitsunday*.

SUNDAY LETTER. See *Dominical Letter*.

SUNDAY SCHOOLS. The founder of the modern Sunday schools was Mr Raikes, editor of the Gloucester Journal. Struck with the wretched appearance of a number of children whom he saw playing in the street in the suburbs, he was informed by an inhabitant to whom he addressed himself, that on Sundays, when they were released from work, and the few who enjoyed the benefit of any instruction during the week, were let loose from school, they presented a more afflicting sight of misery and vice. This observation immediately suggested to him the idea that the profanation of the day might be prevented by putting them to school; and he engaged several women, who kept schools in the neighbourhood, to receive such children as he should send to them on Sundays, and instruct them in reading and the catechism, paying each of them a shilling for their day's work.

He soon collected a considerable number of children, distributed books among them, gave them advice, settled their quarrels; and the effects of his benevolent exertions were so striking, that his example was followed by other charitable persons in different quarters of the city; and in a few years Sunday schools were established in almost every part of England. Mr Raikes made his first experiment in 1781, and, in 1786, it was estimated that 250,000 children were receiving instruction in Sunday schools. (See a letter of Mr Raikes, giving an account of his proceedings, in the Gentleman's Magazine, vol. liv, p. 410, 1784.) A Sunday school society was formed in 1785 for the encouragement of Sunday schools by pecuniary aid, &c., the schools having been at first taught by hired teachers. Gratuitous instruction was a great improvement in the system, and appears to have become general about 1800. In 1803, the first Sunday school union was formed in London, and the example was soon imitated in many large towns and some of the counties. In 1826, the number of Sunday schools in England under the care of the established church was about 8000, with 550,450 pupils: the number of those established by dissenters is also very great. The Scotch Sabbath evening schools (first established in Edinburgh in 1787) arose from the English Sunday schools, but are modified by the circumstance that, as nearly all the children in that country are taught to read in the parochial schools, the Sabbath evening schools are more entirely devoted to direct religious instruction than the Sunday schools. In America, the first Sunday schools were opened at New York, in 1816; and they have since multiplied rapidly, and overspread the whole country.

SUNDERBUNDS; an extensive, woody, inhospitable district of Hindoostan, intersected by the mouths of the Ganges, in the south part of the country of Bengal. This district is about 10,000 square miles in extent, and is intersected by innumerable rivers and creeks, all of which are salt; and through the whole tract nothing but brackish water is found; and it is generally uninhabited, except by tigers and deer. The navigation by boats through the Sunderbunds is very romantic, and boats coming down to Calcutta in the hot season are obliged to take this route. The trees are all of small size, not useful for timber, but very valuable in affording a supply of fuel for Calcutta and other towns on the river.

SUNDERLAND; a market-town and sea-port of England, in the county of Durham, near the mouth of the Wear, 267 miles north of London. With Monk Wearmouth and Bishop Wearmouth, it forms one connected town, the relative situation of these different places resembling those of the three great divisions of the metropolis; Sunderland standing in the place of London proper, Bishop Wearmouth of Westminster, and Monk Wearmouth of Southwark. Sunderland and Monk Wearmouth are connected by a fine cast-iron bridge, remarkable for its height and span, and peculiar lightness of construction. It consists of small segments of iron, forming a magnificent arch of 236 feet span, and a sufficient height to allow ships of 400 tons burden, to pass under, with merely the top-gallant lowered.

The town of Sunderland, which is of considerable antiquity as a sea-port, contains many handsome houses, and of late years it has undergone many improvements, by the widening, lighting, and repairing of the streets. Among the public buildings are two churches, one erected in 1720 renovated in 1803; the other built in 1827, by the parliamentary commissioners; a chapel of ease, erected in 1767; and numerous places of worship for presbyterians, independents, baptists, quakers, methodists, and unitarians. The other public edifices and institutions are, the exchange, a theatre, an assembly room, a custom-house, a subscription library, a dispensary, an infirmary and humane society incorporated in one, a charity for decayed seamen and their widows, a girl's school, a blue-coat school, &c. On the moor to the east of the town are commodious barracks. The grand staple of Sunderland is the coal-trade, more than a million of tons being annually sent to London, the west of England, and the Baltic. Lime also forms no inconsiderable portion of the trade here; of which about 40,000 tons are shipped every year for Yorkshire and Scotland; the greater part for the latter, where it is used chiefly for agricultural purposes. At the river-side, above the bridge, are depots and spouts, from which the vessels receive their cargoes of the above articles with the greatest facility and despatch. On the banks of the river are several extensive manufactories for salt, glass, earthenware, ropes, sail-cloths, and chain-cables. Coals used in the manufacture of salt and glass are exempt from duty. The grindstones of this place are likewise in great repute, and numbers are annually exported. The ship-building of Sunderland is very extensive; nearly a hundred vessels may be laid on the stocks at the same time, and a large number of ship-carpenters are constantly employed; there are numerous yards for building ships and small craft; also several dry and floating docks. The largest vessels which have been built in this port were the Lord Duncan, of more than 925, and the brig Thomas of 574 tons burden, launched in 1798 and 1792. In maritime importance it is one of the principal ports of the united kingdom. The imports are corn, flour, wine, and spirits, timber deals, iron, flax, and tar. About fifty years ago, the salmon-fishery was a considerable part of the trade of this town, and cod, turbot, ling, herrings, and shell-fish are caught in great quantities. The harbour of Sunderland was seriously damaged by a flood in 1771, and was much injured by a sandbank in 1785, but it has within the last few years been greatly improved; it is formed by two grand piers, called the north and south; a considerable portion of the latter of which was erected in 1726, and greatly extended in 1765. In 1788, the former was constructed at a large expenditure; and in 1802, a handsome octagonal lighthouse was reared near the same, which is sixty-eight feet in height from the base to the cap, and is lighted with argand lamps. There is also a light on the south pier, which is only kept burning during tide-time. An extensive elevated promenade has recently been formed, similar to that at Margate; and as the pier projects several hundred yards into the sea, it is much frequented as a healthy and delightful place of recreation. The town offers every accommodation as a bathing-place, and is much resorted to during the season. It was here, it will be remembered, that the malignant cholera first made its appearance in Britain, in 1831. Population of the town and parish of Sunderland, in 1831, 17,060; of Monk Wearmouth parish chapelry, 9,428; of Bishop Wearmouth parish, 16,590; total 43,078.

SUN-DEW (*drosera*). These delicate plants are found in marshes and moist places. They

attract attention chiefly from their leaves, which are all radical, and fringed with hairs, each of which supports a globule of pellucid, dew-like liquor, even in the hottest weather. The flowers are small, and mostly white; but in one North American species, they are conspicuous, and of a fine purple colour. These plants are remarkable for having the unexpanded leaves rolled up in the same manner as the ferns—a disposition almost unique among phænogamous plants. The most common species, *D. rotundifolia*, is an acrid, caustic plant, which curdles milk, removes warts and corns, and takes away freckles and sunburn: distilled with wine, it produces a very stimulating spirit; and it was formerly much used as a tincture, spiced and sweetened.

SUN-FISH (*orthagoriscus*); a cartilaginous fish of a very singular form: the body is compressed, broad, abruptly truncated, resembling, in fact, the head of a large fish separated from the body: the mouth and eyes are very small. Its nearly circular form, and the silvery whiteness of the sides, together with their brilliant phosphorescence during the night, have obtained for it very generally the appellations of sun or moon fish. While swimming, it turns upon itself like a wheel. It grows to an immense size, often attaining the diameter of four feet, and sometimes even that of twelve, and weighing from three to five hundred pounds. It is very fat, and yields a great quantity of oil; but the flesh is ill tasted, and exhales a disagreeable odour. It is found in all seas, from the arctic to the antarctic circle. Two or three species are known. In the United States, the same name is often applied to a fish of the perch family (*pomotis*), of a compressed and elevated form, peculiar to North America, several species of which are now known.

SUN-FLOWER (*helianthus*); a genus of plants, so called from the ideal resemblance of the yellow flowers to the sun with his golden rays. The root is mostly perennial; the stem herbaceous, upright, and often very tall; the leaves opposite or alternate, undivided, often rigid and scabrous; the flowers large and terminal, usually disposed in a corymb. It belongs to the *compositæ*. The species are numerous, and mostly inhabit North America. The gigantic sun-flower (*H. annuus*), so common in our gardens, is a native of Peru. The root is annual; the stem thick, cylindrical, rough, from six to fifteen feet in height; the leaves alternate, petiolate, large, and somewhat heart-shaped; the flowers, sometimes a foot in diameter, are so inclined as to take nearly a vertical position, and usually are turned towards the south; they have the disk very large, and the rays short in proportion. The seeds form excellent nourishment for poultry and for cage birds; and an edible oil has also been expressed from them.—*H. tuberosus* is a native of Brazil, and has been extensively cultivated in Europe for the sake of its tuberous roots, which are used as a substitute for the potato. It is often called *Jerusalem artichoke*, the first term being a corruption of the Italian word *girasole*; and the latter has been applied to it from the resemblance in the flavour of the roots to that of the common artichoke. These roots are eaten cooked in various manners, but are not so generally liked as potatoes; neither are they so nourishing or wholesome: they are, however, excellent for sheep and other domestic animals during the winter season. The plant flourishes in every soil requiring little attention; but in a good soil the roots are larger and of a better quality. When once planted, they may be left for years upon the same ground, as there are always enough roots remaining for reproduction, after the removal of all that are wanted for the purposes of aliment. The season in which they are dug up for use is from about the middle of September to November. So extremely productive is this valuable plant, that between seventy and eighty tons of the roots are said to have been obtained in one season from a single acre of ground. This plant grows to the height of eight or nine feet; the flowers are much smaller than those of the preceding.

SUNNA; with the ancient northern tribes, the goddess of the sun. Her brother was Mani, god of the moon.* In honour of her, a boar was fattened through the year; and at the beginning of February, it was sacrificed, with many ceremonies. Eight days before January, the boar was carried to the ruler of the country, and on its back the principal men took the oath of fidelity and allegiance. The image of Sunna was a half-naked woman, standing upon a column, with rays round her head. Before her breast she held a radiant wheel with outstretched arms.

SUNNA, in the Mohammedan religion. See *Sunnites*.

SUNNITES; those Mohammedans who receive the *Sunna* (i. e. a collection of traditions relating to Mohammedanism) as of equal importance with the Koran. There are several diversities in the copies of the *Sunna*. Those of the Persians, Arabians and Africans are entirely opposed to each other; hence the various sects. The adherents of Ali, who reject the *Sunna*, and regard Ali as Mohammed's successor in the dignity of high-priest (for instance, the Persians), are called by the Sunnites (the Ottoman Turks) *Shiites* (i. e. heretics).

SUOVETAURILIA; a Roman sacrifice, usually offered after the census of the people had been taken. It consisted of a hog (*sus*), a sheep (*ovis*), and a steer (*taurus*); hence the name. All these animals were males.

SUPERIOR; the largest lake in North America, and the largest body of fresh water that has been discovered in any part of the globe. Its length is differently estimated by travellers and geographers; some make it 490 or 500 miles long, and 1700 in circumference; others, 350 miles long, and 1500 miles in circumference. Its widest part is said to be 190 miles. This is the most western of the great chain of lakes, which discharge their waters by the St Lawrence. Its surface is 641 feet above the Atlantic. It is 900 feet deep. Its waters are very pure and transparent; and it abounds with trout, white fish and sturgeon. The names of these fish are likely to convey diminutive ideas both as to numbers and quantity; but we must think of trout quite equal in size to the cod of the Newfoundland banks, and of white fish and sturgeon comparatively large. The average weight of the trout exceeds twelve pounds, and many weigh forty, and some even fifty pounds. These fish exist in such numbers, that there can be no douht that they will supply the whole country in the north-west section of the United States, and Upper Canada, with dried fish, when that country shall be peopled by many millions. Lakes Huron and Michigan also abound with them. This lake, and the others, also, abound with pike, pickerel, carp, bass, herring, and

* In German, the sun (*Sonne*) is feminine, and the moon (*Mond*) masculine.

numerous other kinds of fish. The great lakes, from the comparative shallowness of their beds, and the circumstance that their waters possess less specific gravity than those of the ocean,—and it may be from other causes,—when swept by the winds, raise waves more rough and dangerous than those of the sea, though not quite so mountainous, It has been often asserted that they have diurnal and septennial fluxes and refluxes. This, however, is not an established fact; and we are certain that, even if they exist, they are irregular and inconsiderable. The waters of lake Superior are partly derived from the marshes and shallow lakes, covered with wild rice, which supply the upper waters of the Mississippi. These are slimy and unpalatable until they find their level, and undergo the action of the lake, where they become transparent, and lose their swampy taste. The lower strata of the waters of the lake never gain the temperature of summer. A bottle sunk to the depth of a hundred feet, and there filled, in midsummer, feels, when brought to the surface, as if filled with ice-water. The shores of this lake, especially on the north and south, are rocky and nearly barren. In some places, the coast is very rough, and highly elevated. The lake is of difficult navigation; but there seem to be no insurmountable obstacles to its becoming a pathway for all vessels of strength and good size. It contains many islands. Isle Royal, the largest, is said to be one hundred miles long, and forty broad. It receives more than thirty rivers, and discharges its waters into lake Huron by the river or strait of St Mary. The *pictured rocks*, so called from their appearance, are on the south side of the lake, towards the east end. They are an extraordinary natural curiosity. They form a perpendicular wall 300 feet high, extending about twelve miles. They present a great variety of forms, having numerous projections and indentations, and vast caverns, in which the entering waves make a jarring and tremendous sound. Among the objects here which attract particular attention, are the cascade La Portaille and the Doric arch. The cascade consists of a considerable stream, precipitated from the height of about seventy feet by a single leap into the lake. It leaps to such a distance, that a boat may pass dry between it and the rocks. The Doric rock, or arch, has the appearance of a work of art, consisting of an isolated mass of sandstone, with four pillars supporting an entablature or stratum of stone, covered with soil, and a handsome growth of pine and spruce trees, some of which are fifty or sixty feet high. The only outlet to this lake is St Mary's strait. This extends to lake Huron: others connect the other lakes; and the combined waters of all find their way to the ocean by the St Lawrence. It is not, however, to be imagined, that the St Lawrence discharges an amount of water that is at all comparable with what the lakes receive. They spread over so great a surface, that the evaporation from them must be immense. They are scarcely affected by the spring floods of the hundreds of rivers which they receive; and their outlets have no such floods. Like the ocean itself, these mighty inland seas seem to receive without increase, and to impart without diminution.

SUPERIOR PLANETS. See *Planets*.

SUPERNATURALISM, a word chiefly used in German theology, is contradistinguished to *rationalism*. It is difficult to give any satisfactory view of these conflicting religious opinions, within our limits; but the subject is too interesting to be wholly passed over. In its widest extent, supernaturalism is the doctrine, that religion and the knowledge of God require a revelation from God. So far there is no difference of sentiment. All admit that God cannot be conceived of, except on the supposition that he has manifested himself; but the next step gives rise to disagreement. What is this manifestation or revelation, from which we derive the knowledge of God? Some conceive such knowledge to be conveyed only by a direct external communication from God; to which it is objected that freedom of faith and knowledge would be thereby destroyed, and, at the same time, all examination of true religion, and distinction of it from superstition and fanaticism, would cease. To this supernaturalism, which considers religion as something supernatural, excluding the free activity of the intellectual nature of man, is opposed the other extreme, that religion is founded on human reason alone, and can dispense with a revelation from God. But, generally speaking, the words *supernaturalism* and *rationalism* are used particularly in reference to the Christian religion. Rationalism maintains that the Christian religion must be judged of, like other phenomena, by the only means which we have to judge with, viz. reason. It often goes farther, and asserts, that Jesus was only a man of an elevated character, who purified religion from corruption, and inculcated nobler views respecting God, and the destiny of man, than those which had prevailed among the Jews and heathens before him, and preached and practised a purer morality, which, through God's favour, became widely diffused. All notions which cannot be reconciled with these, they say, ought to be considered as additions to the simplicity of Christianity, and to be set aside, or rejected. Supernaturalism considers the Christian religion as an extraordinary phenomenon, out of the circle of natural events, and as communicating truths above the comprehension of human reason. Jesus is that person of the Godhead who brought this supernatural truth to men, and, by his blood, saved the human species from the lost state to which it had been reduced by the fall of Adam, rose again, and now rules the world with God the Father. Human reason must therefore receive, unconditionally, the mysterious truth, divinely communicated in the Holy Scripture; and this is the only way to learn the truth and obtain salvation. These views are variously modified; and, as is the case with all important questions, many believe that both run into extremes; that in the one, too much is claimed for human reason, whilst in the other, feeling has an undue ascendency; that supernaturalism has depth without clearness, and rationalism, such as we have represented it, clearness without depth. This intermediate party, who by some have been termed *rationalists*, whilst the extreme party are called *hyperrationalists*, say that supernaturalism removes religious truth beyond the sphere of the human understanding, and even beyond the possibility of recognition. If, say they, divine truth is something which comes entirely from without, and is unconnected with other truth, where is our capacity to recognize it? The revelation of the omnipresent Ruler of the world, which pervades all ages, is, they further say, annihilated, if Christianity has no connexion with that revelation, or manifestation, and if it is essentially different from what existed before, or without it. On

the other hand, they allow that the hyperrationalists misunderstand the character of human reason, and oppose it to Christianity, so as to reduce this to an ordinary subject of human judgment. Christianity they consider as intermediate between these two views, as presenting in Christ the sublimest union of man with God, whilst it leaves to theological science the task of unfolding the full extent of revealed truth.

SUPERSTITION; the error of those who, in their opinions of the causes on which the fate of men depends, believe or disbelieve, without judgment and knowledge. The external causes by which the fate of men is decided, are God and nature; and accordingly there is a religious, and a philosophical superstition. Superstition shows itself either in deriving natural effects from supernatural causes, attributing, for instance, an uncommon disease, connected with striking symptoms, to the influence of some evil spirit, or in believing such events as accidentally follow each other to be united by invisible connexions; as, for example, in considering a comet a messenger of distress, because it has happened sometimes, that, after the appearance of a comet, a misfortune has taken place. It is impossible to point out all the kinds of superstition, as they have existed among different nations, and to estimate the melancholy effects which they have had on human virtue and happiness. Yet it is always easy to fix the limits of superstition; and many an assertion or opinion, which has been rejected, at one time, as mere superstition, has been proved, in later times, to be founded in truth. Medical science, in particular, affords many such instances.

SUPPLEMENT OF AN ARC, in geometry, is the number of degrees that it wants of being an entire semicircle; as *complement* signifies what an arc wants of being a quadrant. In literature, *supplement* is an appendage to a book, which supplies what was deficient in it.

SUPPORTERS, in heraldry; figures standing on the scroll, and placed by the side of the escutcheon, and seeming to support or hold up the same. They are sometimes human figures, and at other times animals, and creatures of the imagination. See *Heraldry*.

SUPREMACY. According to the Roman Catholics, St Peter was not only the head of the apostolical college, but the pastor of the universal church. The Roman pontiff is the successor of this prince of the apostles, and, like him, has authority and jurisdiction over the whole church, all believers, without exception, owing him respect and obedience. The council of Trent declared that the sovereign pontiff is the vicar of God upon earth, and has supreme power over all the church. The extent of the authority thus assumed by the pope, is different in different countries, and the whole doctrine of the papal supremacy is of course rejected by the Protestant, Greek, and other churches. In 1534, Henry VIII. assumed the title of the only supreme head, on earth, of the church of England. The *oath of supremacy* (that is, of renunciation of the papal supremacy), with the oath of abjuration, was formerly required to be taken by all persons in office, and might be tendered, by two justices of the peace, to all persons suspected of disaffection in England. Some modifications of the law requiring this oath were made in 1793 (see *Catholic Emancipation*); but it was still, with the declaration against transubstantiation, the invocation of saints, and the sacrifice of the mass, requisite as a qualification for sitting and voting in parliament, and for holding certain offices, until the passage of the Catholic relief bill. This bill repeals all former acts on the subject, and requires of a Roman Catholic peer, or member of the house of commons, &c., besides the oath of allegiance and abjuration, the following oath of supremacy; I do declare that it is not an article of my faith, and that I do reject, renounce, and abjure the opinion, that princes excommunicated or deprived by the pope, or any other authority of the see of Rome, may be deposed or murdered by their subjects, or by any person whatsoever; and I do declare that I do not believe that the pope of Rome, or any other foreign prince, prelate, person, state or potentate, hath, or ought to have, any temporal or civil jurisdiction, power, superiority, or pre-eminence, directly or indirectly, within this realm.

SURAT: a city of Hindoostan, in Guzerat, on the Taptee, twenty miles from its mouth; lon. 73° 3′ E.; lat. 21° 13′ N. The population was estimated, in 1796, at 800,000; the returns of 1818 gave a population of about 157,000. It is one of the most ancient and populous cities of India, and was formerly called the imperial port, and was the place whence Mohammedan pilgrims were conveyed to Mecca, often at the expense of government. The articles of its commerce were of the richest kind, viz. diamonds, pearls, gold, musk, ambergris, spices, indigo, saltpetre, silk, and fine cottons. But since the rise of Bombay, its commerce has much declined, and now consists chiefly of raw cotton, a few of its own manufactures, and articles imported from Guzerat. The greater number of vessels that now enter the port are Arabs. All large vessels are obliged to remain at the mouth of the river called Swallow roads, where they are somewhat exposed to storms; but the anchorage is good. The value of the exports, in 1811, amounted to 3,964,523 rupees. Surat is situated in a fertile plain, protected on one side by the river, and on the three others by a brick rampart and ditch. It also possesses a strong citadel, surrounded by an esplanade. It is inhabited by a great variety of people; but the Parsees, or fire worshippers, are most affluent. In 1807, there were reckoned 1200 Parsees of the sacerdotal class, and 12,000 of the laity. The hospital for the preservation of maimed or diseased animals was formerly occupied by rats, mice, bugs, &c. The squares of the city are large, the streets spacious, but not paved, and the dust troublesome. The larger houses are flat roofed; the houses of the common people high roofed. The civil administration of this city has been vested in the hands of the English East India company since 1800.

SURD, in arithmetic and algebra, denotes any number or quantity that is incommensurable to unity; otherwise called an *irrational* number or quantity. See *Irrational Quantity*.

SURGERY (from the Greek χειρ, the hand, and ἐργον, work); that branch of the healing art which cures or prevents diseases by the application of the hand, either unaided or with the aid of instruments. War early made the healing of wounds more important than the curing of diseases, which were then less frequent, on account of the simple manner of living. Fifty years before the Trojan war, Melampus, Chiron, and his disciple Æsculapius, accompanied the Argonautic expedition in the quality of surgeons: and in the Trojan war, two sons of Æsculapius,

Machaon and Podalirius, took care of the wounded Greeks. The Greek and Arabian physicians, at a later period, cultivated surgery and medicine together, as is proved by the works of Hippocrates, Galen, Celsus, Paulus of Ægina, Albucasis, &c. However, in the time of Hippocrates, some surgical operations were kept separate from medicine. In the oath of Hippocrates, lithotomy was forbidden to physicians. The Arabians also felt an aversion for operations, and it was considered beneath the dignity of physicians to operate themselves. The Romans left them generally to their slaves. In the middle ages, the practice of the healing art was almost exclusively confined to the monks and priests. But, in 1163, the council of Tours prohibited the clergy, who then shared with the Jews the practice of medicine in Christian Europe, from performing any bloody operation. Surgery was banished from the universities, under the pretext that the church detested all bloodshed. Medicine and surgery were now completely separated. This separation was the more easily effected, since the bathkeepers and barbers had undertaken the practice of surgery. At the time of the crusades (from 1100), many diseases were introduced into Europe from the East, particularly into Italy, France and Germany, which caused the frequent use of baths, and the establishment of bathing-houses. In France, the company of barbers was formed, in 1096, when the archbishop William, of Rouen, forbade the wearing of the beard. These bath-keepers and barbers remained for several centuries in possession of the practice of surgery. Meanwhile the mists of the middle ages disappeared. Enlightened by anatomy, surgery assumed a new form; and the works of Berengario de' Carpi, of Fallopius, of Eustachius, &c., were the true source of the knowledge with which Ambrose Paré enriched this science, which had been degraded by its union with the barber's trade. By the discoveries of Cæsar Magatus, Fabricius ab Aquapendente, Wiseman, William Harvey, and Fabricius Hildanus, surgery made new progress. In 1731, the surgical academy was established in France, which soon became celebrated throughout Europe. Maréchal la Peyronie, Lamartinère, &c., were distinguished surgeons. The collection of memoirs and prize writings of the surgical academy contains the history of this flourishing period. There are preserved the labours of J. L. Petit, Garengeot, Lafaye, Lecat, Sabatier, and of several other practitioners. The emulation of all Europe was excited by such an example. At this period flourished in England, Cheselden, Douglas, the two Monros, Sharp, Alanson, Pott, Smellie, the two Hunters; in Italy, Molinelli, Bertrandi, Moscati; in Holland, Albinus, Deventer, Camper; in Germany and the north of Europe, Heister, Zach, Platner, Stein, Röderer, Bilguer, Acrell, Callisen, Theden, and Richter. Down to the end of the last century, the French surgical academy contained many distinguished members. Desault (q. v.) became the chief of the new school. Besides the surgical school of Paris, that of Strasburg, and particularly that of Montpellier (where Delpech distinguished himself), which has not always agreed with that of Paris, are celebrated.

Within the last half century, the kindred sciences of surgery and surgical anatomy, have made rapid progress, particularly in Great Britain, France, Germany and Italy. The works of John Hunter formed a new era in the history of surgical literature, and yet continue the admiration and boast of British surgeons. All his writings bear the stamp of a great and inventive genius; and the late publication of a uniform edition of them, illustrated with notes and comments, should be gratefully received by the profession in general. It is to be regretted, nay, rather to be deeply deplored, that the unpublished MSS. of this truly great man, should have been recklessly committed to the flames, as is that too by a professional incendiary, who had risen to the first grade in the profession by the early and fostering care he experienced from their talented author. Among the many zealous and gifted pupils and successors of Hunter, there is not, perhaps, one who has contributed more to extend the knowledge of his mode of healing wounds, by the first intention or adhesive inflammation, than the late John Bell, whose eloquent discourses on the cure of wounds ought to be in the hands of every surgeon. Indeed Mr Bell's large work, on the Principles of Surgery, especially the last octavo edition, with notes, &c., by his accomplished brother, Sir Charles, should form a standard book in every surgical library. His observations on every practical point should be received with great respect, especially on aneurism; for he has proved more than his predecessors, (nay, even than the illustrious Haller, who made this his particular study,) that the great arteries of the human body may be freely secured without any fear of the collateral circulation not being carried on.

In addition to that of John Bell, there are other great names who now belong to the history of the science: among the most eminent of these may be mentioned Benjamin Bell, Latta, Hennen, Allan and Turner, of Edinburgh; Abernethy, Cline, the Blizards, Wilson, Taunton, Sir Astley Cooper, the Earles, and others of London; Hey of Leeds; and last, although not least, Allan Burns of Glasgow, whose writings, especially the Surgical Anatomy of the Head and Neck, will remain an unfading memorial of the zeal and talent with which he cultivated that department of the science, and at the same time furnish deep cause of regret, that one who bade so fair to occupy that place in the history of Scottish Surgery that his namesake Robert Burns does in the history of Scottish Poetry, should so very early in life have fallen a victim to the over assiduous cultivation and improvement of his favourite science. It would occupy too much of our space, to enumerate the many illustrious names on the continent of Europe, who have contributed to elevate the science of surgery to its present commanding position. It would, however, be an unpardonable neglect to omit those of Scarpa, Richerand, Larrey, Duputyren, and Laennec.

It is not consistent with the nature of this work, to enter at length on the discussion of the various departments of surgery, but to confine ourselves to a plain and intelligible account of these operations in domestic surgery, which are frequently performed by intelligent individuals in the absence of professional assistance.

The operation most commonly practised in domestic surgery is that of *Phlebotomy* or *Bloodletting*. The veins most usually opened are those of the arm, the neck, and the ankle, the last principally in women. In whatever part of the body, however, venesection is performed, the same general method must be practised, viz. to compress the vein by a ligature betwixt the place where the puncture is to be made and the heart. Thus, the reflux of the blood through the vein is stopped, the vessel swells.

becomes conspicuous, and bleeds freely, which it would not do were the ligature not to be applied. Hence, according to the situation of that part of the body where the vein is to be opened with regard to the heart, the ligature must be applied either above or below the puncture. In the arm and ankle, where the blood flows upwards to the heart, the ligature must be applied above the intended place of the puncture; but in the jugular vein, or any vein in the head where the blood ascends, it must be tied below it. All the apparatus necessary for blood-letting are a bandage or fillet of cotton tape or silk, about a yard and a half in length and near two inches broad, a common ribbon or garter being frequently made use of; a compress, which is easily made from four or five folds of linen rag about two inches square; it is best to have two such compresses ready; and in addition to these, a vessel to hold the blood; and a very clean, sharp, spear-pointed lancet. An instrument of this form (see plate LXXXVII, fig. 5.), readily penetrates the skin and vein with very little pain to the patient; the wound in both is made very nearly alike in size; and the blood is easily stopped, neither of which is the case when a broad shouldered lancet is employed.

In blood-letting, it is necessary to attend to the posture in which the patient must be kept during the operation; and this will be different according to the different intentions with which the blood is taken away. If the design is merely to empty the vessels a little, where there is plethora, or too great fullness of the vessels, we ought to be careful to prevent fainting. This object is best attained by bleeding the patient in a recumbent posture, or lying on a bed or sofa, which ought always to be chosen when great fear exists, or an aptness to faint on the loss of a small quantity of blood. But when the person is strong and vigorous, there is little occasion for this precaution, and a sitting posture is to be preferred. In some cases, however, particularly in strangulated hernia, or rupture, or in luxations of the larger joints, it is necessary to induce fainting, that by the sudden and general collapse of the system, the parts affected may be more easily reduced. In this case the patient is to be bled in an erect posture, and the wound made large, that the blood may flow with the greater velocity.

The first step in the operation of blood-letting, as already observed, is to apply the ligature, which, *in the arm*, must be tied a little above the elbow. (See plate LXXXVI, fig. 1.) It is to be made so tight that the passages of the blood through all the superficial veins may be interrupted; but we must by no means tighten it to such a degree as to compress the artery, because this would effectually prevent the veins from rising at all, by depriving them of the blood which ought to make them swell. When the ligature is properly applied, the veins in the arm will be compressed and swell, and by consulting the above plate, fig. 1, the operator will easily distinguish which is most convenient to open.

In the *jugular vein* we cannot so conveniently apply the ligature, because there is danger of stopping the patient's breath. When any of the jugular veins are to be opened, the operator should make choice of one of the veins previous to attempting the operation; then to put a compress of linen upon the vein of the opposite side, tying it tight with a ligature under the arm pit; that is, if the operator makes choice of the right jugular vein, he must put a compress on the left one, and tie it under the right arm. Thus the reflux of blood through these veins will be checked, and they will swell as much as is necessary without any of that disagreeable strangulation occasioned by a ligature round the neck. In operating on the jugular vein, the patient's head is to be laid on one side, and properly supported; then the operator is to press upon the vein with the thumb of the left hand, in order to make it swell, and when it becomes turgid, place the fore and middle fingers of the same hand above and below the point to be wounded. (See Plate LXXXVI, fig. 5.) Then with the lancet in the right hand an incision is to be made obliquely across the integuments, from above downwards, using the lancet as a knife or scalpel; and when the vein is distinctly to be seen it is be cut upwards, or rather in the angle shown in the plate, fig. 5, as at the bend of the arm. Some good practical surgeons prefer pushing the lancet through the integuments and skin into the vein, till the blood begins to appear as in the arm, because it is necessary to go much deeper than in the arm, as the veins are very deeply seated, and there is not here any reason to fear the wounding of either artery or tendons; neither by the perpendicular descent of the blood through the veins, is there commonly any difficulty in stopping the flux after the pressure is removed. Whenever the blood has begun to flow, the middle fingers of the left hand are to be removed, but the thumb is to remain until the quantity required has been abstracted, and the wound neatly brought together and kept close with adhesive plaster, and this should be done as quickly and effectually as possible, as air may enter in by the wound of the vein, and there are cases on record where such an event has proved fatal. No compress or bandage other than the shirt neck is to be used, as it would check the circulation in veins of the skin of the head, an occurrence which would be dangerous.

In *operating on the arm* after the ligature has been properly applied, as already directed (see fig. 1), the next thing is the choice of the vein, which is attended with more difficulty in the arm than any where else, the danger arising from the vicinity of a nerve, tendon or artery, the wounding of any one of which has often been attended with very serious consequences. At the part of the arm where blood is commonly drawn, there are four veins, which are accurately delineated in the figure, viz. the cephalic, on the outside, the basilic on the inside, and the median basilic and median cephalic between them, the two last being sent off from a trunk called mediana major. This trunk runs up the fore-arm between the cephalic and basilic, dividing into two large branches, one of which runs into each of the others, from which they take their names of median basilic and median cephalic. Of these, the median cephalic is the safest, and next to it the median basilic. The basilic is dangerous, on account of its lying directly above the artery, (which may be felt by its *pulsation*) and tendons of the biceps muscle. The cephalic is surrounded by the branches of the cutaneous nerve. In general, we are to make choice of that vein which rolls least under the skin, and by reason of its firmness, to have some connection with the subjacent parts. Though lying at a considerable depth, veins of this kind are more easily opened than those which roll much, by reason of their having no connection with the cellular texture. The difficulty attendant on the opening of loose veins may in a great measure

be overcome by the steadiness of the operator; and by stroking up the vein with the ligature before he ties it on, the rolling will be prevented. The operator then puts the thumb of his left hand upon the vein about an inch and a half below the place where he intends to make the orifice; but if the vein rolls much, the distance must be less, even to half an inch. He then takes the lancet, bent to a somewhat acute angle, between the thumb and fore finger of the right hand, leaving one half of the blade uncovered; and resting the hand upon the other three fingers, he is to enter the lancet in an oblique direction, as in the figure, pushing the point through the skin, cellular substance, and vein, till the blood appears on each side of the lancet. Then raising up the point in as straight a line as possible, he makes the wound in the skin and vein quite equal, as they ought to be. The thumb is withdrawn to allow the blood to run freely, and the arm should be kept in the same position while the blood flows. It is sometimes of service to grasp a round substance in the hand, a custom now, however, nearly out of fashion. If the position of the arm is shifted, the skin will be apt to slip over the orifice in the vein, and greatly impede, if not altogether stop, the flow of blood, which would insinuate itself below the arm and among the cellular substance, and prove a great inconvenience. When the required quantity of blood has been abstracted, the ligature should be immediately untied, which is easily done, being always tied with a single slip knot. The compresses, formed as already described, should be now applied, first bringing the edges of the wound accurately together, and the compresses secured by the ligature, or other bandage, put round the arm, crossing immediately above the compress in the form of the figure 8, as shown in the plate. (See Plate LXXXVI, fig. 3.) Sometimes, however, the blood will continue to flow with great rapidity after the ligature has been removed and the compresses applied, especially where the orifice is large and the circulation very vigorous. The vein in this case must be compressed both above and below the orifice with the fore and middle finger of the operator's left hand, the arm washed clean from the blood, and the sides of the orifice laid close together; any blood which may remain in the wound to be pressed out by working the vein a little between the fore fingers of both hands, and a fresh and larger compress applied and firmly kept down by the bandage applied, in the same form as already directed. Where a sharp, clean lancet has been employed, and these directions attended to, the wound will heal readily by the first intention, that is, by the adhesion of the parts to each other without any suppuration.

Phlebotomy, another technical term for blood-letting, is *performed in the feet*, in the same manner as in the other parts; but the blood runs more slowly than from the arm, and it has therefore been customary to immerse the feet and ankles in warm water after performing the operation. The ligature is to be applied a little above the ancle joint, (see Plate LXXXVI, fig. 8), in consequence of which the veins both on the inside and outside will appear very conspicuous, being covered only with skin, and pressed by the ligature against the bones. Indeed, where we intend to let blood, the ligature is to be applied to that part where the veins are most exposed and can be most easily compressed against the bones or subjacent parts. The operation of blood-letting at the ancle or on the foot is not so frequently employed as formerly; but we have pointed out, on the figure referred to, the places where an incision may be made, and it may be made in any conspicuous vein. In these veins the circulation is generally so weak as only to require the application of a slip of adhesive plaster to the wound, after bringing the edges accurately together.

The operation of blood-letting is occasionally performed at the wrist, or on the back of the hand, when there is a difficulty of obtaining blood at the bend of the arm, by the veins being so deeply situated, and the patient of a full plethoric habit. In this case, the ligature may be applied about an inch above the wrist, and if the veins are not distinctly seen, the hand may be dipped in warm water; the most prominent vein should be opened, and the operation performed in other respects as at the elbow joint.

When a vein in the scrotum is opened, it is requisite that the patient stand upright, and the part be immersed in warm water. Blood-letting below the tongue is seldom employed, and operations in such places, when required, should always be intrusted to professional men.

Blood is frequently drawn from the *temporal artery*, and sometimes, but rarely, from other arteries, and the operation for this purpose is called *Arteriotomy*. Arterial blood being of a very different nature from venous blood, it has been supposed the abstraction of blood from an artery is more efficacious than the same quantity from a vein. The stream of blood from an artery is, however, so impetuous, that the branches of the temporal artery, which lie so near to the temporal and parietal bones (see Plate LXXXVI, fig. 4), that they can be easily compressed against, are almost always preferred, as the flux of blood may be stopped without much difficulty. If the temporal artery, or any of its branches, lies near the surface, the opening may be made at once with a lancet, as in venesection, or opening a vein; but in many cases it lies so low, that it becomes necessary, in the first place, to cut the skin and integuments, and lay the vessel quite open, as directed in opening the jugular vein, and then making an incision in the artery, as if it were a vein, somewhat obliquely, or a little across the vessel; for if it is made quite in the direction of the longitudinal fibres, the sides of the wound collapse, and the blood cannot flow out; or, to be more particular, let the patient be placed in a horizontal position, with his head resting on a pillow, the operator, feeling the course of the trunk of the artery, or one of its branches, as it ascends along the temples, places the fore and middle fingers of his left hand on the vessel, in order to render it steady, the one above and the other below the spot where the incision is to be made; and then he is to cut down through the skin and integuments, and open the vessel as above described.

The blood generally flows with sufficient freedom from a wounded artery without any compression; but should this happen not to be the case, the compression should be made above the orifice, so that it may interrupt the blood flowing out from the heart, and thus augment the flux through the orifice. The required quantity of blood being obtained, the edges of the wound are to be accurately approximated or brought together, a firm compress applied, and a roller or bandage of calico wound over the compress, encircling the head, and cross-

ing it as often as possible over the compress. (See plate LXXXVI. fig. 6.) About the third or fourth day, the wound should be dressed with Turner's cerate or adhesive plaster, according to its appearance, and the compress and bandage re-applied; afterwards, it ought to be dressed daily, and the compress and bandage worn for at least three or four weeks, as aneurism or other unpleasant results often supervene or follow this little operation. Indeed, the cicatrix of the wounded artery is apt to give way, and the blood to burst forth from time to time, to the great inconvenience of the patient; and it is therefore necessary to obliterate the cavity of the branch that was opened by continued pressure, or what is frequently done, namely, dividing the artery entirely across at the place where the wound was first made, after which, both ends of it retract under the integuments, and the cavity is quickly filled up, the discharge of blood being commonly stopped in a moment by the compression of the integuments under which the divided vessel hides itself; or if this method should prove ineffectual, it may be taken up with a needle, and a ligature passed around it, as in the case of a divided artery in amputation, or from any other wound. These are operations that should, however, be undertaken only by an adept in the practice of surgery. There is no doubt but that the opening of the temporal artery does great good in inflammation of the brain or eye, especially when the latter is very severe, and refuses to yield to venesection.

In addition to *venesection* and *arteriotomy*, there are other modes of blood-letting employed in a variety of cases, and these have been denominated *topical blood-letting*, or *local blood-letting*; and the first of these in very general use we shall notice, is *cupping*. The apparatus required for this operation are a scarificator, glass, cups, a spirit lamp or a syringe. (See plate LXXXVII. figs. 2 and 19.) The *scarificator* is an instrument moved with springs, and containing from four to twenty lancets, or more, according to the nature of the part to which it is applied, or the quantity of blood it is intended to draw away. A well constructed scarificator, (and the instrument has of late been greatly improved,) should be capable of being regulated so as the lancets will only penetrate to such a depth as may be required; and there is considerable art and dexterity required in the performance of this little operation; so much so, as to have now rendered it a separate branch of surgery in cities and great towns. As there is, however, little danger attendant on the operation, and it is one any person with a few lessons may easily practise, if not with all the dexterity and address of a professional cupper, yet sufficiently well for all practical purposes, we think it a branch of popular or domestic surgery worthy of being cultivated; indeed, a few lessons from an expert operator, will render any intelligent person competent to the performance of the operation in the more ordinary parts of the body in which it is employed. Previous to the application of the scarificator, the cup or cups are sometimes applied to the part, to draw blood in greater abundance to the cuticular vessels. The lancets are so placed in the scarificator, that they may be made to cut in two directions. They must be promptly raised during the transition of the lancets from the one side to the other, to allow them to move freely round; and they should never be set to strike too deep, as they then completely divide the skin and reach the cellular tissue, the blood vessels of which are not so large and numerous, and, when wounded, pour their contents into the cells. The scarificator being set, or its lancets set to strike to the depth required, and the instrument cocked by drawing back a lever on the upper side, it is placed on the part by the slits downwards, and is discharged by pressing the nut of the spring when the lancets make the incisions; and in some cases it is necessary to strike twice with the scarificator, crossing the wounds made by the first stroke. The air in the cupping glass is then to be exhausted, by introducing the flame of the spirit lamp, or by burning a little tow or paper in the glass, and applying it firmly and quickly above the wounds made by the scarificator; the cup will adhere, and blood will flow from the incisions; or a syringe or stomach pump, in other words, a simple air pump, may be affixed to the cupping glass, which is made for this purpose, and by placing the mouth of the cup over the incisions, and working the pump or syringe, the cup will firmly adhere, and soon be filled with blood. (An example will be seen in plate LXXXVII. fig. 20. which, however, is also the form of an instrument for emptying the female breast.) Sometimes there is a cistern attached to the lower part of the cupping glass, to contain the blood, but in most cases it is not necessary. When the cup is full, it may be removed, emptied, and again applied. In either of these ways, a considerable quantity of blood may be obtained. When the requisite quantity has been withdrawn, the part may be washed, and dried, and some simple dressing, such as spermaceti ointment, spread on a linen rag or caddis applied. Cupping is a most valuable remedy in many diseases, and in a great variety of cases preferable to leeches, especially in affections of the spine and joints, while it is neither a tedious or painful operation.

Dry cupping is the application of cupping glasses to a part, with a view of giving a determination of blood to the surface, or leading it from the internal to the external parts. In the aged, or in those cases where the abstraction of blood might prove injurious in the end, did even blood-letting afford a temporary relief, this mode is frequently employed. In such cases, the glasses or cups should be larger; very stout tumblers answer the purpose very well; and the air is easily exhausted by a spirit lamp, or moistening a very small slip of paper in spirits, taking care not to use a greater quantity of spirits than necessary, as the patient would thereby be scalded with the hot liquor.

In cases where no scarificator is to be procured, blood may be drawn by making a number of scarifications with a lancet, and applying over them a strong wine glass or a small stout tumbler, a practice often employed in domestic surgery with great advantage.

Scarification is used in violent inflammations of the eye, and is the only other mode employed in topical blood-letting, in which manual dexterity is required. It is easily performed by first causing an assistant secure the upper eye-lid; then the operator, with the fingers of the left hand, secures the under eye-lid, and, taking the lancet in the right hand, makes a number of slight scarifications, in the tunica conjunctiva of the eye, where the vessels appear to be most turgid, and even a few drops of blood, drawn in this manner, have afforded considerable relief.

Leeches are likewise employed in topical blood-

letting, especially in parts situated in such a manner that the scarificator cannot be applied. Sometimes it is difficult to make them fix upon the particular spot we wish, but they may be induced to do so by washing the part well with tepid water without soap, drying it well, and then marking the spots where we wish them to fasten with cream or sweet milk, or making a small puncture with a lancet, and then confining the leeches over the part with a wine glass. Leeches will fasten more readily if allowed to crawl about for a few minutes on a soft dry towel before they are applied. After they have fallen off, the most common method is to bathe the parts in warm water to promote the bleeding; but where a cupping glass can be applied, it will generally be found preferable.

Uses and effects of Blood-letting. Blood-letting has been in use from time immemorial; but the indiscriminate use of it in all disorders has undoubtedly been productive of much mischief, as, on the other hand, in a great number of cases, it is undoubtedly attended with much benefit. As this operation empties the vessels, it hence follows that it ought never to be performed but where the quantity of fluids is too great, either with respect to the system in general, or to some particular part already affected by disease. In those diseases called *inflammatory*, especially fever, where the action of the heart and arteries is greatly increased, the blood circulates rapidly through the whole body, and the general disorder is augmented by the circumstances of quantity; and the taking away a part of it, by giving the vessels more freedom to play properly, contributes very much towards the cure. In the case, too, of strangulated hernia or rupture, where a portion of the intestines descends through the external coverings of the abdomen, and gets so compressed or locked in the passage through which it passed, that it refuses to return; through this pressure, the intestines are greatly inflamed; although the quantity of blood may not be too great with regard to the whole system, yet it is too great for the parts in that situation to bear. The abstraction of a quantity of blood, by lessening the pressure upon that particular part, diminishes the disease, and if a large quantity is quickly taken away from a large incision, so that the patient faints, the general contraction which takes place all over the system, and of course on the parts affected, enables the surgeon to reduce the hernia, or in other words, return the portion of the intestine, and thus save the life of the patient.

In all cases of inflammation the advantages of blood-letting must be very apparent; and especially the effects of *general blood-letting*, by lessening the pressure of the blood upon any particular diseased part, undoubtedly diminishes the inflammatory affection. In these cases, *topical*, as well as general blood-letting, must be of considerable use; for as the latter diminishes the impulse of the circulating blood upon the inflamed part, the former diminishes the quantity of blood in the part itself; and, indeed, in those cases where inflammation is not attended with much fever, topical bleeding is found to be more efficacious than the other. Dry cupping, as we have already stated, seems calculated to promote the circulation through any particular part, by soliciting the blood and other fluids thither. On the contrary, as blood-letting is of very considerable advantage in those disorders called inflammatory, whether arising from disease or external injury, it must of course be equally prejudicial where the fluids do not bear a proportion to the strength of the vessels so as to distend them sufficiently. It ought not, therefore, to be practised in low nervous fevers, intermittents, hysterical affections, or nervous disorders of any kind, except, it may be, in cases of furious mania, where the nervous system is affected.

The custom of young people in good health, losing a quantity of blood in the spring, as they say, to render them light and cheerful during the summer, and to make way for a supply of fresher and purer blood, ought certainly to be denounced as highly injurious to the constitution. It becomes a regular habit, and the person feels uneasy till the usual quantity is taken away. This is, in plain language, comparing the human frame to a haberdasher's shop, and subjecting the former to the laws and regulations of the latter, viz. expelling the unsuitable part of the remaining winter stock, to make room for the summer supplies. See Dr Andrew's Letter on this subject.

Accidents, or affections consequent on Blood-letting. Every surgeon should be well informed with respect to those accidents or disorders most likely to attend or supervene on a surgical operation, and more especially those who, without a regular professional education, occasionally perform the operation of blood-letting. The most common accident attendant on this operation is *thrombus*, or *ecchymosis*, which is a small tumor around the orifice, occasioned by the blood insinuating itself into the cellular membrane, between the skin and muscular flesh, and occasioned principally by the shifting of the skin over the vein during the time that the blood flows out of it. All surgical operations are followed by more or less ecchymosis, according as the parts have been torn or bruised during the operation; but it even supervenes in a slight degree in operations most scientifically performed, especially in the face and other delicate parts of the body, as the knife cuts on the principles of a saw. In blood-letting, however, there is even a possibility of removing the tumour during the time of the operation, by untying the ligature, and bringing the member into exactly the same position in which it was before the vein was opened. On applying the ligature a second time, the blood will frequently flow as freely as before, and while it flows the tumour will frequently subside, or at least not arrive at such a size as to obstruct the efflux of the blood. Sometimes, however, it arrives to such a height as entirely to obstruct the operation, and prevent it from being finished. When this is the case, the most effectual method of preventing the tumour from being increased still further is by removing the bandage, for by continuing the bandage a very considerable swelling may be induced, and such as might be attended with great trouble; and if more blood requires to be taken away, it must be taken from another vein. Tumours of this kind (for there is a little distinction between a thrombus and ecchymosis, the former being a circumscribed tumour, and the other a diffused effusion of blood), seldom require any application; both, however, require the same treatment, and unless the quantity of blood be profuse, in either the effusion is of little consequence. When remedies are required, astringents or stimulating embrocations are to be preferred, compresses moistened with brandy, rum, or whiskey, or, what is more economical, a solution of lead, and kept on by a loose bandage. If, however, the effusion be extensive, and produce pain and inflammation, and

refuse to yield to the means employed, poultices should be applied, and continued until all inflammatory tendency has subsided; but the inflammation induced seldom or never ends in suppuration, even of the lips of the wound. When the incision heals, and a hard tumour remains, absorption may be promoted by rubbing the swelling night and morning with the compound soap liniment.

A much more dangerous accident sometimes occurs from venesection, viz. the puncturing or wounding a tendon or a nerve. This happens almost entirely from mismanagement in the operator, and is occasioned immediately *by depressing the point of the lancet after it has been introduced into the cavity of the vein, and thus perforating both sides of the blood vessel.* Nerves are, however, not so easily to be avoided as the tendons are, as being small and scarcely to be distinguished, and in consequence of the twigs of the internal and external cutaneous nerves, and even some of the spiral nerves entwining the different veins. There is, however, scarcely the shadow of an apology for wounding a tendon, and the symptons are not less painful than those produced by a wounded nerve. But, as we have already stated, this can scarcely ever happen when the lancet is properly introduced, and in almost every case the blame may, without injustice, be laid upon the operator.

When a nerve is wounded, says professor Lizars, the patient feels acute pain the moment the lancet pierces the vein, and inflammation of the wound follows, the nervous symptoms immediately commence, and acute pains are experienced darting along the arm to the neck and head, and even down along the fingers; convulsive twitchings ensue, accompanied with restless nights, being disturbed by frightful dreams. When inflammation of the wound does not take place it heals up, and some days, even weeks, elapse before the convulsive symptoms begin; and in this case, which is the more rare of the two, it resembles tetanus more than the other. On some occasions, it assumes the appearance of neuralgia. If the convulsive symptoms have been severe, in a few days spasms occur, which dart from the head along the back, and bring on trismus or lockjaw, which puts an end to the patient's sufferings.

Some respectable writers on surgery rather think that in those cases where the severe symptoms do not immediately follow the operation, or severe pain felt at the time of introducing the lancet, are rather cases of wounded tendon than of wounded nerve; and there are cases on record to bear them out in this opinion; but the symptoms of wounded tendon is more properly considered under the section *wounded fascia.* In both cases, however, the best advice should be instantly procured. The treatment in the first noticed case, that is, where the symptoms immediately follow the operation, require to be very prompt and decided. The wounded nerve must be divided close above or proximate to the wound, the arm enveloped in an opiate poultice, having half an ounce of opium dissolved in half a gallon of water, and if this should not give relief to the patient, the actual cautery should be applied to the wound.* The patient ought to be bled in the other arm or jugular vein to a state of syncope or fainting, put in the warm bath, have powerful cathartics given, followed by large doses of opium or the preparations of Morphia, and have tobacco clysters administered. The bleeding to be repeated frequently, as circumstances require; and if all these remedies fail to subdue the latent symptoms, a vein of the opposite arm should be opened, and a solution of opium or of the muriate of morphine injected into the circulating system. It is a happy and merciful circumstance that, seeing the operation of blood-letting is so very frequently performed by ignorant and uneducated persons, that this truly distressing accident so very seldom occurs. In a pretty extensive experience of more than thirty years, we never met with a single case.

There is another distressing accident which sometimes happens in blood-letting at the bend of the arm, and that is *wounding an artery.* This, however, never happens in the hands of a skilful operator, and is generally, indeed we say always, owing to the same cause as the pricking of a tendon, viz. depressing the point of the lancet after it enters the vein, and thus passing it through the lower side, and wounding the artery, which lies immediately below. The situation of the artery may be always known by its pulsation, and if the finger is applied to a vein below which an artery lies, it will be felt. The artery is, however, situated so deep that it cannot be wounded but by unpardonable carelessness, or using an ill-formed lancet. *Aneurism* is the consequence of this accident, which often requires an operation for its cure.

From an over anxiety to heal the wound inflicted in venesection, the bandage and compress are taken off the next day, and adhesive plaster or some other dressing applied; but this, instead of accelerating the union of the sides of the incision, disturbs the adhesive process, and excites too great a degree of inflammation. This inflammatory action, which very speedily extends itself all over the arm, confining itself to the skin, and assuming commonly the erysipelatous character, or involves the subjacent cellular tissue, or extends to the fascia of the arm, or affects the lymphatics, or even the vein itself. In addition to these causes of inflammation of the *vein*, the *lymphatics*, and the *fascia*, these may likewise be occasioned by a foul lancet, and of this we have met with many examples. Lancets employed in vaccination and opening venereal buboes, or scrofulous and scorbutic abscesses, should never be employed in phlebotomy till they have been ground and thoroughly cleaned. There is another cause of inflammation of the vein, and which deserves to be noticed, as it is frequently called into operation in the practice of domestic surgery. When a second bleeding is required in the course of twenty or twenty-four hours, a too common practice is to abstract the second quantity of blood from the same orifice, by applying another ligature round the arm above the wound, till the vein becomes swollen, then removing the first bandage and the compress adhering to the wound, the blood commonly springs out, but if not, the wound is forcibly opened, either with the fingers, or by

* The actual cautery is an iron heated to incandescence, and the moxa. The irons used for cauterising are of various shapes. The moxa is made of common cotton, immersed in a solution of the nitrate of potass (*saltpetre*), of the strength of five grains to an ounce of water, and afterwards dried. A small quantity of this cotton is firmly rolled up, encircled with a piece of card half an inch broad and three inches long, and afterwards tied round with thread. It is then fixed in a *port fire*, the one end set fire to, and the other held firmly on the part to be chemosed. The common bellows are then employed to keep up the ignition of the cotton, which now resembles a common fuse, until it is entirely consumed. The ignition should be merely kept up, for the more slowly it burns the more powerful is the effect.

squeezing the blood along the vein onwards to the orifice, or by inserting a lancet, and such tearing steps we have known to be employed even by a regular practitioner, three times in twenty-four hours. In cases where a second bleeding is required, in the course of ten or twelve hours, and where there are no inflammatory appearances of the arm present, this method may be adopted with impunity; but in other circumstances, even at the termination of eighteen hours, it is extremely liable to produce inflammation of the vein, as the adhesive process takes place very quickly between the lips of a vein and a small wound in the skin, especially when a clean sharp lancet has been employed. It is therefore preferable to open a vein in the other arm. It is also a very improper practice, although sometimes followed, to open the same vein close to within half an inch of the fresh wound, in the space of one day; neither of these practices should be adopted, more particularly in thoracic inflammations, as the veins are very liable to take on an inflammatory action.

The *symptoms of an inflamed vein* are tumefaction of the arm, pain in the wound darting to the axilla or shoulder joint, and even to the chest, accompanied with difficult respiration and inflammatory fever, which, if not speedily checked, assumes the typhoid type. The vein to the touch feels hard, is very tender, and sometimes inflamed both upwards and downwards, the sides of the wound are inverted or turned outwards, much swollen, and occasionally pus or serum, mixed with blood, can be pressed out of it, or escape without any pressure. An œdematous baggy feeling is frequently felt in some parts of the arm, and the integuments partake more or less of inflammatory discolouration. The vein becomes so thickened in its coats, that in dissection it exhibits the appearance of a nerve; when the cavity is not obliterated, coagulable lymph and pus are deposited in its cavity, sometimes plugging it up while the internal coat exhibits a reddish purple claret colour, and the contiguous cellular tissue and intercostal muscles are infiltrated with pus and an effusion of purulent matter. The thoracic viscera afford the most incontestible proof of the ravages of inflammation, as the consequence of the veins circulating their contents onwards to the heart, and imparting their inflammatory action to that viscus and its immediate associates, with an alarming celerity.

In such a case, it must be evident that the most prompt and decided measures should be taken, similar to those recommended in the treatment of a wounded nerve; and in addition to the bleeding from the jugular vein, tobacco clysters, cathartics, the warm bath, opiate poultices and fomentations, a profusion of leeches ought to be applied, and the wounds kept bleeding by warm fomentations; or where leeches are not to be procured, numerous scarifications and warm fomentations. If these means fail, blisters should be applied to the chest, and the most rigid cooling regimen adopted. J. Hunter recommended, in addition to other means, pressure on the vein, both above and below the wound; but further experience induced the late J. Abernethy to recommend the division of the vein, a practice now adopted.

When early and judicious means have been resorted to, and the patient has recovered, it should always be observed, in any future bleedings that may be required, that the same vein be never twice opened, as there are some constitutions peculiarly liable to this disease on the most trifling existing cause.

The *lymphatics*, when inflamed in consequence of blood-letting, evince their inflammatory state by the wound appearing fretful, inflamed and suppurative, by a cord or cords being felt sometimes above, and at other times below the wound, but not precisely in the course of the vessel. These cords are exceedingly tender to the touch, and assume a delicate rose red colour, having frequently one or more tumefactive points on the inner or ulner margin of the biceps muscle, (see *Anatomy, plate of Muscles,*) in the course of the brachial vessels or vessels of the arm. Similar tumours are also seen on the fore arm, between the elbow and the wrist joints. The glands of the axilla or armpit become greatly affected, and there is general tumefaction of the arm, with acute pain in the wound in these corded lines, and tumours accompanied with considerable symptomatic fever. In this inflammatory action, the contiguous cellular substance becomes very early involved, either before or after the inflammation of the lymphatics, frequently producing extensive inflammation of both, which proceeds to the axillary glands, and is always attended with more or less œdematous feeling.

The treatment of this affection is similar to the last, and especially the early application of leeches for some inches below the wound, and extending up to the armpit; indeed the whole arm should be covered with these useful reptiles. The strictest antiphlogistic regimen should be observed, and the general treatment the same as in a case of inflammatory fever. The compiler of this article once suffered severely from inflammation of the lymphatics of the arm, from diseased matter, from a bad conditioned sore on the leg of a patient whom he was dressing, inoculating itself into a slight wound on one of his fingers. This is a frequent case, and the greatest care should be taken, by those dressing sores or ulcers, to protect any wound or even slight scratch, that the diseased matter might touch; and the numerous accidents from the introduction of morbid matter during the dissection of dead bodies, afford striking examples. The fascia of the arm is likewise subject to inflammation, from blood-letting.

The *fascia* is an expansion of a muscle, inclosing others like a band, and is derived from the term *fascis*, a bundle. This accident takes place when the operator has carelessly transfixed the vein, and wounded this membrane. This, however, may occur in the most skilful hands; for occasionally the most prominent vein at the bend of the arm, and the one any surgeon would select, runs beneath or connected to the fascia of the biceps. The symptoms of this affection are acute pain in the arm, extending to the shoulder, whenever the fore-arm is moved, which latter is in some degree bent on the arm, with the fingers also bent and contracted. There is great tension, some degree of tumefaction, in consequence of an anasarca or effusion of fluid, and slight erysipelatous inflammation, and general sympathetic spasms are felt over the whole system.

Thickening of the fascia, and suppuration or healing quickly supervenes, and consequent contraction of the elbow joint and fingers; the treatment should be extremely prompt, the same means being used as for inflammation of the vein, which we need not repeat. Contraction frequently results, and in that case an operation is required, which must call into action a surgeon of skill and dexter-

ity to perform, and this operation is sometimes advisable, even in the first or inflammatory stage, where there is great tension, accompanied with severe pain.

Erysipelas, or rose, is generally the kind of inflammation that occurs after phlebotomy at the bend of the arm. The inflammation begins in or near the wound, which it soon surrounds as a circular ray, which speedily spreads both upwards and downwards. The whole arm is swollen, the skin has a delicate rosy tinge, and is clear and shining, and when pressed with the finger or thumb, a white mark appears for a minute or so. There are occasionally serous vesicles or small blisters, like those occasioned by scalding water, and a yellowish hue is frequently observable. The vesicles either dry up or burst, and desquamate or ulcerate, or even slough and ulcerate. There is a hot burning pain in the part, and, very early in the disease, there is inflammatory fever and nausea, affording proof that the constitution is affected. Some have affirmed, that the wound of the vein often heals before the erysipelatous affection takes place, and even continues to heal, but it sometimes breaks out, and discharges a sanious matter. The plan of treatment is the same as that recommended in inflammation of the vein or bleeding—blisters, poultices and anodyne fomentations. This has been established by experiment and facts, that in cases of this affection, a vein opened in the opposite arm never assumes the erysipelatous type, nor do leech-bites, according to the common, and indeed long received opinion, mortify. The extension of the inflammation is often arrested by blisters, and the blistered surface never assumes the erysipelatous action, but on the contrary limits it. "Warm poultices," says professor Lizars, "are as beneficial in erysipelas as in phlegmon. Flour is a common, but most inert application. Solution of the sulphate of magnesia, (epsom salts) with tartrate of antimony, is found to be an excellent aperient. Emetics are pernicious remedies, particularly when the head is the seat of the disease, as they propel the blood to that organ. When erysipelas attacks the face or scalp, it ought to be treated with great promptitude, in consequence of the vicinity of the brain, and when either of these parts have been attacked, it is peculiarly liable to return on the slightest exposure to cold. It is very apt to move from one place to another, in this manner extending all over the body, from the head down to the back and breast to the arms, and even the legs, the one part desquamating as the other makes its appearance. Erysipelas is subject to be translated from one part of the body to another, like rheumatism, from the leg to the lungs or face, and it occurs periodically in some individuals." This, however, is a subject the farther prosecution of which belongs rather to the science of medicine than that of surgery.

Having now described the different means of blood-letting, the diseases in which it is employed, or its uses and abuses, and likewise those accidents or diseases arising from a careless or unskilful performance of the operation; we now direct our attention to some other departments of domestic or popular surgery, most easily understood and practised by the uninitiated.

Opening of Abscesses. This is, perhaps, next to blood-letting, the most commonly practised operation, and, except when the abscess bursts, is employed where a quantity of matter is collected in any external part of the body. Abscesses are formed by the termination of inflammation in suppuration, or bealing, as it is called in Scotland. They are known to be fully formed, and in a proper state for being opened, by the cessation or abatement of the violent throbbing pain which takes place in the first and second stages of inflammation, and the coming on of a dull heavy pain, which continues constantly without any intermission. The swelling becomes more prominent, and draws to a point generally in the middle. This prominent part generally changes its colour to a yellowish white; and if the abscess be not very deeply situated, the fluctuation of a fluid is very plainly perceptible. Sometimes, however, when the matter is collected below the muscles, the fluctuation can scarcely be perceived or but very indifferently, and the abscess is then much more diffused than in the former species. All large abscesses are likewise attended with shiverings, especially if seated in any of the internal viscera; and even where the collection is not very considerable, the patient is liable to them on the first formation of matter, their severity and extent depending either on the size of the abscess, or its situation in the body.

In the treatment of abscesses, it is laid down as a general rule, not to open them while any considerable degree of hardness remains, as this is evidence the matter is not yet fully formed. There are particular cases, however, in which there is a partial deviation from this rule, particularly in those that are seated in the thorax or abdomen; for when large collections of matter are formed upon these parts, they are as ready to burst internally as externally, and the consequences to the patient, in that case, might be fatal, or at least attended with great trouble and inconvenience. Therefore where such abscesses occur, they ought to be opened as soon as any fluctuation, however small, can be perceived. When opened at such an early period, it is true that an abscess does not heal so easily or kindly as when the operation is deferred till they come to maturity, but here the danger outweighs every other consideration. Those abscesses too, which accompany or are the result of malignant fevers, should be opened at an early period, because the pus that is formed, differs from that of a common abscess, and by reason of its virulent nature, would augment the disease. Indeed the naturally mild pus or matter of a common abscess, if confined too long in the cyst, will turn very acrid; and by being absorbed into the blood, will produce hectic fever, which it is often difficult to subdue.

An abscess being in a fit condition for opening, it is worthy of consideration what is the best mode in which the operation is to be performed. There are three modes employed in modern practice, viz. incision with a knife, bistory or abscess lancet, or even a common lancet, by application of caustic or the introduction of a seton.

The method pursued in the first case, is to make an incision of such a size as may give free vent to the matter, and this incision should be in the lowest or most depending part of the tumour, and of the extent of the incision the operator must judge from the nature and size of the sac. It was, and indeed still is, the practice with some surgeons, to make the incision through the whole length of the tumour, and some have resorted to the foolish expedient of cutting out a portion of the skin, in order to give more free vent to the matter, and as if the skin had not the power of assuming its wonted dimensions. When abscesses are connected with

any great cavity, such as the thorax or abdomen, and when there may occur an opening for the admission of air into those cavities, a small incision is always to be performed.

Abscesses are likewise opened by *the application of caustic.* This is the most agreeable mode to timid patients, as the caustic acts slowly, but produces a long continued pain, while the pain of incision instantly gives off. There is another objection against this mode, that all active caustics diffuse their operation over a greater surface, or in other words, destroy a greater portion of the integuments than is necessary, and ultimately this method inflicts greater pain and nervous irritation than incision.

The opening of an abscess by seton or issue, is sometimes necessary, as by this means a drain is established, and a gradual vent given to the matter. A needle of a flat, spear-pointed shape, threaded with glovers' silk or beat thread, is to be introduced through the lower part of the abscess, and according to the size of the abscess, is to be the thickness of the thread; or a blunt silver probe, with an eye and thread, may be used, and an incision made at its entrance and exit. When the needle or probe has been passed through the tumour, the needle may be withdrawn, and a portion of the thread or cord left at each end. In about thirty-six or forty hours after this cord or thread has been introduced, it may be drawn out as far as to allow all the part that was within the cavity to be cut off, and the same is to be done daily until the matter is completely evacuated. Thus a regular and slow discharge of the matter is procured, the sides of the abscess gradually contract, and at last adhere firmly to one another by the slight inflammation kept by the thread or cord of the seton needle. (See Plate 87, fig. 10.) A loop ought, as in all other cases of issue, to be left, that is, the cord must be doubled, so as to draw in the bught, as a sailor would term it, of a new and clean cord, and this may be gradually diminished in size, so that the cord may be in this manner withdrawn, without any unpleasant or disagreeable effects. There are many tumours, especially those of a scrofulous character, in which this mode of operating may be employed with decided advantage.

The next operation in domestic surgery is one of almost every day's occurrence. A wound is inflicted by a knife or other sharp instrument, and when no very important branch of an artery is divided, the dressing is of the most simple description, viz. to bring into contact the sides or lips of the wound, and keep them in that state by adhesive plaster. It is necessary to heat the plaster at the fire; if it is a pretty extensive wound, and requires the resinous, or adhesion plaster if only a small scratch or very superficial, the common black or white court plaster may be employed, which merely requires being moistened by the tongue or gently brushing it over with water. Where, however, the wound is deeper and more extensive, slips of resinous plaster may be cut of about half an inch in breadth, and of such a length as to have a hold of each side of the wound for two or more inches, according to the situation. An assistant, holding the sides of the wound together, the first slip, which should be a little broader than the others, should be applied over the middle of the wound, and in this manner the lips of the wound are to be kept together till the wound is covered and kept together by the plaster. It is sometimes necessary to cut a longer and wider slip, notched or slit at the side by scissors, and applied over the other slips. A piece of linen or calico rag, or surgeon's lint, may then be covered with Turner's cerate, and placed over the other dressing, and a soft handkerchief or other bandage placed over it, so as to secure the whole. It is not perhaps necessary to state that even the most trifling wounds should be washed or cleaned previous to dressing.

There is another mode of dressing wounds, especially where no adhesive plaster is to be procured, and that is bringing the edges of the wound together, and keeping them so by a soft cotton bandage, and then pouring over the covered wound the compound tincture of myrrh, sometimes called the tincture of myrrh, and aloes, or the compound tincture of benzoin, sometimes called friar's balsam, or genuine Riga balsam. Either of these tinctures or balsams will form a close resinous covering to the wound, which should be moistened as often as it gets dry, and if it has been properly dressed, and no foreign substance has been allowed to remain, it will generally be found united, or nearly so, in the course of a few days. The compress in this case which is placed over the wound should be four or five folds, that it may retain the necessary quantity of the balsam.

There is a black appearance seen over wounds that have been dressed with adhesive or diachylon plaster, which is sometimes taken as a symptom of gangrene or mortification; but it is the chemical effect or union formed by the discharge from the wound forming a black sulphuret of lead, as oxide of lead in conjunction with the sulphureted hydrogen, enter into the composition of the adhesive or diachylon plaster.

In children and persons of delicate skins, an unequal mode of applying the plaster sometimes produces little pustular eruptions around the wound; but the removal of the dressing, and the application of cooling dressing, such as a compress kept wet with solution of sugar of lead, or even a rag covered with the ointment of sugar of lead, will soon remove the eruption. In such unstable habits, it is necessary to administer an occasional gentle laxative, such as a seidlitz powder, night and morning, during the cure; or two drachms of Epsom salts in a wine glass of ginger tea twice a day.

With respect to *stitching* simple incised wounds, this is seldom necessary; extensive wounds, however, of the lip or face, sometimes require to be stitched, in order to prevent deformity; at other times, where professional aid is at hand, the edges are kept together by harelip pins. Slight wounds of the lips or face may be kept together by the adhesive plaster, properly applied.

When an extensive wound of the upper or lower lip requires to be stitched, one or two stitches may be used in the following manner; but in no case do we recommend its adoption by any person ignorant of surgery where professional aid can be easily procured. If flat or crooked needles cannot be had, four needles of the size which tailors use for sewing on buttons, and with an eye capable of holding an ordinary sized silk thread after it has been waxed and doubled, or even of three threads, as a fine thread is too sharp, and liable to cut through the lips of the wound. A needle is then put on each end of the ligature; this prepared and passed in through the lips of the wound from within outwards, so that there may be an end of the thread on the outside of each lip of the wound, and unless

the wound is a very large one, such stitch will be sufficient for any wound of the lips. The sides of the wound are to be pressed together, and tied with a double knot on the surface of the wound. It is best, however, to have four needles and two ligatures ready; and if a second stitch is taken, it should be at least half an inch, and in most cases, an inch, from the other. A narrow slip of adhesive plaster is then to be applied over the space between the stitches, reaching an inch beyond the edge of the wound, on each side, and another broad slip, with notches in the sides, placed in the longitudinal direction of the wound, and over the end of those slips which were placed across. A piece of linen rag or caddis, covered with spermaceti ointment or Turner's cerate, should cover the stitches and other dressings, and the whole be secured by a soft handkerchief, properly applied, so as to keep all in its place.

There is another branch of *domestic surgery*, and perhaps the most important with which any unprofessional individual can be acquainted, and this is *stopping an hemorrhage or discharge of blood from any of the great arteries or blood vessels when they have been divided or wounded by disease or accident*. By the knowledge of this many useful lives have been saved, as a wound of the principal artery, for example, of the thigh or arm, if not speedily checked, would in the course of perhaps less than ten or fifteen minutes prove fatal.

There is an instrument employed by surgeons for checking the bleedings, called the *tourniquet*, of which there are two descriptions (see Plate LXXXVII. figs. 1 and 4.); the first used in cases of amputation, to prevent the discharge of blood during that operation, and consists of a brass screw of considerable power, a bandage and small pad or cushion, resembling a small pen cushion and buckle. The bandage is from an inch to two inches in width, according as it may be required, in greater or less extremities, and the size of the other parts are reduced accordingly. (See it applied to the thigh, Plate LXXXVI. fig. 10.) The more simple tourniquet is called a *field tourniquet*, (fig. 1,) because it is carried to the field of battle not only by the surgeons and assistant surgeons, each of whom are supplied with a number of these instruments, and likewise by officers, and occasionally even private soldiers, who, by a prompt application of this simple instrument, have saved their own lives or those of their wounded companions. The field tourniquet consists of a small turned wood handle, often about four or five inches in length, sometimes a small pad and piece of thick leather about the size of a crown piece, and a bandage about an inch or an inch and a quarter in width. This bandage is placed round the wounded limb, about an inch or two above the wound, and tied. The handle is then turned round over above the piece of leather, with a compress below it, immediately in the line of the bleeding vessel, which may be discovered by observing that part of the limb from which the bleeding proceeds, and by the turning the handle the bandage is tightened and kept in its position in the same way as carriers or carmen secure the rackpins of their loaded carts or wagons.

An attentive reader and observer will perceive, from the plate, the mode in which the screw tourniquet is applied, is somewhat similar a manner, only the screw is employed to tighten and retain the bandage in its proper state in place of the wooden handle in the other case. In many cases, however, of accidents of the extremities (for it is to the extremities that the tourniquet is chiefly applied) neither of these useful instruments are to be procured in time, and the patient dies of hemorrhage. A substitute is, however, in general easily procured, and any individual who is at hand may entirely suppress, or at any rate greatly moderate the discharge of blood, till a surgeon arrives either to amputate the limb or tie the bleeding vessel; for oftentimes the wound is so extensive as to require almost immediate amputation. Let a stout handkerchief, or a brace or suspender, which is generally made of stout cotton or silk web, be tied firmly about an inch and a half above the wound, and as we have marked the places in the arm, leg, or thigh, the part most proper for making the pressure may be easily understood. When an artery is wounded it is easily to be distinguished, as the blood flows out by jerks, and not in the slow, continued stream, as from a vein, and the arterial blood is of a bright red colour, while the venous is darker. If one of the large arteries of the thigh is wounded more than halfway up, it will require a much greater force to stop the bleeding than if lower down, or even in the leg or arm; but the same rule is applicable to all cases of great hemorrhage from the blood vessels of the lower and upper extremities.

On this point we feel a deep interest, as we have known more than one or two instances of persons bleeding to death from even what appeared to be trifling wounds of the wrist or ankle, and which any boy, or indeed girl, or the patients themselves might with a knowledge of the above rules easily have checked.

Where the small branches of the arteries that supply the fingers and toes with blood conjoin, sometimes such a discharge occurs as to injure an individual of delicate constitution; but the operation of tying the vessel in order to stop the bleeding is seldom, perhaps never, required. In order, however, to allow time for the requisite dressings to be procured and applied, a tight bandage of narrow tape or ribbon may be fastened a little above the wound. Agaric, properly prepared, may be then applied to the wound, after it has been spunged and cleaned, and the dry agaric sometimes acts mechanically as a plug to the bleeding vessel, although it possesses no specific styptic or astringent property, as was once believed. Clean cobwebs, when applied in the same way, and in sufficient quantity, sometimes succeed as a plug, and they are not in general difficult to procure; but perhaps the best dressing for such a wound, although it has been getting out of fashion, is a compress of fine linen rag, or caddis, several times folded, moistened with the compound tincture of benzoin, or friar's balsam, and secured by a pretty long narrow calico bandage. When this has been applied, the ligature above the wound may be removed, and if the bleeding returns, continue to moisten with the tincture or balsam, which, uniting with the blood, will soon furnish a plug to the arterial twig. The wound should not be again dressed in less than four or five days. The great art, however, in stopping a bleeding of this kind is making a firm and equitable pressure over the moistened compress; but it should be borne in mind, that the ligature directed to be tied above the wound is to be kept no longer on than the wound is dressed or than the compress is applied, and not so tight as entirely to check the circula-

tion, as that would produce the mortification or death of the limb.

Hernia or *Rupture*, is another disease that often affords the patient who is ignorant of its nature great uneasiness, especially on its first appearance. As the nature of our work does not require us to enter at length on a consideration of the various species of hernia, we shall confine our attention to those varieties most common, and where domestic management may prove most useful.

Hernia or *Rupture* may be defined the descent or protrusion of some of the abdominal viscera out of their place, so as to produce an evident and preternatural swelling in the abdomen itself, or in some of the adjacent parts, greater or smaller, according to the quantity of the viscera, which have been forced out of their natural cavity. The parts which most commonly descend or are protruded are the intestines and the omentum, and when the former, the hernial sac, or tumour, is called an *enterocele;* when the latter, an *epiplocele*, or when both do so it is denominated an entero-epiplocele.

The most intelligible description for a general reader is the name which the hernia takes from the place in which it makes its external appearance. When in the *groin* it is called an *inguinal hernia*, or *bubonocele;* in the hollow of the thigh, *crural* or *femoral hernia;* at the navel, *umbilical hernia*, and *ventral* when it occurs at any promiscuous part of the abdomen; in the scrotum it is called *scrotal hernia*, and in females the tumour frequently appears in the *labiæ pudendi;* and there assumes the name of its site, *pudendal hernia*.

There are many cases in which the hernial contents lie quietly in the sac, and admit of being readily put back into the abdomen, and in this case it is called *reducible hernia;* or when the parts that have descended suffer no constriction, yet cannot be put back, owing to adhesions, or their large size, in relation to the aperture through which they have to repass, the name of *irreducible* is applied to the hernial tumour. The kind of hernia which is, however, most distressing, painful, and frequently fatal, is what is denominated *incarcerated* or *strangulated hernia;* it means a hernia which not only cannot be reduced, but actually suffers constriction, so that if a piece of intestine be protruded, the pressure to which it is subjected stops the passage of its contents onwards towards the anus, inflames the bowels, and brings on a train of the most painful and alarming consequences.

As a warning to those who from either carelessness have omitted the necessary precautions, or through ignorance, did not employ them, and who having a rupture or hernia that becomes strangulated, we shall detail the symptoms which most usually appear when strangulation takes place. These symptoms are swelling of the groin or scrotum, resisting the impression of the fingers. If the hernia be of the intestinal kind, it is generally painful to the touch, and the pain is increased by coughing, sneezing, or standing upright. These are the very first symptoms, and if they are not relieved, are soon followed by others, such as sickness at stomach, a frequent retching or inclination to vomit, a stoppage of all discharge per anum, attended with frequent hard pulse, and some degree of fever. If these symptoms are not removed, by the return or reduction of the rupture (or intestine), that is, if the attempts made for this purpose do not succeed, the sickness becomes more troublesome, the vomiting more frequent, the pain more intense, the tension of the belly greater, the fever higher, and a general restlessness come on which it is difficult to bear, and even painful to witness; and now only one remedy remains, which is to set the rupture free by an operation performed by a skilful surgeon and dexterous operator.

When these symptoms make their appearance, blood-letting, so as even to occasion syncope or fainting, the warm bath, tobacco enemas, and other such modes are employed; but when notwithstanding all these symptoms are unabated, the rupture should be relieved, else mortification and death will speedily ensue.

We now recur to the more pleasing subject of a *reducible hernia*, free from strangulation. This appears an indolent tumour at some point of the parietes of the abdomen, most frequently descending out of the abdominal ring, or top of the thigh, or else out of the navel, but occasionally out of various other situations, as already described. The swelling most commonly originates suddenly, except in the circumstances above detailed, and it is subject to a change of size, being smaller when the patient lies on the back and larger when standing. The tumour frequently diminishes when pressed, and grows large again when the pressure is removed, and its tension and size often increase after a meal, or when the patient is flatulent. Those who labour under hernia are very apt to be troubled with cholic, constipation and vomiting, in consequence of the unnatural situation of the bowels; frequently, however, the functions of the viscera seem to suffer little or no interruption. To guard against irregularities and those unpleasant feelings, the patient should keep the bowels in an easy state, by taking a tea spoon full of the following powder in a wine glass of peppermint tea, or even plain water, every other day. Take of magnesia two drachms, powder of rhubarb and powder of calumba each half a drachm, powder of ginger one scruple, mixed intimately by rubbing the ingredients together in a wedgewood mortar. Patients should likewise wear a truss (see Plate LXXXVII. figs. 13 and 14), an instrument which has been greatly improved of late. Those made on the principle of Salmon and Ody's patent (now expired), will be found most convenient and comfortable for those who require to use little exertion; but, perhaps, the best truss for those who labour is the common spring truss, as figured in the plate. As hernia frequently appears on both sides of the abdomen, a double truss is required. For the figures of hernial trusses, single and double, and modes of application, see figs. 11, 12, 13, 14.

SPRAINS, CONTUSIONS, AND BRUISES.

Bruises are often followed by very serious consequences when they are inflicted in the neighbourhood of joints or over bones, which have only thin cutaneous or muscular covering. In accidents of this description we generally have, *first*, an impaired state of the vitality of the part, the consequence of the injury received by its nerves and blood vessels; and, *second*, an inflammatory action, being the consequence of the previous state; and in the third stage a state of debility, the result of the preceding increased action. There is, likewise, more or less extravasation of blood from the rup-

ture of the smaller vessels, and this is especially the case on the head and other parts where the bones lie near the surface. To relieve the local part, and excite an action in the absorbed vessels, it is customary to apply rags to the parts, two or three times folded, wet with a solution of sugar of lead or Goulard's extract, or equal parts of common brandy, whisky, or rum, and Spirit Mindererus. One drachm of sugar of lead, dissolved in six ounces of water, and one ounce of vinegar, and the same quantity of either of the spirits just named, will be found an excellent formula. The rags should be kept constantly moist with this lotion.

In more severe cases, it is necessary to apply leeches, and encourage the bleeding after the leeches drop off, by the application of rags, wrung out of warm water. A cooling regimen should be enjoined, and the bowels kept open by a drachm or two of Epsom salts in a wine glass of peppermint tea twice or thrice a day.

In the last stage of a bruise, where there is merely a want of tone in the part, and where much discolouration remains, the absorbents may be excited to action by frictions night and morning with the compound soap liniment, or equal parts of laudanum and the soap liniment, especially if much tenderness is felt in the parts.

Sprains are somewhat different from bruises; but the same treatment above recommended for bruises may likewise be followed in the case of sprains. The joints most exposed to this accident are the ankle and wrist, although the other joints occasionally suffer. A sprain consists in an injury of the soft parts surrounding the joint, the capsular ligament which incloses it being either stretched or torn. There is at first a sense of weakness and partial inability to move the joint with more or less pain, which gradually becomes more acute as the inflammatory action advances, and the part soon becomes swollen and tense, with a degree of warmth and a reddish inflamed colour. In this stage there is frequently a considerable degree of symptomatic fever present, which should be abated by a cooling regimen, gentle laxatives, rest, and the means above recommended in bruises. Sprains of the greater joints, especially of the knee, wrist, and ankle, when neglected or improperly treated, especially in persons of a scrofulous habit, frequently lay the foundation of some severe disease of the joint, such as white swelling or dropsy, of the capsular ligament, i. e. a collection of fluid surrounding the joint. Local bleeding by leeches should be freely employed, and any consequent stiffness or discolouration may be removed by the compound soap liniment, either with or without laudanum.

Fractures and Luxations. The nature of our work precludes us from entering here on the particular consideration of the doctrine and the treatment of fractures and luxations; and without a considerable anatomical knowledge of the parts, it would be impossible either to understand or put in practice the precepts laid down. At the same time, it cannot be doubted that a general acquaintance with the subject may be easily acquired, and that one may be placed in situations where such a knowledge may prove particularly valuable, especially to seafaring people, and those residing at a great distance from surgical assistance. Some fractures may be readily perceived both by the sufferer and even the most superficial observer, while others require all the skill and discrimination of the most experienced practitioner; for example, fractures of the neck, of the thigh bone, and even those of some of the bones of the head. The general symptoms are loss of motion and distortion of the injured limb, the extremities of the bone admitting of being moved on each other, producing crepitation, or a grating sound, and lastly, inflammation at the site of the injury. Some one or more, however, of these symptoms are frequently absent. When there is an external wound of the soft parts, in conjunction with the fracture of the bone, the injury is called *a compound fracture*, and this always renders the case more dangerous and difficult of cure. When such an accident takes place, the greatest care should be taken by removing the sufferer to a proper place in the gentlest manner, attending especially to the injured limb, and not allowing it to hang down. Great caution is especially necessary in fractures of the thigh bone, or even when both bones of the leg are broken.

In all fractures of the lower extremities the patient must be confined to bed till the union of the ends of the bones are completely consolidated, which, in young persons, requires from twenty-eight to thirty-five days; in adults, from thirty-two to thirty-six; and in the aged, from thirty-six to forty-two days. In procuring the union of a fracture, and preserving the natural length and shape of the limb, it is absolutely necessary to bring the ends of the bone together by extension and counter extension, and then retain them in this position by proper bandages and splints. (See figs. 7 and 9.) In all cases of fracture of the lower extremities, an eighteen tailed bandage is to be preferred, and in compound fractures cannot be dispensed with. It consists of three pieces of calico sewed together, and then divided in three divisions on each side of a middle seam, which is best made by sewing on a piece of ribbon or tape, an inch and a half broad along the middle of the pieces of calico: in this way nine tails are formed on each side, and can be applied and slackened and the limb exposed without disturbing its position. Splints, as pasteboard, such as is used for boarding books, thinner or thicker, according to the size of the limb, is to be dipped in warm water, so as to make them bend, are applied above the bandage; and it is necessary, especially in the case of the thigh, to apply wooden, or even metal or whalebone splints, above the pasteboard, which are fastened with tapes. (See plate LXXXVI. fig. 9; plate LXXXVII. fig. 3.) This latter is termed secondary setting, and is applicable to all the bones of the extremities, but as already observed, quite indispensable in every case of fractured thigh bone.

A hair mattress is preferable to a softer bed, as a feather or flock bed would sink, and alter the position of the limb.

Some surgeons of eminence have lately proposed and tried an envelope of plaster of Paris, or alum, or any substance that soon hardens, around the limb, and keeps the ends of the broken bones in their position; but this requires further experiment and observation before it be generally adopted, and can only be used in simple fractures of the extremities. In fig. 2. is given a representation of the application of a bandage for retaining a fractured clavicle, or shoulder blade or collar bone, in its position.

Dislocation. This is the dislodgement of the head of the bone from the cavity in which it was naturally placed. When this has been effected, the usual appearances are a change of the form of the joint, a lengthening or shortening of the

limb, and an incapability of motion. In detecting this accident, great assistance may be derived from comparing it with the joint on the opposite sides. A dislocation is easily reduced at the time it occurs; but the difficulty increases in a direct ratio with the time that has elapsed since the infliction of the injury, so that in course of time it becomes altogether impossible, and a new joint is frequently formed at the expense of great pain and suffering to the patient. Indeed, we are persuaded that with a very limited quantum of time and attention bestowed on this subject, many a luxation might have been reduced that now proves a source of an uneasiness and deformity for life; and it is little more than eighteen months since we saw a fine boy of five years of age rendered a cripple, by the ignorance, perhaps the carelessness, of a surgeon, who declared the swelling of the joint to be occasioned by a collection of matter. So much time, however, had been lost, that it was impossible to reduce the luxation, and the child is consequently a cripple for life. The reduction of dislocation is accomplished by extension and counter extension; and the extending force is to be gradually increased, and at first in the direction in which the bone may be displaced, and by degrees it is to be brought into a line parallel with the axis of the socket. During this latter period of the application of the extension, some one is to endeavour to raise the head of the bone over the edge of the cavity. Much depends on the steadiness of the patient and the fair continued pull of the assistants.

Eye. Of all the organs of the human body the eye is considered one of the most delicate, and one the loss of which is always deeply deplored. Guarded and protected as it is by our All-wise Creator, it is, nevertheless, frequently the seat of disease and pain; and perhaps the most common accident to which it is liable is the *lodgement of foreign* substances on its surface, and often under the eyelids. When this is the case there is pain and acute inflammation, terminating, if neglected, in obscurity, and even loss of vision. Particles of sand or dust may either be disengaged on the surface, or having penetrated the external tunic, may there remain fixed. In the former case it is easily removed by means of a camel hair pencil, dipped in oil, or two or three soft feathers tied together, so as to imitate the camel hair brush; or what is equally efficacious, a piece of pure soft paper, rolled like a quill, and moistened in the mouth; it is sometimes, however, necessary to extract sharp substances that have stuck fast in the coats of the eye; but this requires a fine lancet, a steady hand, and great delicacy. Blacksmiths, cutlers, and other kindred trades, are familiar with this accident, which they denominate a fire in the eye; and some one of the profession celebrated for removing it, pulls it out roughly betwixt his finger and thumb, often to the future injury of the sufferer. We have seen serious injury done to the eye by running in lead to secure the railing of stairs, &c.; if there be any liquid in the cavity into which the lead is poured it will produce violent ebullition, and, rising out of the cavity, scald the face or eyes of the operator; and when the latter accident occurs, the eyelids should be widely separated, and the lead seized and gently pulled out by a pair of small forceps or fine pliers. We have in this way extracted a thin covering of lead, the size of a shilling, from the eye, and the sight, although weak and dim, was not destroyed.

The *Ear* too is liable to be infested with *foreign substances in its cavities;* and in general it is inert substances that are met with in this important organ. Ants, flies, caterpillars, and other insects, have sometimes not only entered the ear, but have been known to deposit their ova there. When they cannot be seen, it is best to introduce a mixture of equal parts of oxgall and camphorated oil, and then to syringe the ears with warm water and soap. If the first does not remove the unpleasant feeling or tickling, and even sounds and deafness, five or six, or even ten drops of the camphorated oil and gall may be dropped in every night, for four nights, and then repeat the syringing as before.

The *Gullet*, or *Œsophagus*, is, perhaps, that passage or tube into which bones, pins, &c., are most frequently and carelessly introduced, and, the accident has frequently proved fatal. The very reprehensible practice which many females have of holding pins in their mouth, whilst dressing, has led to many accidents, and when a pin or small splinter of bone has been swallowed, or is rather sticking in the upper part of the gullet, they may frequently be removed and brought up, or fall down into the stomach, by exciting vomiting, by tickling the back part of the throat, or fanning with a feather, or a common goose quill. A plentiful draught of water should be immediately taken; but it is often difficult to persuade the person that it is removed, as the pain of the pricking and roughness still remain. When it is a large substance, it may not only obstruct the passage, but, by pressing on the windpipe, produce symptoms of suffocation, which may, if not relieved, terminate in death. If the substance is so far up as can be laid hold of with a hook or pair of long forceps, it should be first attempted, but if this is not immediately effected, no time should be lost in employing a *probang*, which is formed of a piece of rounded whalebone, with a piece of ball-shaped sponge (see Plate LXXXVII. fig. 21), securely fixed to the end, or a small ball a little larger than a musket bullet, of bone ivory or boxwood, screwed on the end of the whalebone. With the rib of an old umbrella or parasol, no one need be at a loss to form a probang. The method of using it is simple, merely carrying it into the back part of the mouth, and introducing it into the throat, press gently but firmly against the substance with the oiled ball or sponge, till it yields and falls down into the stomach. It is even sometimes necessary to cut down on the neck to the gullet, and in that manner extract the substance; but this last operation should only be performed by a surgeon. Presence of mind is a great requisite in such accidents. The compiler of this article was once sent for in great haste to a lady, without knowing for what cause, when he found her on the verge of suffocation, from a large piece of mutton bone sticking in the gullet. Not having any probang, he immediately procured a piece whalebone from a pair of stays, which he used as a probang, and in a few seconds the lady was out of danger. The surgeon-general of Ireland, Dr Frampton, accidentally met with a case of this kind, split a small cane or ratan, and pushed down the bone. A surgeon was called to a boy with a halfpenny sticking in the gullet, and having no instrument, he threw a quantity of snuff into the boy's mouth, and by its action the halfpenny was dislodged. These cases will afford a hint to others in like circumstances. It is surprising the large substances some individuals are capable of swallowing without sustaining much

apparent injury or uneasiness. Mr Wakefield, surgeon to the House of Correction, Coldbath-fields, London, relates the case of a convict, sentenced to three years' imprisonment, who, for fear the money would be taken from him on the day of his committal, *swallowed seven half crowns*, and in twenty months after voided them by stool, in consequence of taking some purgative medicine for a slight bowel complaint. Their colour was perfectly black; but no loss of substance, on the most careful examination, was perceptible.

Windpipe. When substances get into this passage, such as peas, cherry stones, &c., which is often the case with children, unless the immediate attendance of a skilful surgeon is procured, there is little hope of recovery; indeed it is surprising what small substances have occasioned suffocation. Anacreon is said to have been choked by the stone of a grape, and others by a blade of grass, a small fly, or other equally insignificant substance, finding its way into the windpipe.

In the course of this article, we have pointed out the use and application of most of the instruments figured in the plates *Surgery* and *Surgical Instruments*; but it remains to describe figs. 16, 17, 18, and 20. Fig. 16 exemplifies the mode of emptying the stomach of poison or any noxious substance, fig. 17 the mode of introducing food or any diluting liquor into the stomach. The operation of using the stomach pump is very simple, and one or two lessons might qualify any expert intelligent person to dilute and extract poison from the stomach in cases of emergency. The stomach pump or syringe, may be used for a self-enema apparatus, as in fig. 18, and the female breast may be emptied of milk by a glass applied to the same pump or syringe, to a suitable glass, as in fig. 20. The operation of cupping may likewise be effected in the same manner, after the scarificator, fig. 2 in the same plate, has been applied; and the cupping-glass fig. 19, furnished with a hole in the top, applied to the nozle of the pump. Fig. 6 represents the form of a small syringe, that may be used for a variety of useful purposes, such as washing out the ear, injecting the urethra, administering enemas to children, and other purposes, for which a small instrument of this kind is required. Figs. 7 and 8 represent two sizes of female catheters, for emptying the bladder in child-labour or obstruction of urine from other causes; and fig. 9 is the usual form of a male catheter. Fig. 3 represents splints for a fractured leg; and figs. 1 and 4 represent the former, the common field tourniquet, and the other the screw tourniquet. The operation of blood-letting in the arm, temples, and foot, are represented in plate *Surgery*, figs. 1, 3, 4, 5, and 8; and the various steps of the operation on each of these parts will be found explained in the preceding part of this article.

SURINAM; a territory and colony of South America, in Guiana, belonging to the Netherlands, lying west of French Guiana and east of English Guiana; bounded north by the Atlantic, east by the river Maroni, south by a country of the Indians, and west by the river Courantyn. It is about 150 miles from east to west, and upwards of sixty from north to south; square miles, about 11,000; population, 57,000. The principal rivers are the Surinam, from which the colony takes its name, the Courantyn, Copename, Seramica, and Maroni. The first only is navigable: the others, though long and broad, are so shallow, and so crowded with rocks and small islands, that they are of but little consequence to Europeans; nor are their banks inhabited, except by Indians. In all of them the water rises and falls for more than sixty miles from the mouth, occasioned by the stoppage of the freshes by the tide. In the Maroni is found a pebble called the *Maroni diamond*. The climate, which was formerly extremely fatal to Europeans, has, within the last half century, been much improved, by the increased population of the colony and the better clearing of the ground. The year is divided into two wet and two dry seasons. The highest heat during the hot season is stated at 91°; the common temperature from 75° to 84°. This equal degree of heat is owing to sea-breezes, which regularly set in at ten o'clock, and continue till five P. M., cooling the atmosphere with a constant stream of delightful air. The settlements are chiefly on the Surinam and its branches. The soil is very fertile, producing sugar, coffee, cotton, cocoa, maize, and indigo. The uncultivated parts are covered with immense forests, rocks, and mountains; some of the latter enriched with a variety of mineral productions. The river Surinam, which gives name to the colony, rises from mountains in the interior, and, after a course of about 150 miles, flows into the Atlantic, lon. 55° 40′ W., lat. 6° 25′ N. It is about four miles wide at its mouth, and from sixteen to eighteen feet deep, at low water mark, the tide rising and falling above twelve feet. It is navigable for small craft 120 miles. Paramaribo, twelve miles from its mouth, is the capital of the colony. It has a safe and convenient harbour, with an active commerce, and contains a population of 8000 whites, and several thousand free blacks, slaves, &c. The English have several times been in possession of Surinam, but finally restored it, in 1815, to the Dutch government.

SURREY, an inland county of England, bounded on the south by Sussex, on the east by Kent, on the west by Berkshire and Hampshire, and on the north by Middlesex and part of Buckinghamshire, from which it is separated by the Thames. It is about thirty-seven miles long from east to west, and its breadth from north to south is twenty-five miles. It is divided into thirteen hundreds (with the boroughs of Southwark and Guildford) which contains fourteen market towns and 146 parishes, in the diocese of Winchester. The principal river in Surrey is the Thames. The Wey is the only other navigable river, barges going above Guildford into the Basingstoke canal, which was finished in 1796. The Mole disappears in dry weather by absorption at Boxhill, and rises again in a strong spring at the bridge of Thorncroft, where the current continues constant. Its banks are beautiful all the way to Esher. It flows into the Thames opposite to Hampton court. The Wandle runs into the Thames a little below Wandsworth, after a course of ten miles. The Medway has only its origin in Surrey. The Loddon supplies the Basingstoke canal.

The surface of this county is generally undulating, and presents a great diversity of scenery. The northern part is most beautiful, and covered with villas. The central part is a range of chalk hills, interspersed with dry arable fields. The southern part is a flat clayey country, containing some of the finest oaks in Britain. The north-west district is covered with black and barren heath, and on the south-west near Farnham, we meet with the most

productive land in England. The soils of Surrey may be divided into clay, loam, and chalk. The Weald of Surrey in the south, about thirty miles by four, is a pale, cold, retentive clay. Farther north it is chiefly loam across the whole county, and near Godalming it has great depth reposing on an iron-veined sandstone. The chalky downs now begin, and have a breadth of about seven miles. Besides the crops common to other counties, there is a great deal of clover and sainfoin cultivated on the hills, and wood is also raised in the same districts to a great extent. Plants for druggists and perfumers are extensively cultivated near London, and superior hops are raised near Farnham.

Surrey has no particular breed of cattle. It supports many cows for the supply of London with milk, which are chiefly of the short-horned or Holderness breed. Cows of the Staffordshire breed are common and highly esteemed. The horses generally employed are usually large, heavy, and black. Great numbers of sheep are bred in the central and western districts. The most common are the South Downs, Wiltshire, and Dorsetshire. Great numbers of hogs are fattened at the distilleries and starch manufactories. House lamb-suckling is a great object with the farmers. In the Weald, geese are reared in great numbers on the commons. The Dorking fowls, which are large, handsome, and perfectly white, with five claws on each foot, are well known.

The manufactures of Surrey are numerous and extensive, but the most important belong to London. On the banks of the Wandle are large establishments for bleaching and calico printing. At Beddington there are large flour mills, skinning mills, calico-printing works, and bleaching greens. At Carshalton the same business is carried on, with the addition of a large cotton factory, paper mills, and several snuff and oil mills; and Mitcham and Morton are celebrated for their extensive calico and bleaching establishments. The principal objects of manufacture are starch, tobacco, snuff, gunpowder, paper, vinegar, leather, earthen ware, wax, and hats. Population in 1841, 582,678.

SURREY. See *Howard, Henry.*

SURROGATE: one who is substituted or appointed in the room of another; as the bishop or chancellor's surrogate (from the Latin *surrogare.*)

SURSOLID, in arithmetic and algebra; the fifth power, or fourth multiplication of any number or quantity, considered as a root. See *Root.*

SURTURBRAND, fossil wood, impregnated more or less with bitumen, is found in great abundance in Iceland. A bed of it extends nearly through the whole of the north-western part of the island. It is, in fact, a subterranean forest, impregnated with bituminous sap, and compressed by the weight of the superincumbent rocks. Branches and leaves are pressed together in a compact mass; but the fibres of each may be distinctly traced. The surturbrand is used by the Icelanders chiefly in their smithies, and in small quantities. It is sometimes so little mineralized as to be employed for timber. *Surtur* is the name of the northern god of fire. See *Northern Mythology.*

SURVEYING, in a general sense, denotes the art of measuring the angular and linear distances of objects, so as to be able to delineate their several positions on paper, and to ascertain the superficial area, or space between them. It is a branch of applied mathematics, and supposes a good knowledge of arithmetic and geometry. It is of two kinds, land surveying and marine surveying, the former having generally in view the measure or contents of certain tracts of land, and the latter the position of beacons, towers, shoals, coasts, &c. Those extensive operations which have for their object the determination of the latitude and longitude of places, and the length of terrestrial arcs in different latitudes, also fall under the general term *surveying*, though they are frequently called *trigonometrical surveys*, or *geodetic operations*, and the science itself *geodesy*. (See *Trigonometry, Degrees, Heights*, and *Triangle*.) Land surveying consists of three distinct operations: 1. the measuring of the several lines and angles: 2. protracting or laying down the same on paper, so as to form a correct map of an estate or country; 3. the computation of the superficial contents, as found by the preceding operations. Various instruments are used for the purpose of taking the dimensions, the most indispensable of which is the chain commonly called *Gunter's* chain, which is 22 yards long, and is divided into 100 links, each 7·92 inches: 10 of these square chains, or 100,000 square links, is one acre. This is used for taking the linear dimensions when the area of the land is required; but when only the position of objects is to be determined, a chain of 50 or 100 feet is more commonly used. A great deal of labour is frequently saved by having proper instruments for measuring angles. The most usual and the best adapted for this purpose are the circumferentor, theodolite, and semicircle. The surveyor's cross, or cross-staff, is likewise very convenient for raising perpendiculars. For surveying in detail, the plane table is the best instrument. Of the German works on this subject, Meyer's *Unterricht zur praktischen Geometrie* (1815), and Lehmann's *Anweisung zur richtigen Erkennung und genauen Abbildung der Erdoberfläche* (1812), deserve to be recommended. See *Topography.*

SUS. PER COLL. On the trial of criminals in England, the usage at the assizes is for the judge to sign the calendar, or list of all the prisoners' names, with their separate judgments in the margin. For a capital felony, the sentence "Hanged by the neck" is written opposite the prisoner's name. Formerly, in the days of Latin and abbreviation, the phrase used was *sus. per col.*, for *suspendatur per collum.*

SUSQUEHANNA, the largest river of Pennsylvania, is formed by two branches which unite at Northumberland. The east branch rises in Otsego lake, in New York: the western branch rises in Huntingdon county, Pennsylvania. After their junction, the river flows south-east into the head of Chesapeake bay, and is one and one fourth mile wide at its mouth. It is navigable only five miles.

SUSSEX; a maritime county of England, bounded on the north by Kent and Surrey, on the east by Kent, on the south by the British channel, and on the west by Hampshire. Its figure is that of an oblong, about seventy miles in length from east to west, and its utmost breadth from north to south twenty-six miles. The general appearance of the county is rich and fertile. Formerly the whole northern part was one continued forest, and it still contains some of the finest oaks in the kingdom, which are in great demand for the use of the navy. The soil in most places consists of a stiff deep clay, with the usual variations of sand, loam, gravel, and chalk; of the latter substance, there is a whole range of hills called the South

Downs, which run in a direction parallel to the coast, and on which immense flocks of sheep are pastured. Sussex has been long celebrated for the excellence of its breed of cattle, which is universally acknowledged to be inferior to none in the kingdom. The most important mineral product of the county is limestone, some kinds of which are polished as marble, particularly that found about Petworth. Iron-ores are abundant, and were formerly smelted with charcoal, but that operation has become unprofitable, and has therefore been discontinued since the establishment of iron-works in the great coal districts. The principal rivers of Sussex are the Arun, Adur, Ouse, Lavant, and Rother, the two first of which are navigable a few miles from their mouth. The Rother forms Rye harbour, and separates the county from Kent. There is only one canal in Sussex, which joins the towns of Petworth and Midhurst with the Arun. Population in 1841, 299,753.

SUTHERLAND; one of the most northerly counties of Scotland, extending across the island from the Atlantic to the German ocean. It is bounded on all sides by the sea, except on the north-east by Caithness, and on the south by Rossshire. The length, from east to west, varies between forty-five and fifty miles, and its breadth, from north to south, between thirty-five and fifty. It contains 1865 square miles of land, and thirty-eight square miles of salt water lakes. The western coast of Sutherland is a succession of inlets of the sea, variegated with bold promontories, and numerous rocks and islets. The interior, which is almost universally wild, rocky, and mountainous, may be divided into three districts. The eastern is a level piece of land on the east coast, about a quarter of a mile broad, and is sheltered from the north by a ridge of mountains, from 300 to 800 feet high. The middle district is occupied by the four straths of the rivers of Helmsdale, Brora, Fleet, and Oickel. Black cattle and sheep form here the wealth of the farmer. The western district, which borders on the Atlantic, is wild and mountainous. The mountains of Ben-mor, Assynt, Glass-bhein, Ben-canap, Benchoinag, or the sugar loaf mountains, Ben-evie, Craig-rou, Benmore, and Stackben, are of great altitudes, and though entirely barren, yet at their base they display many extensive and well managed farms.

The county of Sutherland has derived immense advantages from the admirable establishments of the marquis of Stafford. Formerly the only manufacture was that of kelp, to the extent of 250 tons annually. Very important fisheries are carried on in the west, north, and east coasts. At Helmsdale, on the east coast, the marquis of Stafford has expended large sums in erecting buildings necessary for this purpose, and the tenants who had been removed from their farms have embarked with much success in this new profession. A considerable number of boats are occupied in the cod, ling, haddock, and herring fisheries, on the north and west coasts, where lobsters and mussels are also obtained in abundance. In this county both coal and limestone have been recently discovered.

Sutherlandshire contains only one town, which is a royal burgh, and the county town, namely, Dornoch; besides which it has the thriving modern villages of Golspie, Brora, and Helmsdale, on the east coast, and some small villages on the north and west coast. Each of the modern villages have good inns. The shire has thirteen and a half parochial divisions. In the year 1755, the population was 20,774; in 1831, it amounted to 25,518; in 1841, to 24,782.

SUTTEE, or, more properly, SATI; a word in the Sanscrit, or sacred language of the Hindoos, meaning *pure*, and hence extensively applied to their female deities, and to acts of purification, especially to that pre-eminent species, the self-immolation of the widow on the funeral pile of her deceased husband. The name of this horrid sacrifice is commonly written *suttee* by the English; but *sati* is the correct mode of spelling it, according to the orthographical system of Sir W. Jones. The origin of satiism, or sutteeism, is buried in mythology. The goddess Sati, to avenge an insult offered to her husband Iswara, by her father's neglect to invite him to an entertainment, consumed herself before the assembled gods. To lord Bentinck, governor-general of India, belongs the honour of having abolished this shocking perversion of devotion in the British dominions. This abolition took place in December, 1829. Until then, the British government had permitted it, provided the act was perfectly voluntary (which the religion of Brahma also prescribes), and if notice of such resolution had been previously given to a magistrate, who was required to see that the suttee was public, and that all the requisitions of the law were fulfilled. We learn from bishop Heber's Narrative that the opinions of well-informed men, to whom the cause of humanity was equally dear, were divided respecting the abolition of these self-sacrifices, some believing that suttees would then take place in secret, and be more common than before, and that opportunities, moreover, would be afforded for many murders. The people are said to have heartily rejoiced at the abolition; but, what may well surprise us, the East India Magazine states that an English lawyer went from India to England to prosecute an appeal before the privy council, made by some Brahmins in Bengal, against lord Bentinck's prohibition of suttees. The same journal states that this "custom had its origin in the excessive jealousy of the early Hindoo princes, who, with a view to prevent their numerous widows forming subsequent attachments, availed themselves of their irresponsible power; and, with the aid of the priests, it was promulgated, as if by sacred authority, that the wives of the Hindoos of every caste, who desire future beatitude, should immolate themselves on the demise of their husbands. Since 1756, when the British power in India became firmly established, upwards of 70,000 widows have been cruelly sacrificed! A Brahmin possesses the privilege of marrying as many wives as he pleases. Ununtu, a Brahmin who died at Bagnapore, had more than one hundred wives: twenty-two were burned at his death. The fire was kept burning three days. He had married four sisters, two of whom were burned with his corpse. A short time before lord Bentinck's order, a rajah in the hill country, who died, had twenty-eight wives burned with his body." So far the East India Magazine. Perhaps, however, this self-immolation is in part owing to the surprisingly little value which Hindoos put on human life (hence so many suicides, infanticides, immolations and self-immolations), and to the relation of the Hindoo wife to her husband. None of the sacred books of the Hindoos command the suttee, though they speak of it as highly meritorious; it is believed to render the husband and his ancestors happy, and

to purify him from all offences, even if he had killed a Brahmin. (See the *Veda*, &c., quoted before the privy council, June 23, 1832, to support the above-mentioned petition.) The rule is, that the act of the widow must be voluntary; but we can easily imagine that the fanaticism or cupidity of relations often compels the Hindoo widow to immolate herself, just as they forced women, in the middle ages, to take the veil, which also is required, by the rules of the church, to be voluntary. The ceremonies of a suttee are various, and last from a quarter of an hour to two hours. Sometimes the widow is placed in a cavity prepared under the corpse of the husband; sometimes she is laid by the body, embracing it. If the husband was not a Brahmin, it is not required that the corpse should be burned with the widow; any thing which belonged to the deceased—his garments, slippers, walking-staff—may be substituted for the corpse. There were, according to official report, above forty suttees in the province of Ghazepoor in 1824; and several had taken place not reported to the magistrate.

SUWAROFF-RIMNITZKOY, Peter Alexis Wasiliowitsch, count of, prince Italinski, field-marshal and generalissimo of the Russian armies, one of the most distinguished generals of the eighteenth century, was born at Suskoy, a village of the Ukraine, in 1730. His father, an officer, placed him in the military academy at Petersburg; and, in his seventeenth year, Suwaroff entered the service as a common soldier, and gave proofs of his courage in the war against Sweden. In 1754, he became lieutenant, and, after distinguishing himself in the seven years' war (q. v.), received the command of a regiment, in 1763. In 1768, he obtained the rank of brigadier-general, and served several campaigns in Poland, receiving, in reward for his courage and conduct, the crosses of three Russian orders of knighthood. In 1773, he was appointed to the command of a division of the troops under count Romanzoff, and completely defeated a portion of the Turkish army at Turtukey, killing several of the enemy with his own hand. Crossing the Danube, he afterwards, in conjunction with the force under Kamenskoy, routed the army of the *reis effendi* with great slaughter, and the capture of all his artillery. In 1783, he reduced the Budziac Tartars under the Russian yoke. In 1787, being chief in command, he was intrusted with the defence of Kinburn, then attacked by the Turkish forces both by sea and land; and, after an obstinate siege, succeeded in repulsing his assailants with considerable loss. At Oczakow and Fockzami (at the former of which places he received a severe wound) his daring valour was equally displayed; and, in the September of 1789, the Austrian troops, under the prince of Saxe-Coburg, being surrounded, on the banks of the Rimnik, by 100,000 Turks, owed their preservation to his timely arrival with 10,000 Russians, who not only rescued them from a destruction that appeared inevitable, but occasioned the utter overthrow of the enemy. To this victory he was indebted for the first of his above-named titles, and the dignity of a count of both empires. The next, and perhaps the most sanguinary of his actions, was the storming of Ismail (q. v.), in 1790. This strongly fortified town had resisted all attempts to reduce it for a period of seven months, when Suwaroff received peremptory orders from prince Potemkin (q. v.) to take it without delay, and pledged himself to execute the task assigned him in three days. Of the sacking of the place on the third, and the indiscriminate massacre of 40,000 of its inhabitants, of every age and sex, the accounts of the period give the most revolting reports. The announcement of his bloody triumph was made by the general, who affected a Spartan brevity in his despatches, in the words "Glory to God! Ismail is ours." Peace being proclaimed with Turkey, the empress (see *Catharine II.*) had leisure to mature her designs against the devoted kingdom of Poland; and Suwaroff was selected as a fit instrument to carry them into execution. He marched, accordingly, at the head of his troops, to Warsaw, destroying about 20,000 Poles in his way, and ended a campaign of which the unprincipled partition of the country was the result. (See *Prage*, and *Poland*.) On this occasion, he received a field-marshal's baton, and an estate in the dominions which he had contributed to annex to the Russian crown. The last and most celebrated of his actions was his campaign in Italy in 1799, when his courage and genius for a while repaired the disasters of the allied forces. Paul gave him the command of the Russian forces destined to act with the Austrians, and the emperor of Germany created him field-marshal, and commander-in-chief of the Austrian troops in Italy. He gained several brilliant victories at Piacenza, Novi, &c., and drove the French from all the towns and fortresses of Upper Italy, and was rewarded for his services with the title of *prince Italinski*. But, in consequence of a change in the plan of operations, he passed the Alps; and the defeat of Korsakoff at Zürich (see *Masséna*), together with the failure of the expected assistance from the Austrians, obliged Suwaroff to retreat from Switzerland. Paul, offended with the Austrian court, now recalled the prince, in spite of his remonstrances; and preparations were made for his triumphal entry into Petersburg. Meanwhile, Suwaroff, having evaded an imperial order, directing the generalissimo to name each general in turn general of the day, by appointing prince Bagration standing general of the day, was declared, by command of the emperor, to have deserved censure, and the preparations for his triumph were suspended. Chagrin at this disgrace hastened his death, which took place May 18, 1800, sixteen days after his arrival at Petersburg.—Suwaroff was a remarkable man. Though feeble and sickly in his youth, he had acquired a sound constitution by his simple and abstemious mode of life: he slept upon straw, and his whole wardrobe consisted of his regimental uniform and a sheepskin. He observed punctiliously all the ceremonies of his religion, and never gave the signal for battle without crossing himself, and kissing the image of St Nicholas.

SWABIA. See *Suabia*.

SWALLOW (*hirundo*). The air seems to be truly the home of the swallows: they eat, drink, sometimes even feed their young, on the wing, and surpass all other birds in the untiring rapidity of their flight and evolutions. The beak is short, broad at base, very much flattened, and very deeply cleft, forming a large mouth, well adapted to the purpose of seizing winged insects, which constitute their accustomed food. The feet are very short, and the wings remarkably long. In winter they migrate to tropical climates, a few days being sufficient to pass from the arctic to the torrid zone. In the spring they return; and it has been found by experiment that individuals always come back to their former haunts. They sweep over our fields, our rivers, and through our very streets, easily eluding all enemies by their powers of wing. Those

species of swallows which migrate to Europe are common to America. In the new world, however, there are several species in great abundance, which are unknown here.

The barn swallow, (*H. rufa*) is so called, from its frequently attaching its nest to the rafters in barns, &c. The upper parts are steel blue, the lower light chestnut, and the wings and tail brownish-black; the tail is greatly forked, and each feather, except the two middle ones, is marked on the inner vane with a white spot.

The white-bellied swallow (*H. viridis*) is less abundant than the preceding. The upper parts are light, glossy, greenish-blue; the wings brownish-black, with slight green reflections, and the whole lower parts pure white: the tail is forked, but slightly, in comparison with the barn swallow, from which it may also be distinguished by its sailing more in its flight.

The purple martin (*H. purpurea*) inhabits all parts of the United States, and Canada to Hudson's bay. It is a general favourite, and every where takes up its abode among the habitations of men. The Indians and Negroes hang up gourds, properly hollowed, for its convenience; and, in the more settled parts of the Union, considerable expense is sometimes incurred in preparing for it a suitable residence. In the country, it renders essential services, by attacking and driving away crows, hawks, eagles, and other large birds. Its note is loud and musical. The colour of the male is a rich and deep purplish blue, with the wings and tail brownish-black; the female is more plainly attired, and has the under parts whitish, with dusky and yellowish stains.

The bank swallow (*H. riparia*) has no partiality for the society of man, but dwells in communities along steep gravelly banks, in which it scratches out horizontal holes for breeding places. It is particularly fond of the shores of rivers, and is found in immense multitudes in several places along the Ohio. The colour is brown above, and beneath white, with a brown band across the breast.

The cliff swallow (*H. fulva*) is easily distinguished by its even tail. The upper parts of the body are black, glossed with violaceous; the under parts whitish, tinged with ferruginous brown; the throat and cheeks dark ferruginous; and the front pale rufous. The note is very singular, and may be imitated by rubbing moistened cork round the neck of a bottle. It lives in communities, building in unsettled places, under projecting ledges of rocks. The nests are formed of mud, are very friable, and somewhat resemble, in form, a chemist's retort.

The chimney swallow (*H. pelasgia*) differs widely from the others, in its form and manners. The colour is entirely deep sooty brown; the tail is short and rounded, having the shafts extending beyond the vanes, sharp pointed, strong and elastic, by means of which structure the bird is enabled to rest against perpendicular walls. It is easily distinguished in the air by its short body and long wings, their quick and slight vibration, and its wide, unexpected, diving rapidity of flight. In the settled parts of the country, it builds only in vacant chimneys, and in passing up and down produces a noise somewhat resembling distant thunder. The nest is small and shallow, attached by one side, and composed of very small twigs glued together with a strong adhesive gum. Sometimes chimney swallows congregate in immense numbers to roost in certain hollow trees; and such are generally noted in the country as "swallow trees." While roosting, the thorny extremities of the tail are thrown in for support. The birds' nests of China, so celebrated as an article of food, are the fabric of a small species of swallow, found in the Indian archipelago.

SWAMMERDAM, JOHN, a very distinguished naturalist, was born at Amsterdam, in 1637. His father, who was an apothecary, designed him for the church; but, as he preferred physic, he was allowed to pursue his studies in that profession. He was sent to Leyden, where he quickly distinguished himself by his anatomical skill, and the art of making preparations. After visiting Paris for improvement, he returned to Leyden, and took the degree of M. D., in 1667, and about the same time began to practise his invention of injecting the vessels with a ceraceous matter, which kept them distended when cold—a method from which anatomy has derived very important advantages. Entomology, however, became his great pursuit; and, in 1669, he published, in the Dutch language, a General History of Insects. In 1672 appeared his *Miraculum Naturæ, seu Uteri muliebris Fabrica*, to which was added an account of his new method of waxen injection. Rendered hypochondriacal by intensity of study and other causes, he became totally unfit for society, in which state he received impressions from the mysticism of Antoinette Bourignon, whom he followed to Holstein. He afterwards returned to Amsterdam, where he died, in 1680. Previously to his death, in a paroxysm of enthusiasm, he burnt all his remaining papers, but, under the pressure of indigence, had already sold the greater part of his writings and drawings to Thevenot. These, half a century afterwards, came into possession of Boerhaave, who caused them to be published in Latin and Dutch, under the title of *Biblia Naturæ, sive Historia Insectorum in Classes certas reducta*, &c. (2 vols., folio, Leyden, 1737). This publication, which has been translated into English by Sir John Hill, abounds with the most curious discoveries. Besides the works before mentioned, he is author of *Tractatus Physico-Anatomico Medicus de Respiratione* (Leyden, 1679, 8vo., and 1738, 4to.).

SWAN (*cygnus*). The swans are so closely allied to the duck and goose, in their anatomical structure, that it is difficult to point out distinctive characters; although most of the species are readily recognised by their external form. The colour of the plumage is, in general, pure white; a black species, however, has been lately discovered in New Holland. In northern climates, the swans are the ornament of the rivers and lakes, over which they seem to preside, from the majesty, ease and grace of their movements. They swim rapidly, and their flight is powerful and long continued; they live in society, and feed chiefly on the seeds, roots, and other parts of aquatic plants, but eat frogs, insects, and worms. They make their nests near the margin of the water, upon the ground, and attain a great age. The flesh is coarse, dark-coloured, and in general not much esteemed. The tame swan is distinguished by its red bill, having a protuberance on the front. In its wild state, it inhabits the great interior seas of Eastern Europe, but is now domesticated in all parts of this continent. It often measures eight feet, when the wings are extended, and weighs twenty or twenty-five pounds. Its strength is such, that it has no formidable

enemy, except the eagle, and in its battles with this antagonist often comes off victorious. The American wild swan breeds and passes the summer in the Arctic regions, but on the approach of winter, migrates to temperate climates. In the Atlantic states, it is hardly known east of the Chesapeake, which seems to be a favourite resort during the winter season.

SWAN RIVER; a British colony, on the western coast of New Holland, established in 1829. It is situated on Swan river, so called from the great number of black swans seen upon it, which empties into the ocean in lat. 32° 16′ S., lon. 115° 40′ E. Several settlements have been formed, and the soil is represented as fertile. Swan river was explored for nearly sixty miles from its mouth, by M. Bailly, mineralogist to the expedition of Baudin, who found it to flow over calcareous rocks, through a country covered with thick forests of gum trees. At the point where his examination ceased, the river was a third of a mile in width, with a slow current. A group of islands opposite the mouth of the river offers some roadsteads with safe anchorage for large vessels.

SWEABORG. See *Sweaborg*.

SWEAT. See *Perspiration*.

SWEATING SICKNESS, in medicine; a febrile epidemic disease, of extraordinary malignity, which prevailed in England, at different periods, towards the end of the fifteenth century and the beginning of the sixteenth, and spread very extensively in the neighbouring countries, and on the continent. It appears to have spared no age nor condition, but to have attacked more particularly persons in high health, of middle age, and of the better class. Its attack was very sudden, producing a sensation of intense heat in some particular part, which afterwards overspread the whole body, and was followed by profuse sweating, attended with insatiable thirst, restlessness, head-ache, delirium, nausea, and an irresistible propensity to sleep, together with great prostration of strength. The patient was frequently carried off in one, two or three hours from the eruption of the sweat. It seems to have first appeared in the army of the earl of Richmond, upon his landing at Milford haven, in 1485, and soon spread to London. This body of troops had been much crowded in transport vessels, and was described by Philip de Comines as the most wretched that he had ever beheld, collected probably from jails and hospitals, and buried in filth. It broke out in England four times after this, in 1506, 1517, 1528, and 1551. The process eventually adopted for its cure, was to promote perspiration, and carefully avoid exposure to cold. The violence of the attack generally subsided in fifteen hours; yet the patient was not out of danger under twenty-four hours.

SWEDEN AND NORWAY, or, as the united kingdoms are sometimes styled, even in official papers, SCANDINAVIA, form the Scandinavian peninsula, which is connected with the continent of Europe by Lapland, and comprises 295,468, or, according to some, 291,224 square miles. It extends beyond the Arctic circle, stretching from 55° 22′ to 70° 11′ 30′ N. lat., and is bounded by the North sea and the Cattegat on the west and south-west; by the Baltic and the gulf of Bothnia on the east and south-east; its northern boundary is the Frozen ocean; on the north-east, Norwegian and Swedish Lapland border on Russian Lapland. The Paes, and (since 1809) the Torneo and Muonio, here form the separating line between Russia and Sweden. A chain of mountains forms a natural division between Norway and Sweden; the highest summits are the Syltop, 6079 feet high, and the Schneehättan, 8337 feet high, in Sweden; and the Folgesonde, 5432 feet high, in Norway. The northern part forms the Kjöl or Kiel mountains, and southern, the Seve mountains. The former terminates in the North cape, the extreme northern point of Europe; the latter is nearer the western than the eastern shore, whence the main streams are on the eastern declivity, and flow partly into the gulf of Bothnia, and partly into the Cattegat. It divides into three branches; the Long Ejälls (Langfield and Dofrefield), extending to cape Lindesness (Lindenäs), on the North sea; a second branch separating the Norwegian basin of the Glommen from the Swedish basin of the Götha-Elf, and sinking down to the Cattegat; and a third dividing the sources of the Clara, which, after flowing through lake Wener (1100 square miles in extent), in Sweden, takes the name of Götha-Elf, from those of the Dal-Elf, and stretching between lakes Wener and Wetter, to the sound. The summits of the Scandinavian mountains, from 67° to 70° N. lat., are masses of barren rocks (Fjälls), covered, at the height of from 3900 to 2700 feet, with perpetual snow, and abounding with steep precipices, frightful clefts, lakes, and rapid torrents. The declivity towards the North sea is extremely precipitous, and full of abrupt crags and awful chasms. Nearer the eastern coast lies lake Mälar, fifty-five miles long, and from twenty-three to twenty-seven miles broad, containing 1300 islands, whose waters are emptied into the Baltic; lake Hielmar is connected with it. Lake Wetter receives forty rivers, and empties itself through the Motala into the Baltic. To Sweden belong Œland and Gothland, two fertile islands in the Baltic. The Aland group, at the mouth of the gulf of Bothnia, was ceded to Russia in 1809. The coast, broken by numerous indentures (Fiords), forms numerous holms or rocky islets (Stockholm, for instance), and safe harbours, especially on the shores of Norway; on which the Saltström, a dangerous strait, and the Maelström, a whirlpool, are particularly remarkable. The climate of Sweden and Norway, owing to the nature and elevation of the country, is, with the exception of the southern and western shores, dry and cold. Among the productions are orchard fruit, corn (in inadequate quantity, so that, in many places, the people mix powdered fir-bark or moss with their corn meal; in the south of Sweden, however, the cultivation of corn is increasing), potatoes, flax, hemp, hops, and tobacco, which, however, thrive only in the southern regions. In the north, the country is an almost impenetrable forest of pines and firs, and dwarf-birches, and abounds in deer, hares, elk, bears, and wolves. Berries and reindeer moss only grow here. Gluttons, lynxes, foxes, marmots, tame and wild birds, are also found. The poverty of the pasturage renders the horned cattle, goats, swine and sheep small; though the breed of the latter has been improved, since 1715, by the introduction of English and Spanish rams. The reindeer is a native of the north. (See *Deer*, and *Lapland*.) The climate of Sweden is, on the whole, warmer than that of Norway. On the coast, particularly on the Cattegat, the herring fishery was, a short time ago, of considerable importance. Seals, dolphins, and other fishes, are taken in plenty. The mineral kingdom is rich. Gold occurs only in small

quantities. Silver is more abundant. The silver mines of Sala have yielded, during the three last centuries, 1,640,000 marks of pure silver. The copper mines at Fahlun (a mining town, with 4200 inhabitants) produce, at present, 1,200,000 to 1,800,000 pounds, and all the Swedish copper mines, a total of 1500 tons annually. Excellent iron is obtained in large quantities: 120,000,000 pounds are smelted every year, constituting seven eighths of all the mining products. The richest iron mines are those of Danemora, in Upland. Lead, cobalt, vitriol, sulphur, alum, some salt, marble, porphyry, granite, grind-stones, mill-stones, and sandstone, asbestos, slate, talc, lime, &c. occur. There are many mineral springs in Sweden, in Norway, only one.

The Swedes and Norwegians are of a middle stature, and compactly built. The purity and coldness of the air, and the necessity of extorting every thing from the earth, gives them a hardness akin to their native iron, and a bold independent spirit. In the sciences, the Swede shows a sound and penetrating mind. Poetry and the fine arts have also put forth some fair blossoms in this rude climate. The language is of Teutonic origin. The Swedish and Norwegian dialects differ but little. The language of Lapland is a Finnish dialect. The two kingdoms, Norway and Sweden, had, in 1825, according to official documents, a population of 3,819,714—about thirteen to a square mile. But in the southern provinces of Sweden, there are 142 inhabitants to a square mile. The population of Sweden, in 1840, was 3,138,884; that of Norway, in 1845, was 1,167,766. (*Gotha Almanac for* 1849.) In all the cities, there are about 340,000 inhabitants. Stockholm, the capital of the kingdom, has a population of 85,000; Gottenburg (Göteborg), the principal commercial city in Sweden, 29,000; Christiania, the capital of Norway, 24,600; and Bergen, the chief commercial city of Norway, 24,800. But few towns, however, number more than 4000 inhabitants, and many have scarcely 500. Out of Europe, Sweden possesses, since 1784, St Bartholomew, one of the West India islands, containing fifty-three square miles and 18,000 inhabitants.—*A. Sweden* (Svea) comprehends four regions: 1. Sweden Proper, or Svealand, comprising eight provinces, among which are Upland, Südermannland, or Sudermania, Dalarne, or Dalecarlia (a poor, hilly country, in which there were 40,000 men, in 1819, destitute of the means of support), and Wermeland, now forming eight governments (*läne*); 2. Gothland, or Gothia, comprising thirteen governments (Schonen, or Scania, one of its provinces, contains Helsingborg, on the sound, the place of embarkation for Denmark, and Ystadt, the place of embarkation for Stralsund); 3. Norrland, containing five provinces (Herjedalen, Jämtland, Westerbottn, &c.); 4. Swedish Lapland, containing from 34,000 to 38,000 square miles. The whole number of Swedish Laplanders was estimated, in 1818, at only 3000 persons, of whom 669 were owners of reindeer. To these must be added about 2000 colonists. Several of the colonies in Lapland were founded by baron Hermelin, at his own expense. This region yields but a trifling revenue to the crown.—*B. Norway.* The southern part (Södenfield) comprehends Christinia and Christiansand; the northern (Nordenfield), the dioceses of Bergen, Drantheim and Nordland; to the latter belongs Finnmark, or Norwegian Lapland. See *Norway.*

The original inhabitants of Sweden were of Finnish descent—Finns and Laplanders, who were driven to the extreme north by Germanic tribes. Among the latter, the Goths and Swedes soon gained the ascendency, subjecting the other tribes. Their chief magistrates were judges of the fabulous family of the Ynglings, which claimed a descent from a son of Odin. In the fifth century, they assumed the title of kings of Upsala, and reigned in Sweden till 1068. A regular government was first established by Olof, or Olaf I., in 994, who was converted to Christianity. The Goths and Swedes still remained distinct, and their disputes distracted the kingdom for centuries. In 1250, when the powerful family of the Folkungs ascended the throne, the two hostile tribes became united into one nation; and, at the same time, the succession was settled. Sweden then extended only to Helsingland. In 1248, Eric XI. conquered the interior of Finnland; and, in 1293, Torkel Knutsen, the guardian of Birger, conquered Carelia, the extreme province of that country; so that Sweden now became the immediate neighbour of Russia. In 1332, Magnus Smek obtained possession, through Mats Kettilmundsen, of the provinces of Schonen, Bleckingen and Halland; but they were lost again in 1360. Tired of his oppression, the Swedes rebelled in 1363, and gave the crown to his sister's son, Albert of Mecklenburg. The Swedes soon became dissatisfied with their new king, who fell, in 1388, in the battle at Falköping, fighting against the Danes, whom his subjects had called in to their assistance. In 1389, Margaret queen of Denmark and Norway, added Sweden to her other possessions; and the diet of Calmar (q. v.) ratified this union, 1397, each state retaining its own constitution. Troubles, rebellions, and finally, complete anarchy, followed this measure; and, in 1448, the Swedes and Norwegians elected a separate king, Karl Knutsen (i. e. Charles, the son of Canute), and formally renounced the union. After the death of Charles, several of the family of Sture reigned in succession, with the title of presidents, though with regal authority, until, in 1520, Christian II. of Denmark was acknowledged king of Sweden. But his tyranny disgusted the people. Even during the ceremony of the coronation, notwithstanding his promises of amnesty, he ordered ninety-four Swedish noblemen to be beheaded in the market-place of Stockholm, and perpetrated similar acts of cruelty in the provinces. In 1521, Gustavus Wasa, or Vasa, who had escaped from the Danish prisons, put himself at the head of the mal-contents, and, in 1523, after the expulsion of Christian, was elected to the crown. He introduced the reformation among his subjects, added the estates of the clergy and the monasteries to his own domains, promoted the trade and commerce of Sweden by treaties with England and Holland, and, in 1544, secured to his family the succession to the throne. His son and successor, Eric XIV. (reigned 1560—68), added Esthonia to Sweden, and, at his coronation, in 1561, introduced the titles of count and baron, before unknown in Sweden, which he bestowed upon several families. His suspicious disposition and tyrannical acts made him an object of popular hatred. He was deposed, and, after nine years' imprisonment, poisoned in a dungeon. He was succeeded (1568 to 1592) by his brother, John II., who, by the peace of Stettin, 1570, ceded to Denmark Schonen, Halland, Bleckingen, Herjedalen and Gothland; and, in 1580, embraced the Catholic religion, in which he caused his son, Sigismund, to be educated.

Sigismund, who received at the same time the Polish crown, was dethroned, in 1602, in Sweden, by his ambitious uncle, Charles, a zealous Lutheran, who was formally crowned, in 1604, as Charles IX. The wars, in which he became involved with Russia, Poland and Denmark, were happily concluded after his death, in 1611, by the great Gustavus Adolphus II. (q. v.), who fell at Lützen, in 1632. (See *Thirty Years' War.*) In the reign of his daughter, Christina (q. v.), the war in Germany was honourably carried on and completed. During its progress, Sweden was menaced by Denmark; but the victories of Torstenson, and the mediation of France, led to the peace of Brömsebro (1645), by which Denmark gave up to Sweden Jämtland and Herjedalen, with the islands Gothland and Œsel, agreed to surrender Halland for twenty-five years, and exempted Swedish vessels from the sound dues. By the peace of Westphalia, Sweden obtained the German duchies of Bremen, Verden, Hither Pomerania, a part of Further Pomerania, and Wismar, with a seat in the German diet. In 1654, Christina resigned her crown to Charles X., Gustavus of Deux-Ponts, the nephew of Gustavus Adolphus. This martial prince administered the government till 1660. He had to contend with the Poles, Russians and Danes, and astonished the world by his daring enterprises; but he was unable to procure permanent tranquillity for his nation. The guardians of his son, Charles XI., concluded the peace of Oliva (q. v.), with the Poles, in 1660, by which all Livonia to the Dwina was transferred to Sweden; the peace of Copenhagen, with Denmark, by which they restored Drontheim and Bornholm (gained by Charles Gustavus in the peace of Roschild with Denmark (1658), together with Bleckingen, Schonen and Halland), and came to a reconciliation with Russia, on the basis of the peace of Stolbow. Sweden became involved in an unsuccessful war against Brandenburg, Holland and Denmark; but, by the peace of St Germain and Lund, in 1679, she lost only the part of Pomerania beyond the Oder. Charles XI. entered upon the government in 1682, and admitted females to the succession. He improved the internal condition of his kingdom, revoked the grants of the crown lands, augmented the revenue, but made many enemies among the nobles, and left a full treasury to his son Charles XII. (q. v.), who reigned from 1697 to 1718. But all his treasures were expended, together with the blood of his subjects, in protracted and useless wars. (See *Gœrtz*, and *Northern War.*) On the death of Charles, in 1718, Ulrica Eleanora, his youngest sister, the last of the house of Wasa, succeeded to the throne, less by hereditary right than by the voluntary choice of the states, who revived the ancient form of government, but with greater limitations of the royal power. The ruling party, by the peace of Stockholm, in 1719, ceded Bremen and Verden to the elector of Brunswick, and, in 1720, Stettin and Hither Pomerania, as far as the Peene, to Prussia; by the peace of Nystädt, in 1721, Livonia, Esthonia, Ingria, Wiburg, and a part of Carelia, to Russia; and, by the peace of Fredericksborg, with Denmark, in 1720, renounced all claim to the exemption from sound dues. Frederic of Hesse, the husband of Ulrica Eleonora, who assumed the government, with the consent of the states, and administered it from 1720 to 1751, was a weak prince, ruled by his nobles; and the council of state made itself entirely independent. Instigated by France, he engaged in a new war with Russia (1741), for the recovery of the provinces that had been ceded to Russia. By the peace of Abo (q. v.), which concluded the war, in 1743, he lost part of Finland, to the river Cymmene; and, as the queen was childless, the succession was settled on Adolphus Frederic, duke of Holstein and bishop of Lübeck. Adolphus Frederic, in whose person the house of Holstein ascended the Swedish throne, reigned from 1751 to 1771. He took part feebly in the seven years' war. (q. v.) The kingdom was distracted by the factions of the hats and caps, and the regal authority became a mere shadow. Gustavus III. (q. v.) at length happily threw off the yoke of the aristocracy. He restored to the kingdom its strength and its honour; but, in 1792, he fell a victim to a conspiracy. His son, Gustavus IV. (q. v.), ascended the throne under the guardianship of his uncle, but lost it in 1809. His uncle, who assumed the government under the title of Charles XIII. (q. v.), gave the kingdom a new constitution, and chose, for his successor, prince Christian Augustus of Sleswic-Holstein-Sonderburg-Augustenburg, who adopted the name of Charles Augustus. He concluded the war with Russia by the peace of Friedrichshamm, in 1809, by which he ceded all Finnland, and, in 1810, renewed the previous relations of the kingdom with France. The crown-prince, however, died suddenly; and the diet of Oerebro chose, for his successor, the French marshal Bernadotte, prince of Ponte Corvo, who was adopted by the king under the name of Charles John. (See *Charles XIV.*) Sweden now declared war against Great Britain; but the pressure of the war, and the increasing encroachments of France, produced a change of policy (1812), and she joined the allies against Napoleon. (See *Charles XIV.*, and *Russian-German War.*) By the peace with Denmark, concluded at Kiel (January 14, 1814), Sweden received Norway as an independent, free, indivisible and inalienable kingdom, in return for her possessions in Pomerania and the island of Rügen.

Since the union of Norway and Sweden, concluded by the storthing at Christiania, October 18, 1814 (see *Norway*), this double kingdom has combined, under one king and two very different constitutions, two proud and free-spirited nations, each jealous of its peculiar privileges. The political condition of Sweden and Norway forms a permanent partition between them: there, a jealous aristocracy is perpetually watching over its ancient privileges, here, the democracy struggles to defend its newborn rights. In both kingdoms, the peasantry and the citizens hold a higher rank than in most European states. In Norway, there is no hereditary nobility, and the veto of the king is only conditional. These circumstances seem to separate the Scandinavian peninsula from the European system of politics, with which, however, it is closely connected. To the discrepancy of domestic and foreign relations is added an incessant struggle with the climate and soil, with obstructions in trade, depreciated paper money, and an oppressive public debt. Charles XIV. was a sovereign suited to the country and the age. Looking steadily to the future, he met present difficulties with firmness and wisdom. He possessed the affections of the majority of the nation, and especially of the army; and imbued his successor with his own principles. The marriage of the crown prince with Josephine Maximiliana, daughter of Eugene Beauharnais, duke of Leuchtenberg (whose wife was Augusta Amelia, princess of Bavaria), took place at Stockholm, June 19,

1823. King Charles John died March 8, 1844, and was succeeded by Joseph Francis Oscar, crowned Sept. 24, of the same year, at Stockholm. The latter was born July 4, 1799; and married, June 19, 1823, Josephine (now queen-consort), the daughter of Eugene duke of Leuchtenberg. They have five children; *viz.*, Charles (crown prince) born May 3, 1826; three other sons, and one daughter. Some intrigues and conspiracies for the restoration of the family of Wasa have occurred in Sweden; but the estates took this opportunity (1823) to give the king and the crown-prince the strongest assurances of fidelity. The king and Swedish estates, in order to interrupt all communication with the exiled family, determined to transfer to it all its property remaining in the kingdom, and to extinguish its pension by the payment of a certain sum mutually agreed upon by the two parties, which was done in 1824. The personal character and constitutional principles of the king have secured him the love and fidelity of his subjects. He often visits the remote provinces of his two kingdoms, relieving distress wherever he finds its, usually from his private purse, and takes no important measures without being assured of the concurrence of the estates, which meet every six years, and likewise approved of by the majority of the nation.

It has been the object of the government in Sweden to give unity to the administration; and the minister at the head of each department is responsible for its measures. The constitutional committee of every diet has the right to examine the journals of the cabinet, to discover any violation of the constitution. Since 1821, the judicial power has been separated from the executive. The administration of justice has been essentially improved. The new Swedish constitution of June 7, 1809, is given in the second volume of Constitutions of the European States (in German, Leipsic, 1817). To separate the royal power more completely from the judicial, the late king proposed, in the diet of 1823, abolition of his right to preside in the supreme court. The proposal of the estates, in 1823, to make their sessions and those of the supreme courts public, was, however, negatived by the king. The finances and credit of the state were restored by careful management and great economy. The public accounts were rigidly inspected, and reduced to perfect order, and government soon had it in its power to pay off, annually, 120—150,000 dollars of the national debt, which amounted, in 1820, to 6,500,000 Swedish rix dollars. In the years 1844 to 1847, the receipts of the Swedish exchequer were estimated at 9,902,230 dollars; and the state expenditure of the state at 14,053,487 dollars. This deficit was, it appears, provided for from various sources, without adding to the state debt, (*Almanac de Gotha*, 1849.) The Norwegian budgets of 1845 to 1848 estimated the receipts and expenditure in these years to be each 2,634,495 specie dollars (fully £420,000). The army is composed of 34,363 men, and the whole armed force amounts to 114,910 men, exclusive of the naval service. The number of officers in the army is comparatively small. The Swedish navy consists of 21 ships of the line, 8 frigates, 8 sloops and brigs of war, 247 gun-boats, &c. Norway has a land force of 12,000 men; and a flotilla of 123 vessels. The Swedish soldiers are employed, in peace, in forming canals, roads, forts, and other public works. The freedom of the press is established by law, but under such restrictions that it is little more than nominal. Still the journals often speak with great freedom, and exercise considerable influence upon public opinion. Political clubs and friendly societies cannot exist without the consent of the government; and a society modelled on the plan of our common debating societies, was put down. In conformity with the principles of the prohibitive system, which prevailed in 1820, but has since been modified, the government attempted to encourage the domestic industry by laying restrictions on foreign manufactured articles. Foreign manufacturers were encouraged to establish new branches of industry in Sweden by bounties. The abolition of guilds, which was tried under the direction of the late king, was not accomplished. The whole system of policy in regard to commerce and manufactures was abolished in 1821, and a new tariff has been adopted since the beginning of 1825. Since 1820, the navigation of the rivers, especially in the northern provinces, has been improved. Steam navigation has also been introduced, and canals have been constructed.

The government of Norway is prompt and regular, and much more economical and simple than that of Sweden. The organization of the courts, and the administration of justice, are also better; thus, in the supreme court of Christiania, publicity of procedure and oral pleadings have long been established. The families of the ancient national nobility in Norway had gradually sunk to the rank of peasants, while Danish and German families had taken their place, by being appointed to offices of government formerly held by Norwegian noblemen. The constitution of 1814 prohibits the creation of counties, baronies, &c., and admits no hereditary rank. The Norwegians further wished to abolish the existing nobility; and resolutions to that effect passed the Norwegian diets of 1815 and 1818; but the royal sanction could not be obtained for them. In the storthing of 1821, a majority voted a third time for its abolition; and the measure, having been approved by three successive storthings, became a law without the royal sanction. The king asked for a delay, at least, in the measure, but it was refused, and endeavoured to obtain the right of creating a new nobility in Norway, as a reward for distinguished services; but without success. The storthing also rejected a proposal of the king to establish a jury for the trial of offences of the press, a censorship and jury not being consistent with the legislation of Norway, although offences of the press were, in fact, punished by imprisonment, and in 1825, by a fine. It was not till after a long opposition, that the storthing finally consented to pay, within eight years, the Norwegian debt to Denmark, whose demands were supported by Austria, Russia, Prussia and Britain. These proceedings induced the king to visit Christiania in person; and Swedish and Norwegian troops, with a squadron of ships, were assembled in the neighbourhood of the capital, seemingly with the purpose of overawing the storthing. No measures, however, were taken; and it is said that a note from the emperor Alexander, as a guarantee of the peace of Kiel, dissuaded any innovation upon the constitution of Norway. The acts of the storthing, during the session of 1824, attracted much attention even in foreign countries. The king had appointed his son viceroy of Norway, and thus made him commander-in-chief of the land and sea forces. The presence of this prince was, perhaps, designed to countenance the propositions for changes in thirteen sections in the constitution, namely, the introduction of the abso-

lute veto; the creation of a Norwegian nobility; the appointment of the president of the storthing by the king, &c. But these and other proposals were unanimously rejected by the storthing, May 22. (See the *Norwegian Constitution*, in the 2d volume of the European Constitutions.) When the crown-prince prorogued the storthing, August 9, 1824, he expressed a hope that the wishes of the government would meet with more favour in a future session; but, in the session of 1827, the proposition for an absolute veto was unanimously rejected. The crown-prince was then recalled to Stockholm, and his appointment as viceroy of Norway was revoked. The king and queen visited Christiania in September, 1825; and their presence in that city in the year 1827, at the fifth regular storthing, and again in 1828, gave the monarch an opportunity to witness anew the love and faith of his Norwegian subjects. But their attachment to their constitution was as warmly displayed on the anniversary of the establishment of the Norwegian constitution, May 17, 1827. See *Norway*.

In 1822, the free navigation of the Black sea by Swedish and Norwegian ships was obtained from the Porte, and a treaty was concluded with Great Britain, in 1824, for the suppression of the slave-trade. In 1828, a treaty of commerce and navigation between Sweden and the United States placed the vessels of the contracting powers on the footing of national vessels in the ports of the respective nations.—See Geijer's *History of Sweden* (in Swedish, 1826); Ekendhal's *History of the Swedes* (in German, 1827 seq.).

We have already given an account of the present condition of Norway in a separate article. Sweden is a hereditary monarchy, limited by estates. They are divided into four ranks, the nobility, clergy, citizens and peasantry. The nobility are subdivided into three classes, the lords, including counts and barons, the knights, or those whose ancestors have held the place of royal counsellors, and the simple noblemen. The clergy is represented by the bishop of each diocese, and the citizens and peasants, the latter comprising only the free peasants of the crown, by deputies. The sovereign disposes of the higher civil and military offices, from which foreigners are excluded by law. Without the consent of the states, the king cannot enact new laws or abolish old ones. The constitution requires the king to assemble the states once in five years. The legislative power in Norway is lodged in the storthing, which meets every three years. A viceroy, or governor-general, resides at Christiania. The revenue and troops of the two kingdoms are kept distinct. The fortifications of Norway are only in part occupied by Sweden. For the levying of taxes, the consent of the states is necessary, and all the troops and officers are required to take the oath of allegiance to them, as well as to the king. Since 1798, the sovereign has had the right to make war and peace, to regulate the judiciary, and to conduct the general administration without restraint. The succession to the throne is hereditary in the male line, according to the law of primogeniture. On the extinction of the male line, the estates have full power to elect a king. The sovereign is of full age in Norway at the completion of his eighteenth year, and in Sweden at the close of his twentieth. Before his coronation, the king is required to take the inaugural oath, and to subscribe an engagement to maintain inviolate the Evangelical Lutheran religion A Swede who abandons the Lutheran religion loses his civil rights. The kingdom contains one archbishop, thirteen bishops, and 192 provosts. The principal administrative bodies in Sweden are, 1. the council of state, the highest deliberative body, consisting of nine members; 2. the committee on the general affairs of the kingdom, consisting of eight members; 3. the royal chancery, which is under the king's immediate direction, and superintends the general affairs of state, foreign and domestic. Connected with it is the royal cabinet for foreign correspondence, the bureau of the president of the chancery and the archives of the kingdom. The finances are managed by a board of finance. The war and navy boards have the control over those departments, under the presidency of a general and the high admiral. The highest tribunal of justice is the supreme court, the president of which, in the king's absence, is chief magistrate of the kingdom. The decisions of this court are regulated by the code of 1731, as revised in 1778. The ecclesiastical affairs are conducted by the consistory, the president of which is the first court preacher. The medical institutions are directed by the *collegium medicum*. All the high offices in the Swedish army have hitherto been venal. The present government has made great exertions to abolish this abuse, so that the road to promotion is now open alike to rich and poor. In Sweden, there are five orders of knighthood: 1. The order of Seraphim, founded, according to tradition, by king Magnus. History shows that it existed in 1336. It was renewed by king Frederic I., April 17, 1748. Its motto is I. H. S. 2 The order of the Sword, according to tradition, was instituted by king Gustavus I., and was renewed, April 12, 1748, by king Frederic I. 3. The order of the North Star is traced by some to the age of Odin. King Frederic I. renewed it April 17, 1748. The motto is *Nescit occasum*. 4. The order of Wasa, or Vasa, founded May 26, 1772. 5. The order of Charles XIII., instituted by the king, May 27, 1811, is bestowed only upon freemasons of the higher degrees. Agriculture and manufactures have flourished since the accession of the present king. In Sweden, there are about 900 manufactories of cloth, silk, cotton, woollen, linen, leather, sugar, tobacco, glass, mirrors, watches, porcelain, paper, marble, porphyry, and of metals, in which the iron works hold the most important place, yielding annually 72,000 tons of bar iron, and 10,000 tons of manufactured iron. According to the tabular views of Sweden, the value of its annual productions is estimated at 88,000,000 Swedish bank dollars, including wooden ware to the value of half a million; manufactures, more than 12,000,000; trade and navigation, about 14,500,000 dollars. The iron works of Norway (the most important are at Laurvig and at Moss) yield 8000 tons of iron per annum. Many vessels are built, both in Sweden and Norway, for foreign countries, and large quantities of wood are worked up into boards (especially on the river Drammen), laths, joists, masts, &c. The situation is favourable to trade, which is carried on with the nations bordering on the Baltic, Great Britain, Holland, France, in the Mediterranean sea, and with the United States. A Swedish East India company trades to China. Articles of export are wood, boards, ship timber, joists, tar, pitch, potash, iron, steel, copper, herrings, whale-oil, peltry, &c. The imports consist mostly of grain, wine, resins, oil, salt, wool, flax hemp and groceries. In 1818, the use of coffee was prohibited. The government of Sweden ap-

proprlates 4,000,000 Swedish bank dollars annually to purchase corn; but no such provision is made in Norway, whence the scarcity of corn is more sensibly felt, and, at the same time, the high duties render the importation of grain very difficult. In 1818, Sweden had about 1100 trading vessels, with 9200 sailors, and Norway about 800, with 6500 sailors. Half of them can be fitted out in war as privateers. The chief commercial towns in Sweden are Stockholm, Gottenburg, Nordköping, Gefle, Carlscrona, Malmoe, Landscrona, Ystadt, and Udawalla; in Norway, Bergen, Christiania, Drontheim, Christiansand, Stavanger, Drammen, and Fredrickshald. In 1818, four new roads were constructed through Dalecarlia and Helsingland, for the promotion of trade. Two of them lead to Norway. There are likewise several canals; for example, the Trollhätta canal, round the falls of the Götha-Elf, whose perpendicular descent is estimated at 130 feet; and the Götha canal, joining the Baltic with the German ocean, which was completed in 1827. (See *Canals.*) The whole distance from Gottenburg to Söderköping, on the Baltic, is 240 miles; of which 186 are occupied by the Götha-Elf, the Trollhätta canal, and some lakes. A third canal is that of Södertelje, thirteen miles from Stockholm, by which a new junction of lake Mälar with the Baltic was made in 1819; thus bringing twenty towns in the interior into connexion with the sea, and facilitating the commerce of the capital. Under the reigns of Gustavus Adolphus, Christina, and Charles XI., manufactures of iron, brass, steel, leather, soap, woollen, and silk, first became prosperous; but the wars of Charles XII. involved the whole in a general ruin. The manufactures of the Swedes, however, recovered themselves; and they produce all wares (of which the raw materials are not too high in other countries), as far as the want of hands, occasioned by numerous wars, permits. Nevertheless, when we compare the productions and revenue of Sweden with its extent, in which it yields only to Russia, we must pronounce it the poorest country in Europe. Excellent institutions have been established, especially in Sweden, for the instruction of the people. The university founded in 1476, at Upsal, with twenty-four professors, has an extensive library, a botanical garden, a cabinet of coins, and of natural history, an observatory, &c. The university erected at Lund, in 1666, with twenty-three professors, has also a library, a museum, a botanical garden, and an observatory. The two universities, in 1829, contained 2156 students: they are under the direction of eleven bishops and the archbishop, the heads of the clergy; the same protection is shared by eighteen gymnasia. There are common schools in every town of the kingdom. At Carlsberg there is a military academy; at Skara, a veterinary school; at Stockholm, a military academy. In 1739, an academy of sciences was instituted at Stockholm, and, in 1753, the academy of fine arts, which was divided into the Swedish academy and the academy of fine arts, and afterwards reorganized. In Norway, a few years since, the university of Christiania was established, and in 1827 it contained 549 students. It has a library, a botanical garden, and collections of natural history. At the same place there is a military academy and a commercial institute. At Kongisberg, or Conisberg, there is a mining school, and at Drontheim a seminary for young Laplanders. Norway has also five gymnasia, and two seminaries for schoolteachers. The village schools are few.—See Brooke's *Travels through Sweden, Norway and Finmark* (London, 1823, 4to.); Schubert's *Travels through Sweden, Norway, Lopland, Finland and Ingermanland, or Ingria* (in German, 1823, 3 vols.); Everest's *Journey through Norway*, &c. (1829).

Swedish Language and Literature. On account of the distance of Sweden from the parts of Europe which were early civilized, Christianity did not gain a firm footing throughout the country until the middle of the twelfth century; and even then civilization followed but slowly, because of the incessant feuds of factions and families, which continued for centuries. It derived little aid from the clergy, who were numerous, but rude, and mainly bent on securing their own power and influence, or from the kings; and the favourable circumstances which, in some other countries, enabled it to develope itself unaided, did not exist in Sweden. If this dark period was enlightened by native sagas, their light is lost to us. The writings of the foreigners Saxo (q. v.) and Snorro (see *Starlason*) are the only known sources of information respecting the ancient times of Sweden; and their records are but meagre. The Swedish Chronicle of Erik Olafsen, belonging to the end of the fifteenth century, and written in Latin, follows too closely the rhymed chronicle and fables of John Magnus (1488—1544) to be considered of importance, in regard to the history of this early period. But the historical investigator may learn much from the ancient provincial and country laws, and from the *Konunga ok' Höfdinga Stirilse* (The Government of Kings and Chiefs)—a picture of the princes of the end of the fourteenth century. The Gothic Union, founded by Geijer in 1811, has awakened an interest for domestic antiquities. The Aurora Union, established by Atterbom in 1808, had prepared the way for it. Jacob Adlerbeth (son of the poet mentioned below) is at present the most active member of the Gothic Union; he is the editor of the Iduna. Afzelius, editor of the Eddas in the original, and of the old popular ballads, is also indefatigable.

From the time of the reformation more monuments exist for the history of the Swedish language. The reformation; the translation of the Bible (the Old testament by Lor. Andreæ, Stockholm, 1526, folio, and the Old and New Testament by Ol. and Lorenz Petri, Upsal, 1541, fol.); the various commercial and political relations of Sweden with Germany; its monarchs of German origin; and even the wars with that country,—caused a leaning towards the German in the Swedish language, which derived some support from the translation of the Bible after Luther's version, and from the other translations of German works which soon followed. In the middle of the seventeenth century, and at later periods, the Swedish literati (for instance, Ihre and Rudbeck) turned their attention towards the remains of ancient northern times; but they wrote in Latin; and the short reign of Christina led to the study and imitation of foreign models, particularly French, which maintained itself in the unquiet period that followed, whilst the language of society was neglected. Louisa Eleonora, sister of Frederic the Great, awakened an interest for polished conversation. She founded an academy of sciences in 1753, which published its transactions in the language of the country, and thus attracted the regard of the scholars of Europe to the Swedish idiom. In this period Olaus Dalin attempted to give to Swedish

prose a flexibility and brilliancy ill suited to the northern idioms. This style, borrowed from the French, maintained its place for some time, but could not be of long duration. Gustavus III. though the pupil of Dalin, and expressing himself in French with greater ease than in Swedish, strove to restore the dignity of the Swedish idiom, by the foundation of the Swedish academy in 1786; but the forms which he prescribed to this society, his own example, and the favour bestowed on foreign customs and modes of thinking, made the labours of the society of little avail. The language had certainly gained, during this period, in extent and polish; but it had been also burdened with so much foreign matter, that a very thorough renovation was required. The first steps were taken by a society of young men at Upsal, in 1803. A thorough study of classical literature and reflection on the labours of foreign nations, particularly Germans, in the department of criticism, led them to a close investigation of the state of literature in their country, and to a deep disrelish for the existing French taste. A patriotic feeling was awakened; the old historical sources and the first monuments of the Swedish language were now studied, and the more recent works on the Swedish language, e. g. Silverstolpe's (died 1816.) Attempts at a general Grammar (Stockholm, 1814), Broocmann's *Lärobok* (Stockholm, 1813), and especially Collner's *Försök i' Svenska Språkläran* (Stockholm, 1812), and *Lärobok i Sv. Sp.*, by the same author, depart considerably from the standard of the Swedish academy. The study of Icelandic, which gains daily in interest; Winter's *De Origine et ant. Linguæ Suec. Monum.* (Stockh., 1802, 4to.), and Linfor's Introduction to Icelandic Literature and its History in the Middle Ages (1804), mostly from Danish sources; Litjegrén's *Nordiska Fornäld Hjelt Sagar* (Stockholm, 1817), and *Nordiska Fornlemningar* (Stockh., 1819—22),—must have an important influence upon the developement of the language, particularly at a period in which so much attention is paid to the monuments of the ancient history of the country. Yet there are many vestiges of the French influence in the Swedish literature. It is much to be regretted that modern Swedish poets have paid so little attention to the old national songs, the remains of which are now zealously sought for; e. g. Ismal's Marriage, an ancient Faroe song, recast by Gumsalius in the tenth number of Iduna; also the *Svenska Folkvisor* (Swedish Popular Melodies), edited by Geijer and Afzelius (Stockh., 1814—16, 3 vols.), and the Swedish Popular Harp, with an appendix containing Songs and Melodies, by Studach (Stockh., 1826). If poets of talent had employed themselves in the composition of sacred hymns after the reformation, perhaps poetry would have risen above a learned school-exercise, or an entertainment of Swedish scholars, and gained a hold on the hearts of the people.—For information respecting that early period of poetical activity, we refer to C. Carleson's *Försök til su Skalde Konstens uphjelpande Hock* (Stockh., 1737, 2 vols., 4to.).—Olof Dalin, who was born in 1708, at Vinberga, in Holland, gave an impulse to Swedish literature by his periodical, called *Argus* (1733—34), which appeared when the country was much distracted by the factions of the nobility. At this period of degeneracy and humiliation, particularly of the higher classes, a zeal for science prevailed in Sweden, hardly equalled at any subsequent period. We need only mention Linnæus (1707—1778), Ihre and Lagerbring. At this time, Dalin attracted the attention of the Swedish public by his wit, polish of language, and accommodation to the French taste, which he did much to fix in the literature. His poems (best edition, 1782, 2 vols.), served to entertain the court ladies of Louisa. His prose works—e. g. his History of the Realm (Stockh., 1747, 3 vols., 4to.)—are more to be commended for their style than for their critical research. Dalin died in 1763. He had made poetry a kind of court entertainment, cultivated by circles of *beaux esprits* (*vitre*), but having little of an elevated character. Under such circumstances, madame H. C. Nordenflycht (died 1763) received the name of the Swedish Sappho *Utvalda arbeten*, (Stockh., 1778). But count de Creutz (q. v.) and his friend Gyllenborg deserve to be distinguished. The historical epic of the latter (he died in 1808) —*Taget öfver Bält* (Stockh., 1800)—as well as his didactic poem—*Försök om Skaldeconsten* (Stockh., 1798)—will preserve his name in the history of Swedish literature (*Skrifter*, Stockh., 1795, seq.). The contemporaries of Gustavus III., who were also his literary confidants—Kellgrén (died 1795), Oxenstierna, the translator of Milton (died 1818), and Leopold (secretary of state), followed the impulse given by Dalin. Gustavus himself took part in the endeavours of Swedish authors; but the narrowness of his views, and his disposition for show in language, tended rather to check than assist the development of talents. Kellgrén, however, did most to prepare the public for the change which was beginning, by deriding the mania for foreign literature, in his periodical, the Stockholm Post (1778, seq.). Still more independent, in his poems, was Bened. Lidner (died 1793), whose poems, full of feeling and elevated thought, were strongly contrasted with the passions which put an end to his life. Thorild also (1759—1808) assisted in giving a favourable direction to poetry (*Samt. Skr.*, Upsal, 1819, 2 vols.). But Charles Mich. Bellmann (born 1741, died 1795) is the first lyric poet of Sweden. His pictures of Swedish life are so true; their colours so fresh; they exhibit such fulness of imagination and purity of feeling,—that to him, before all others of his time and nation, is due the fame of an original and national bard (*Bacchi Tempel*, 1783); *Sions Högtid* (1787); *Fredman Epistlar och Sänger* (1791); *Fr. Handskrifter* (Upsal, 1813); *Skaldestyhken* (Stockh., 1814, 2 vols.). Compared with his productions, Adlerbeth's works are intellectual, but cold (*Poetiska Arbeten*, Stockh., 1802), and Shenhammar's verses mere studies. The change in Swedish belles-lettres, after these preparatory attempts against the literary despotism of the Swedish academy, was first brought about by that association of young literati, in 1803, at Upsal, who formed the *Vitterhetens Vänner* (Friends of Science). The study of the German works of A. W. and F. Schlegel first excited the zeal for a thorough criticism; and Askelöf's *Polyfem* gave the signal for the storm which broke out against the obsolete prejudices of the Swedish academy. Atterbom (q. v.) laboured with particular success, for instance, in his *Phosphoros* (1810—1813). Hammarsköld* embraced the views of Atterbom, in his Lyceum, a periodical; and the Gothic Union, above mentioned, contributed to the furtherance of their views. Swedish poetry, since these efforts, is more vigorous

* Hammarsköld has been much used in this article.

and elevated. Isaiah Tegnér, bishop of Wexiö, in Smäland, is a lyric and pastoral poet of genius. He lately wrote *Frithiofssaga* (three times translated into German). We should also mention the poems of Geijar and Atterbom, likewise Francen's lyric Idyls—*Saml. Arb.* (Stockh., 1819)—the writings of Stagnelius, who died in 1822—*Liljor i Saaron* (Stockh., 1821; complete works edited by Hammarsköld, in 1824)—Dalgrén's successful imitation of Bellmann, particularly in his *Mollbergs Epistlar* (Stockh., 1819); Beskow's Poetical Essays, (collected Stockh., 1818—1819); and the translations by Reguér (died 1819), as well as Palmblad's works. These show that great progress has been made in the art of versification. The drama is less cultivated. It remained foreign to the people, and only served for the entertainment of the court. The productions of Dalin, Gustavus III., Adlerbeth, Gyllenborg, Leopold, were insignificant, and mostly in a foreign manner; Hallmann's humour was too coarse; Lindegrén's attempts in Kotzebue's manner are no longer liked; and Ling alone seems to afford some hope for this branch of poetry. His Agnes (Lund, 1812) has some fine lyrical passages, though it is void of true dramatic life. The numerous class of female Swedish authors and poets is mostly confined to novels. Euphrosyne (Christ. Julia Nyberg) has written lyrical poems, full of tenderness (*Dikter of Euphrosyne*, Upsal, 1822). Charlotte Berger's productions betray their French models (*De franska Kriegsfångarne*, Stockh., 1814); *Trollgrottan* (1816); *Ruinerna vid Brahelms* (1816); Albert and Louisa (1817). Livijus has written the novels, the Knight St Jörrn, the Pique-Dame, &c. Before them, Dalin's elegance and affectation were applauded at the expense of truth and accuracy. The novels of J. H. Mörk (1714—1763)—Adalrick and Gothilda (Stockh., 1742), and Thekla (1749)—were not popular, though they directed attention to domestic history. Gustavus III. showed skill in the oratorical style, so that his anonymous *éloge* on Torstensohn gained the prize of the academy; but his French education by count Tessin and Dalin (he hated nothing more than German and tobacco) had made him too fond of rhetorical phrases, which easily degenerate into empty declamation. The great change of taste was not without effect upon this branch of writing. Swedish pulpit eloquence is in great want of good models, and the printed sermons of bishop Lehnberg (died 1808), which were published in Stockholm in 1809—1813, and his occasional discourses (1819), did not supply the want; but we find subjects of general interest treated with considerable talent in Swedish newspapers. Boëthius (died 1810) strove to diffuse Kant's principles. Schelling's works have been translated. Geijer's History of the Swedish Realm (1824 seq.) is an addition to the treasures of European literature. Geijer and J. H. Schröder, sub-librarian at Upsal, have united to edit the *Scriptores Rerum Suecicarum Medii Ævi*. About fifty newspapers are published in Sweden, one literary gazette, and several magazines; among the latter, since 1819, *Svea*, at Stockholm—a periodical devoted to science and the arts. In Norway, there were published, in 1827, three scientific magazines and twelve newspapers, devoted to politics and general information, eight of them at Christiania. The collections of two literary societies are important, particularly as respects ancient northern literature—those of the Scandinavian literary society, and those of the royal Norwegian society of science, in the nineteenth century. The natural sciences are particularly cultivated in Christiania, by men like Lund, Hansten, Maschman, Schielderup, and others. Falsen, formerly attorney-general of the kingdom of Norway, has published a History of Norway under the Government of Harald Harfagar and his male Successors (Christiania, 1824, 4 vols.). The works printed in Sweden, during the year 1818, amounted to 362, of which 91 were translations. The *Notices sur la Littérature et les Beaux Arts en Suède*, by Marianne de Ehrenström (Stockh., 1826), are somewhat panegyrical.

SWEDENBORG, Emanuel, the most celebrated mystic of the eighteenth century, was born at Stockholm, in 1688. Educated by his father, Jasper Swedberg, bishop of West Gothland, in the severe doctrines of Lutheranism, which prevailed in Sweden, his ardent and imaginative mind soon took a religious turn. His studies embraced theology, philosophy, mathematics, and the natural sciences. His first poetical efforts appeared, in 1710, at Skara, under the title of *Carmina Miscellanea*. The period from 1710 to 1714 he spent in scientific travels through England, Holland, France and Germany, and visited the universities of these countries. He then returned to Upsal, and published his *Dædalus Hyperboreus* (six numbers, containing experiments and observations in mathematics and natural philosophy). He had several interviews with Charles XII., who in 1716, appointed him assessor in the mining college, and formed an acquaintance with Christoph Polhem, the Archimedes of Sweden, whose experience was of great service to him. The invention of a rolling machine, by means of which he conveyed a shallop, two galleys and four large boats (which Charles XII. used, in 1718, to transport cannon to the siege of Frederickshall) five leagues, over mountains and valleys, from Strömstadt to Idefjal, and his treatises on algebra, the value of money, the revolutions of the planets, and on tides, gained for him the favour of the government. Queen Ulrica raised him to the rank of nobility in 1719, upon which occasion his name was changed from Swedberg to Swedenborg. In the discharge of the duties of his office, he visited, in 1720, the Swedish mines, and, in 1721, the Saxon, and wrote some valuable treatises on them. He likewise made similar journeys to the mines of Austria and Hungary. A collection of his works on philosophy and mineralogy (*Opera Philosophica et Mineralogica*) was published in 1734 (in 3 vols., folio), and attracted much attention among the scholars of Europe. He was chosen a member of the academies of Upsal and Petersburg. The academy at Stockholm had already elected him an honorary member, in 1729. He increased his stock of knowledge by new travels to France and Italy, in 1738—40. The *Œconomia Regni Animalis*, which he published after his return, in 1740—41, contains the application of the system of nature, unfolded in his philosophical works, to the animal creation. The principle of a necessary emanation of all things from a central power, is the basis of this system, which is ingeniously unfolded, and illustrates the extent of the author's reading. It is explained particularly in the *Principia Rerum Naturalium*. Swedenborg was first introduced to an intercourse with the spiritual world, according to his own statement, in 1743, at London. The eyes of his inward man, he says, were opened to see heaven, hell, and the spiritual world, in which he

[redacted]

from the divine nature in all things. With regard to regeneration, Swedenborg teaches, that, as the Lord glorified his humanity by resisting and overcoming the infernal influences which assailed it, so man, by following the Lord in his regeneration, through his divine grace, may gradually become regenerated; that is, receptive of good affection and wisdom from the Lord through the heavens; and in proportion as his sins are resisted and put away, he becomes thus receptive more and more perpetually. Swedenborg teaches that the Lord foredooms none to hell, condemns none, and punishes none; that his divine grace is constantly with all, aiding those on earth who strive to co-operate with him, sustaining and leading forward angels in heaven, and endeavouring to preserve the devils from the evils which they love and seek; but that he always perfectly regards and preserves the free will of every one, giving to every one the utmost aid that will leave him at liberty to turn himself either to heaven or hell, and to no one more. Salvation, according to Swedenborg, is not salvation from punishment, but salvation from sinfulness. They who co-operate with the Lord, and confirm in themselves a principle of good, in the other life become angels, and associate with angels; and their association constitutes heaven. They who resist the divine grace, and confirm in themselves a principle of self-love, which is the root of all evil, become devils; and their association constitutes hell. Both in heaven and in hell there are many societies, each influenced by some ruling principle of good or of evil, like seeking like, both in general and in particular. None go into the other life entirely good or evil; while here, the good and evil are permitted to endure the conflicts of opposing influences within them, that the good may thereby be made better, and the evil good; but after death, when no further radical change can take place, the ruling principle of every one is made manifest, and the whole character conformed to it. This final change is accomplished by degrees; and while it is going on, deceased men are neither angels nor devils, but are spoken of by Swedenborg as not in heaven nor hell, but in "the world of spirits;" and, in the writings of Swedenborg, spirits are thus distinguished from angels and devils. With regard to the resurrection, Swedenborg teaches that it is not a resurrection of the natural body, but of the spiritual body from the natural; and that this occurs generally about the third day after apparent death, when the flesh becomes rigid, and all vital warmth and motion cease. According to him, the spiritual body forms the natural body, and while within it, uses it as an instrument. Thus the natural eye sees only because the spiritual eye sees natural things through it, the sense strictly residing in the spiritual organ: and so of the other senses. Hence, when the spiritual body rises, it finds itself in perfect possession of the senses and organs, and the man is still perfectly a man. So the spiritual world forms the natural world, and all things which exist naturally in this natural world are spiritually in the spiritual world. There, spiritual things affect the spiritual organs and senses of men, as natural things affect their natural organs and senses here. Hence, says Swedenborg, many who die do not know, upon their awaking, that they are in another world. They who in this life have their spiritual senses opened, as Swedenborg says was the case with himself, see plainly spiritual persons and things as did the prophets in their visions. From this circumstance, say the Swedenborgians, connected with their belief in the active and constant influence of disembodied spirits upon men in the body, has arisen the common notion of their believing in a perpetual intercourse between the living and the dead. Spiritual things have not, however, a similar permanence and independent existence with natural things. Swedenborg rather represents them as appearances changing with the states of those about whom they are—existing from their relation to them, and exactly reflecting and manifesting their affections and thoughts. From the principle that natural things correspond to spiritual things, and represent them, comes the doctrine of correspondences, according to which Swedenborg explains the spiritual senses of the Word; that is, the senses in which the Bible is read by those in the spiritual world. He teaches that this spiritual sense is within the literal, as the spiritual body within the natural, or as the soul within the body; that it is in every word and letter of the literal sense, which everywhere exist from it, and on account of it, and derives from it all its power and use. Swedenborg considers the New Jerusalem, foretold in the Apocalypse, to be a church now about to be established, in which will be known the true nature of God and of man, of the Word, of heaven, and of hell—concerning all which subjects error and ignorance now prevail—and in which church this knowledge will bear its proper fruits—love to the Lord and to one's neighbour, and purity of life.

SWEDISH TURNIP, or RUTA BAGA. See *Turnip*.

SWEET BAY. See *Laurel*.

SWEET FLAG (*acorus calamus*). This plant is widely diffused; it is found in marshy places throughout the northern hemisphere. In the more northern climates, it is the only native aromatic plant. The leaves are all radical, long, and narrow, sword-shaped, and somewhat resemble those of the iris; the stem does not differ much in appearance from the leaves, and bears a lateral, dense, greenish spike of flowers, two or three inches in length; the root is long, cylindrical, and knotted. This plant is referred to the natural family *aroideæ*, although it presents some anomalies in its structure. The root has a strong aromatic odour, and a warm, pungent, bitterish, taste; the flavour is greatly improved by drying. It has been employed in medicine since the time of Hippocrates; it has sometimes been successfully administered in intermittent fever, even after bark has failed, and certainly is a very useful addition to cinchona; powdered, and infused in old wine, it is an excellent stomachic, tonic, and cordial. Although so common, what is used by druggists is imported from the Levant. No cattle whatever eat this plant.

SWEET GUM. See *Liquidambar*.

SWEET POTATO (*convolvulus batatas*). This plant is a native of the East Indies, but is now cultivated in all the warmer parts of the globe, and has produced numerous varieties. Formerly the roots were imported into England from the West Indies by the way of Spain, and sold as a delicacy. It is the potatoe of Shakspeare and contemporary writers, the common potato being then scarcely known in Europe. The roots are fleshy and spindle-shaped, giving rise to herbaceous vines, which take root at intervals; the leaves are smooth, varying in form, but usually hastate, or three lobed; the flowers are white externally, and purplish within, disposed in clusters upon axillary foot-stalks. In warm cli-

mates, the culture is very easy, and they are obtained almost throughout the year, by planting at different periods. In northern climates, the culture becomes more difficult: but one variety succeeds even in the vicinity of Paris. Considered as an aliment the sweet potato is very nutritious, wholesome, and easy of digestion. The consumption is very considerable, especially in the warmer parts of America, where even several savage tribes have introduced it, on account of its easy culture.

SWEET WILLIAM (*dianthus barbatus*). This species of pink is an old inhabitant of the flower garden, and has produced numerous varieties; but they have not been named or improved, as the plant has never been treated by florists as a leading flower.

SWEYN, OR SWENO, properly SVEND. See *Denmark* and *Ethelred II.*

SWIETEN, GERARD VAN, a celebrated physician, born at Leyden, in 1700. After studying at Louvain, his parents being Catholics, he returned to Leyden, and became the pupil of Boerhaave. In 1725, he took his doctor's degree, and published an inaugural thesis on the Structure and Use of the Arteries. He afterwards employed himself in illustrating the doctrines of his master, in his *Commentaria in Boerhaavii Aphorismis de cognoscendis et curandis Morbis* (1741—1772). Soon after, he was appointed to a medical professorship at Leyden; but objections arising on the score of his religion, he was obliged to resign his office. The empress Maria Theresa indemnified him for the injury he had sustained from the illiberality of his enemies, by inviting him to Vienna, where, in 1745, he was made a professor in the university, and afterwards first physician to the empress, and a baron of the empire. He was also imperial librarian, and director general of the study of medicine in Austria—an office which afforded him opportunities for introducing many important improvements in the healing art. His Commentaries were reprinted at Paris and Turin, and they have been translated into French and English. He enjoyed the highest reputation till his death, in 1772. His other works are Treatises on the Diseases of the Army, and on Epidemics.

SWIFT, JONATHAN, an eminent English writer, was the posthumous son of an Englishman, who settled in Ireland, and was born at Cashel, in the county of Tipperary, Nov. 30, 1667. He was placed at a school in Kilkenny when six years old, and in his fifteenth year was removed to Trinity College, Dublin, where, applying himself to history and poetry, to the neglect of academical pursuits, especially mathematics, he was, at the end of four years, refused the degree of B. A. for insufficiency, and, even at the end of seven years, was only admitted *speciali gratiâ*—a species of favour which was deemed highly discreditable. To this mortification is attributed the contempt with which he treats mathematical learning in his various writings; but another and a better effect of it was evinced in a resolution to apply to his studies with more diligence. This determination he steadily adhered to for the following seven years, three of which he spent at the university of Dublin, during which last mentioned period he is said to have composed his celebrated Tale of a Tub. In his twenty-first year, the death of his uncle rendered it necessary for him to pay a visit to Leicester, for the purpose of consulting his mother, then resident in that neighbourhood. By her advice he was induced to communicate his situation to Sir William Temple, who had married one of her relatives, and who at that time lived in retirement at Moor Park, Surrey. He was received by the latter with great kindness; and he rendered himself so acceptable to the aged statesman, that he resided with him at Moor Park and Sheene for nearly two years. At the latter place he was introduced to king William, who often visited Temple privately; and the king, whose feelings were all military, offered him a captaincy of horse, which, having already decided for the church, he declined. Being attacked by the disorder which occasioned those fits of vertigo that afflicted him more or less all his life, and finally destroyed his reason, he was induced to revisit Ireland, but soon returned, and resided with Sir William Temple as before. Some time after, he determined upon graduating M. A. at Oxford; and, having entered at Hart hall, in May, 1692, he received the desired honour in the July following. He was probably indebted to his known connexion with Temple for this mark of respect; but it has also been suspected that the words *speciali gratiâ*, in his Dublin testimonials, were mistaken for a compliment at Oxford. He had certainly not distinguished himself at this time by any public specimen of talent, although he made some attempts at poetry in the form of odes to his patron and king William. This species of composition being wholly unfitted to his genius, his relation Dryden is said honestly to have told him that he would never be a poet; to which is attributed the extraordinary rancour with which he always alluded to that eminent writer. After residing two years longer with his patron, conceiving the latter to be neglectful of his interest, he parted from him in 1694, with some tokens of displeasure, and went to Ireland, where he took orders. But he soon returned to Sir William Temple, who, sinking under age and infirmities, required his company more than ever. During the few remaining years of that statesman's life, they therefore remained together; and, on his death, Swift found himself benefitted by a pecuniary legacy and the bequest of his papers. He then accepted an invitation from the earl of Berkeley, one of the lords justices in Ireland, to accompany him as chaplain and secretary. While in the family of the earl of Berkeley, he began to make himself known by his talent for humorous verses, as may be seen by the Petition of Frances Harris, and other specimens. On the return of that nobleman to England, he went to reside at his living of Laracor; and, during his residence there, he invited to Ireland Miss Johnson, the lady whom he has rendered celebrated by the name of Stella, daughter of the steward to Sir William Temple. She was accompanied by Mrs Dingley; and the two ladies resided in the neighbourhood when Swift was at home, and at the parsonage house during his absence: this connexion lasted till her death. In 1701, he took his doctor's degree, and, the same year, first entered on the stage as a political writer, by a pamphlet in behalf of the ministers, entitled Contests and Dissentions between the Nobles and Commons of Athens and Rome—a work of no great force. In 1704, he published, anonymously, his famous Tale of a Tub, of which, although he would never own it, he is the undoubted author. This piece of humour, while it advanced his reputation as a wit, did him no small injury as a divine, being deemed light and indecorous by the functionaries of the church. The Battle of the Books, appended to the Tale of a Tub, is a burlesque comparison between ancient and modern authors, in which

he exercises his satire against Dryden and Bentley. In 1708, appeared his Sentiments of a Church of England Man, in respect to Religion and Government; Letter concerning the Sacramental Test; Argument for the Abolition of Christianity; and Predictions for the year 1708, by Isaac Bickerstaff, Esq. Of these pieces, the first two set the seal to his adhesion to the tories, while the others exhibit that inimitable talent for irony and grave humour which forms his principal distinction. In 1710, being engaged by the Irish prelacy to obtain a remission of the first-fruits and twentieths, payable by the Irish clergy to the crown, he was introduced to Harley, afterwards earl of Oxford, and to secretary St John, subsequently lord Bolingbroke. He gained the confidence of these leaders, and took a leading share in the famous tory periodical, entitled the Examiner. Although immersed in politics, he did not neglect literature, and, in 1711, published a Proposal for correcting, improving, and ascertaining the English Tongue, in a letter to the earl of Oxford, the object of which was to establish an institution to secure the purity of the language. Several political tracts appeared about this time from his pen. A bishopric in England was the object of his ambition; but archbishop Sharpe, on the ground, it is said, of his Tale of a Tub, having infused into the mind of queen Anne suspicions of his orthodoxy, the only preferment his ministerial friends could give him, was the Irish deanery of St Patrick's, to which he was presented in 1713. The dissensions between Oxford and Bolingbroke, whom he in vain attempted to reconcile, and the death of the queen, which soon followed, put an end to his prospects, and condemned him to unwilling residence for life in a country which he disliked. He accordingly returned to Dublin, and introduced a meritorious reform into the chapter of St Patrick's, over which he obtained an authority never before possessed in his station. In 1716, he was privately married to Miss Johnson; but the ceremony was attended with no acknowledgment which could gratify the feelings of the victim of his pride and cruelty. The ascendancy which he acquired over Miss Hester Vanhomrigh, another accomplished female, was attended with circumstances still more censurable. He became acquainted with this lady in London, in 1712; and as she possessed, with a large fortune, a taste for literature, Swift took pleasure in affording her instruction. The pupil became enamoured of her tutor, and even proposed marriage to him; but being probably at that time engaged to Stella, he avoided a decisive answer. That he, however, felt her attractions, seems obvious from his Cadenus and Vanessa, the longest and most finished of his poems of fancy. This affair terminated fatally; for, discovering his secret union with Stella, the unfortunate lady never recovered the shock, but died fourteen months after, in 1723. She previously cancelled a will she had made in his favour, and left it in charge to her executors (one of whom was bishop Berkeley) to publish all the correspondence between her and Swift, which, however, never appeared. After residing some time in Ireland without attending to public affairs, in 1720, he was roused, by the illiberal manner in which Ireland was governed, to publish a Proposal for the universal Use of Irish Manufactures, which rendered him very popular. His celebrated Letters followed, under the name of M. B. Drapier, in which he ably exposed the job of Wood's patent for a supply of copper coinage. A large reward was offered for the discovery of the author; but none took place, and the dean became the public idol of the Irish people. It was about this time that he composed his famous Gulliver's Travels, which appeared in 1726, exhibiting a singular union of misanthropy, satire, irony, ingenuity, and humour. In the same year he joined Pope in three volumes of miscellanies, leaving the profit to the poet. On the death of George I., he paid his court to the new king and queen. But he was disappointed; and the death of Stella, about this time, who had been long languishing in a state of decline, completed his chagrin. When her health was ruined, he offered to acknowledge her as his wife; but she replied, "It is too late." He allowed her to make a will in her maiden name, in which she consigned her property to charitable uses. From the death of this injured female, his life became much retired, and the austerity of his temper increased. He continued, however, for some years, to exercise both his patriotic and his splenetic feelings, in various effusions of prose and verse, and was earnest in his exertions to better the condition of the wretched poor of Ireland; in addition to which endeavours he dedicated a third of his income to charity. Some of his most striking poems were written about this time, including his celebrated Verses on his own Death, formed on one of the maxims of Rochefoucault. He kept little company at this advanced period, but with inferiors, whom he could treat as he pleased, and especially a knot of females, who were always ready to administer the most obsequious flattery. In 1736, he had an attack of deafness and giddiness. The fate, which, owing to his constitutional infirmities, he had always feared, at length reached him; the faculties of his mind decayed before his body, and a gradual decay of reason settled into absolute idiocy early in 1742. He died in 1745, in his seventy-eighth year. He bequeathed the greatest part of his fortune to an hospital for lunatics and idiots. Pride, misanthropy, and stern inflexibility of temper, formed the basis of his character, which was strangely compounded of sincerity, arrogance, implacability, carelessness of giving pain, and a total want of candour as a politician or partisan. Of his obdurate and unfeeling nature, besides his treatment of his wife and Miss Vanhomrigh (for which various reasons, including secret constitutional infirmities, have been conjectured), his utter abandonment of an only sister, simply for marrying a tradesman, and many other instances, might be adduced. Even his whim and humour was indulged with a most callous indifference to the pain which he might inflict, or the sensibilities he might wound. As a writer, he was original, and has, perhaps, never been exceeded in grave irony, which he veils with an air of serious simplicity, admirably calculated to set it off. He also abounds in ludicrous ideas, which often deviate, both in his poetry and prose, into very unpardonable grossness. His style forms the most perfect example of easy familiarity that the language affords; but, although admirable for its pureness, clearness, and simplicity, it exhibits none of the glow of genius, its highest merits consisting in its extreme accuracy and precision. His works have been often printed, and in various forms: the latest and best edition is that of Sir Walter Scott, in 19 vols., 8vo. (Edinburgh, 1821).

SWIMMING is one of the most important branches of gymnastics, both in a physical and

moral respect. Its effects in developing, invigorating and giving health to the body are so great, and it is so easily learned, that it is of the highest consequence, particularly in climates where the heat of the summer prevents active exercise on the land. To all the advantages of cold bathing, it adds many others; it enables the bather to remain much longer in the water, on account of the exercise which it affords, and thus—in salt water at least—gives more opportunity to invigorate the skin—one of the greatest benefits of frequent salt-water bathing, as a large number of diseases spring from a debilitated state of the skin, which is very frequent in changeable climates, producing colds, inflammation, rheumatism, &c. The exercise greatly strengthens the lower extremities, the abdominal muscles, the muscles of the chest, and the organs of respiration, the spine, neck and arms. It increases courage, and furnishes an agreeable excitement—the usual attendant of manly and brisk exercise, but peculiarly so of swimming—on account of the mastery which it gives us over an element for which the human structure is but partially fitted. The means which it affords of preserving our lives, or those of others, in situations of peculiar peril, is also a great recommendation of this exercise, which may be easily learned wherever there is water of five feet depth. No danger whatever is connected with it. Of the many methods of teaching swimming, we shall give that introduced, originally, by general Pfuel, into the Prussian swimming schools, having found it, by experience, much superior to other systems. By this method, a person may become a perfect swimmer (able, we mean, to swim at least half an hour in succession) in a very short time. We have known many individuals, who could not swim a single stroke, enabled, by taking daily one, and sometimes two lessons, for three weeks, to swim half an hour: some have even acquired this proficiency within a fortnight. The apparatus for teaching consists of a hempen girdle of a hand's breadth, of a rope from five to six fathoms in length, of a pole eight feet long, and a horizontal rail fixed about three and a half feet above the platform on which the teacher stands, to rest the pole on. The depth of the water, in the place chosen for swimming, should, if possible, be not less than eight feet, and the clearest and calmest water possible should be selected. The pupil wears drawers, fastened by a string above the hips, and covering about half the thighs. They must be made loose, so as to allow the freest action of the legs. The pupil is now placed near the horizontal rail, his hands resting upon it, whilst the teacher shows him the motion which he will have to make with his legs in the water. This he does by guiding the motion of one leg, while the pupil rests on the other. This motion will be explained immediately. The swimming girdle, about five inches wide, is placed round the pupil's breast, so that its upper edge touches the paps, without sitting tight. The teacher takes the rope, which is fastened to a ring of the girdle, in his hand, and directs the pupil to leap into the water, keeping the legs straight and close together, and the arms close to the body; and—what is very important—to breathe out through the nose, as soon as his head rises above the water, instead of breathing in first, which every man naturally does after a suspension of breath. The object of this is to prevent the water from getting into the throat, which produces an unpleasant feeling of choking and head-ache. The expiration soon becomes perfectly natural to a swimmer. The pupil is then invited to leap—never pushed. He is drawn immediately by the rope, pulled to the ladder, and allowed to gain confidence gradually. The rope is now fastened by a noose to the end of the pole, the end of it being kept in the hand of the teacher; the pole is rested on the horizontal rail, and the pupil stretches himself horizontally in the water, where he remains supported by the pole. The arms are extended stiffly forward, the hands clasped; the chin touches the water; the legs are also stiffly stretched out, the heels being together, the feet turned out, the toes drawn up. This horizontal position is important, and must be executed correctly. No limb is permitted to be relaxed. The motion of the legs is taught first: it is divided into three parts. The teacher first says, loudly and slowly, "One;" when the legs are slowly drawn under the body, and, at the same time, the knees are separated to the greatest possible distance; the spine is bent downwards, and the toe kept outwards. The teacher then says, briskly, "Two;" upon which the legs are stiffly stretched out with a moderate degree of quickness, while the heels are separated, and the legs describe the widest possible angle, the toes being contracted and kept outwards. The teacher then says, quickly, "Three;" upon which the legs, with the knees held stiffly, are quickly brought together; and thus the original position is again obtained. The point at which the motions two and three join, is the most important, because it is the object to receive as large and compact a wedge of water between the legs as possible, so that, when the legs are brought together, their action upon this wedge may urge the body forward. In ordinary easy swimming, the hands are not used to propel, but merely to assist in keeping on the surface. By degrees, therefore, two and three are counted in quick succession, and the pupil is taught to extend the legs as widely as possible. After some time, what was done under the heads two and three, is done when two is called out. When the teacher sees that the pupil is able to propel himself considerably, which he frequently acquires the power of doing in the first lesson, and that he performs the motions already mentioned with regularity, he teaches the motion of the hands, which must not be allowed to sink, as they are much disposed to do, while the motion of the legs is practised. The motion of the hands consists of two parts: when the teacher says "One," the hands, which were held with the palms together, are opened, laid horizontally an inch or two under the water, and the arms are extended, until they form an angle of 90°; then the elbow is bent, and the hands are brought up to the chin, having described an arch downward and upward; the lower part of the thumb touches the chin, the palms being together. When the teacher says "Two," the arms are quickly stretched forward, and thus the original horizontal position is regained. The legs remain stiffly extended during the motion of the hands. If the motion of the hands is correctly performed, the legs and arms are moved together; so that, while the teacher says "One," the pupil performs the first motion of the hands and legs; when he says "Two," the second and third motions of the feet, and the second of the hands. As soon as the teacher perceives that the pupil begins to support himself, he slackens the rope a little, and instantly straightens it, if the pupil is about to sink. When the pupil can swim about ten strokes

in succesaion, he is released from the pole, but not from the rope. When he can swim about fifty strokes, he is released from the rope too; but the teacher remains near him with a long pole, until he can swim 150 strokes in succession, so that, should he sink, the pole is immediately held out to him. After this, he may swim in the area of the school under the superintendence of the teacher, until he proves that he can swim half an hour in succession, when he is considered fit to be left to himself, and, in some swimming schools, receives a particular mark on the drawers, that the proficient may be distinguished from the unskilful. Before this degree of progress is reached, pupils are not allowed to take part in long excursions. Swimming on the back is easily taught. The swimmer places his hands over his hips, the thumbs turned towards the back, and, letting himself sink perpendicularly in the water, bends his head backward, and makes the common motion with the feet, when he will swim on the back; or, after having made a stroke when swimming on his belly, he may leave one arm extended, and turn the palm of the hand upward; in which case the whole body will follow, and the swimmer thus be placed on his back. To expedite the motion in swimming on the back, the arms may be used as paddles. To swim quickly on the

belly, the hands are turned with the palms outward, so as to press sideways against the water, instead of being allowed to rest flat on it. This makes the efforts of swimming greater, and, of course, exhausts sooner. The teacher may early begin to let the pupil make running leaps into the water. In many cases, the pupils have sufficient confidence to leap from a considerable height the very first time. Every swimming school ought to have a leaping tower, from which the swimmers may leap at different heights. The tower should not be less than thirty feet high. Diving is one of the greatest amusements connected with swimming. There are many kinds: the two most common, easiest and necessary modes of plunging below the surface, are, 1. by a simple jump, feet foremost, the legs, arms and head being kept stiff. The pupil must not allow fear, or the strange sensation felt in the abdominal region, in leaping from considerable heights, to induce him to spread the arms or legs, or to bend his body. 2. The other mode

is to plunge head foremost, which is the safest mode for many persons w o are heavily built about the chest and shoulders, if they have to enter the water from great heights. It must be learned by degrees. The head is drawn down upon the chest, the arms stretched forward, and, as soon as the swimmer begins to feel that he has lost his balance, he stiffens his knees, which, till then, were bent. The diver must avoid striking on his belly—the general consequence of fear—and turning over so as to come down on his back or side—the consequence of pushing with the feet. When he has gone as deep as he wishes, the arms are to be raised, and pressed downwards. In saving a person from drowning, which can be done most effectually if he has already lost consciousness, pull him by the hair, or push him before you, if far from shore; otherwise take him by the arm. If the person in danger is an exhausted swimmer, call to him to be quiet; support him by one shoulder; or, if he still retains his presence of mind, let both his hands rest on your shoulder, or under your arm-pits, and let him work slowly with his legs. If the person in danger is not a swimmer, and is struggling, take care not to approach him in front; his convulsive grasp may be fatal to both; but approach him from behind, and, if he sinks, pull him by the hair, and support him with the utmost caution. If he grasps you, so that you are unable to move, struggle with him under the water. The drowning person, in this situation, will often let go his hold, striving instinctively to reach the surface; but, if the struggle becomes one for life, the only mode of making your antagonist relax his hold is said to be to grasp his throat and render him senseless, as we have known done in a case where a person was thus seized, and both parties were floating swiftly towards the wheels of a mill. An excellent method of one person supporting another in the water is represented in the following cut. The foremost figure

is in the act of swimming, and carrying with him another person, who is borne up, simply by applying one hand to each hip of his companion. Any swimmer who first tries the experiment will be surprised to find with what ease he can support a person attached to him in this manner. This method can scarcely be practised in cases where persons unable to swim are drowning; but it may be of much avail in supporting a brother swimmer who is attacked with weakness or cramp, and who has presence of mind to take advantage of the support.

Swimming may be begun very early, at five or six years of age; and, at the same time, there are many instances of persons past forty learning to swim well. It is unfortunate that prejudice has excluded females from an exercise so healthful to body and mind, so useful in times of

danger, and so easily acquired, particularly as they would learn it more easily than males, and as the exercise of swimming would be peculiarly useful to certain functions peculiar to females. A covered place, female teachers, and a loose dress from the neck to the ankles, would satisfy all the claims of propriety. It is time that a beginning should be made.

The human body, with air in the lungs, is a little lighter than fresh and considerably lighter than salt water; hence it does not sink entirely in water; but the entrances to the organs of respiration are so placed that they would be under water in a body floating naturally. With a little management, however, and perfect confidence (which, it is true, can only be expected from a swimmer), any person can float on his back, especially in salt water. To do this, you must turn yourself on your back as gently as possible, elevate your breast

above the surface, put your head back, so that your eyes, nose, mouth, and chin only are above water. By keeping in this position, with the legs and arms extended, and paddling the hands gently by the side of the hips, you will float. If you wish to swim, you must strike out with the legs. You may lay the arms across the breast; keep them motionless at the sides; or, if you wish, strike out with them, to help you on. Animals, in swimming, do not vary much from their motion in walking; but man is obliged to change his motion entirely. All the Sclavonic tribes—Russians, Poles, &c.—swim in a way somewhat resembling the motion of dogs in the water, making a separate effort with each of the four extremities. Every teacher should remember that swimming is half learned when the pupil has gained confidence; and it is generally very easy to inspire it. The best treatise on swimming with which we are acquainted, is a thin pamphlet, published by general von Pfuel, in Berlin, 1817. Almost every reader is familiar with Dr Franklin's advice to swimmers. Dr Franklin's instructions in learning to swim are, to turn and roll in all possible ways in the water—to stand or sit in the water—to swim with the legs tied—with the hands out of the water—to leap like a goat—and even to cut the toe-nails in the water. The doctor used to lie on his back in a river, with the string of a flying kite in his mouth, which used to draw him along like a sail. He also made two painters' pallets, which, fixed on his thumb, he used as paddles to propel him forward. He does not object to the use of corks, provided, of course, that they are so fixed as not to slip from the shoulder to the waist, an accident by which so many have been drowned; and he advises the choice of clean water for the sake of the skin, though a much better reason, we apprehend, for the avoiding of dirty water, is the chance that a learner will gulp down no small quantity before he becomes a proficient. The professor of swimming in the Naval Academy at Naples (Signor Oronzio di Bernardi), makes his first lesson to consist in enabling the pupil to swim upright, to give him some idea of the natural buoyancy of the body, and to render the action of the limbs in swimming as similar as possible to their motion in our usual exercises. He tells us that in eleven days he taught a youth to swim nearly six miles in the Bay of Naples, his system being not one of rapidity, but of husbanding and recruiting the strength; but an ordinary swimmer ought to swim at least three miles an hour. Men have been frequently known to swim thirty miles a-day; and the famous Neapolitan diver, generally known by the name of Il Pesce, or the fish, on one occasion performed the distance of fifty miles in twenty-four hours, on the coast of Calabria. Several feats of modern swimming have, within a few years past, occurred, in which considerable prowess has been evinced. Lord Byron and a Mr Ekenhead swam across the Hellespont. The same feat was accomplished by a Neapolitan and a young Jew. Lord Byron's object was to ascertain whether the Hellespont could be crossed at all by swimming. Lord Byron succeeded in an hour and ten minutes; Mr Ekenhead in one hour and five minutes, with the tide not in their favour. In a letter to Mr Murray from Ravenna, dated February 21, 1821, lord Byron on this subject writes—"My own experience, and that of others, bids me pronounce the passage of Leander perfectly practicable. Any young man in good health, and with tolerable skill in swimming, might succeed in it from either side. I was three hours in swimming across the Tagus, which is much more hazardous, being two hours longer than the passage of the Hellespont. Of what may be done in swimming, I shall mention one more instance. In 1818, the Chevalier Mengaldo (a gentleman of Bassano), a good swimmer, wished to swim with my friend Mr Alexander Scott and myself. As he seemed particularly anxious on the subject, we indulged him. We all three started from the island of the Lido, and swam to Venice. At the entrance of the Grand Canal, Scott and I were a good way a-head, and we saw no more of our foreign friend, which, however, was of no consequence, as there was a gondola to hold his clothes, and pick him up. Scott swam on till past the Rialto, where he got out, less from fatigue than from chill, having been four hours in the water, without rest or stay, except what is to be obtained by floating on one's back—this being the condition of our performance. I continued my course on to Santa Chiara, comprising the whole of the Grand Canal (besides the distance from Lido), and got out where the Laguna opens to Fusina. I had been in the water, by my watch, without help or rest, and never touching ground or boat, four hours and twenty minutes."

SWINDEN, John Henry van, a Dutch philosopher, born at the Hague, in 1746, was educated at Leyden, and became professor of philosophy, logic and metaphysics at Franeker, in 1767. Nineteen years after, he was called to the chair of physics, mathematics and astronomy at the Athenæum at Amsterdam. In 1770, he became a member of the academy of sciences at Paris; and he gained the prize offered by that learned body for the best memoir *Sur les Aiguilles aimantées et leurs Variations*, and, in 1780, obtained a prize from the academy of Münich, for a memoir in answer to the question, "What analogy is there between electricity and magnetism?" which was afterwards printed (2 vols., 8vo.). In 1798, he appeared at Paris, at the national institute, to assist in the establishment of a new system of weights and measures, when he was appointed to draw up the reports on those subjects. In 1803, he was nominated a correspondent

of the French institute; and he belonged to the principal learned societies in Europe. He also occupied the office of member of the executive directory, under the Batavian republic, and that of counsellor of state in the service of the king of the Netherlands. He died March 9, 1823. Van Swinden was the author of several works besides those already mentioned, of which notices may be found in the annexed authorities. *Biog. Nouv. des Contemp. Biog. Univ.*

SWINE. See *Swinemünde.*

SWINEMUNDE (that is, *mouth of the river Swine*); a town in Pomerania, on the isle of Usedom, on the Swine, one of the branches by which the Oder empties into the Baltic. It is the harbour of Stettin, (q. v.) Long and expensive moles have lately been built, to render the harbour safe, and prevent the river from being choked with sand. The beacon is in lat. 53° 15′ N.; and lon. 14° 15′ 15″ E. Depth of water from Swinemünde to Stettin, twelve Prussian feet; inhabitants, 3800.

SWITZERLAND (German, *Schweitz*; French, *Suisse*); the Swiss or Helvetic confederacy. The northern and southern nations of Europe have been singularly intermingled in the ancient Helvetia, whose Alpine walls seem like a barrier, separating them from each other. The Roman legions, indeed, conquered the Gauls, Rhætians and Alemanni in their forests and marshes; but they could not destroy the northern spirit of freedom. The traces of its ancient subjugation to Rome are still visible, in the Romanic language of a part of Switzerland. Helvetia (q. v.), under the Romans, had a flourishing trade, which covered the land with cities and villages; and Switzerland still forms the connecting link between Northern Germany, the Netherlands and France on the one side, and Italy on the other. Before the fall of the Roman empire in the West, the northern and largest part of Switzerland, occupied by the Alemanni, had been conquered by the Franks. (See *Clovis.*) On the Jura dwelt the Burgundians, and Rhætia was under the Ostrogoths. Three German nations, therefore, freed the country, about A. D. 450, from the dominion of Rome. Christianity had already been introduced into Helvetia from Italy, and as early as the fourth century there were Christian churches at Geneva, Coire, and other places. The Alemanni and Burgundians gave their laws and their habits to the Helvetians; and the Alemanni occupied the greater part of the country. Each soldier received a farm; a judge, or centgrave, was set over one hundred of these farms (forming a cent, or hundred); and the place of judgment, where he settled all questions between the free citizens, was called *Mallus.* Several cents formed a *Gau* (hence Thurgau, Aargau, &c.), the judge of which was styled *count* (*graf*); and the counts were under a duke. The great irruption of barbarians swept through the peaceful valleys of the Alps, and Roman civilization disappeared. Ostrogoths, Lombards, and even Huns, settled in different parts of the country. At last, the Franks, who had taken possession of the lands of the conquered Alemanni, drove the Ostrogoths over the Rhætian mountains. In 534, they likewise subjected the Burgundians, and all Switzerland became a portion of the Frankish empire. The country, however, retained its ancient constitution; the Romans and the old inhabitants were governed by Roman, the Alemanni by Alemannic laws; and each of the other nations by its peculiar code. The Christian religion was restored anew, and the desolated fields were again brought under cultivation. On the partition of the empire of the Franks among the Merovingians, Switzerland was divided between two sovereigns; one reigned over Alemannian, and the other over Burgundian Switzerland, or Little Burgundy. (See *France.*) Pepin re-united the whole country, and Charlemagne encouraged the arts and sciences in Helvetia. Under his feeble successors, the counts became more and more independent of the royal authority, and finally made the possession of their *Gaus* hereditary. One of them (Rodolph) established (888) the new kingdom of Burgundy, between the Reuss and the Jura. Nine years previously, Boso had established the kingdom of Arles, in the territory between the Jura and the Rhone. Thirty years afterwards, the two Burgundian kingdoms were united. (See *Burgundians.*) The counts in the other parts of Switzerland were still nominally subject to the German kings; but they conducted themselves as princes, assumed the name of their castles, and compelled the free inhabitants of their *Gaus* to acknowledge them as their lords. Hence arose a multitude of independent and complicated governments, whose chiefs were engaged in continual feuds with each other. War was the business of the nobles, and misery the fate of the people in the distracted land. The emperor Conrad, therefore, set a duke over the counts in Alemannia in 911. But the emperors of the Saxon house (919—1024) were the first who compelled the dukes, counts and bishops, in Switzerland, to respect their authority. After the death of Rodolph III., the fifth and last king of Burgundy (1032), the emperor Conrad II. re-united Burgundian Switzerland with Alemannic, which belonged to the German empire. But under Henry IV. grandson of Conrad II. the royal authority in Switzerland was again overthrown. Henry (see *Henry IV.* of Germany), persecuted by the pope, sought adherents. He gave to the duke of Zähringen the Alemannic part of Switzerland, to which, in 1125, after the conquest of the count of Hochburg and of Raynold of Chalons, Conrad of Zähringen added the Burgundian portion. The dukes of Zähringen humbled the proud and quarrelsome nobility, but favoured Zürich and the other imperial cities; and built several new cities, among which were Friburg, in Uchtland, in 1178, and Berne in 1191. The country people became more secure; the feuds among the nobility less frequent; manufactures and industry flourished; Geneva and Lausanne, among the Romanic, and Zürich and Basle among the German cities, became thriving towns. The families of Savoy, Kyburg and Hapsburg were the most powerful among the noble families. Many nobles went, about this time, to Palestine; and thus the country was delivered from their oppression. After the death of Berthold V., last duke of Zähringen, in 1218, Alemannia again came into the possession of the emperors. His hereditary estates in Uchtland and in Little Burgundy passed, by his sister Agnes, to the house of Kyburg. From this time, the Hapsburgs in northern Helvetia, and the counts of Savoy in the south-west, grew more and more powerful. The emperor appointed some nobleman as governor of each city, or community, which was not under a count, to collect the public revenue and to punish violations of the public peace; still, however, private feuds continued. The German kings were no longer able to afford protection; might gave right,

and the boldest became the mightiest. Several inferior lords, and several places, therefore, sought the protection of Hapsburg or Savoy. Zürich, Berne, Basle and Soleure, the districts of Uri, Schweitz and Unterwalden, gradually acquired the seigneurial rights from the emperors, by purchase or by grant, and assumed the name of imperial cities or imperial districts. They were more prosperous and powerful than the nobility, who lived in their solitary castles, at enmity with each other. Even the crusades, by promoting commerce, improved the already flourishing condition of the cities, as a part of the troops, arms, provisions, &c., were transmitted to Italy, through the passes of the Alps. The crusaders brought back new inventions in the arts, new kinds of fruits, &c. The gold and silk manufactures of the Italians and Eastern nations were imitated in Switzerland; refinement took the place of rudeness, and poetry became the favourite amusement of the nobles. The cities now formed alliances for their mutual protection against the rapacity of the nobles, and demolished many castles, from which they exercised their oppression upon the peaceful merchants. At the end of the thirteenth century, Rodolph of Hapsburg, who, in 1264, had inherited the estates of his uncle, Hartmann, count of Kyburg, became more powerful than the old lords of the soil. As king and emperor of Germany (1273), he held a court in Helvetia; but he did not abuse his power to reduce the freemen to vassalage. His ambitious sons, however, Rodolph and Albert, encroached upon the rights of the Swiss. Albert, in particular, who succeeded to the imperial dignity in 1298, by his tyranny and obstinacy, gave rise to the first confederacy of the Swiss cantons. (See *Tell.*) On the night of November 7, 1307, thirty-three brave countrymen met at Rütli (Grutlin), a solitary spot on the lake of Lucerne. Fürst of Uri, Stauffacher of Schweitz, and Melchthal (q. v.) of Underwalden, were the leaders on this occasion. All swore to maintain their ancient independence. The three Waldstädte, or Forest-Towns (as these cantons were called), rose, therefore, January 1, 1308, deposed the Austrian governors, and destroyed the castles built to overawe the country. (See *Albert I.*) Henry VII., the successor of Albert on the German throne, confirmed to the Forest-Towns the rights of which Albert had endeavoured to rob them. But the house of Austria still contended obstinately for its lost privileges. The victory of Morgarten, gained by the Forest-Towns (1315) over Leopold of Austria, gave rise to the perpetual league of Brunnen, on December 9 of the same year, to which, previous to 1353, Lucerne, Zürich, Glarus, Zug, and Berne had acceded. The victories of Zempach (July 9, 1386), where Arnold Winkelried sacrificed his life, and of Näfels (April 9, 1389), gave them an uncertain peace. But the warlike spirit of the people fostered a love of conquest and plunder; mutual hatred kindled civil wars between neighbouring cantons; foreign powers sought the aid of the confederates in their contests. In 1424, the people of the Grey League established their independence, and were soon after joined by those of the other two leagues. (See *Grisons.*) The emperor Frederic III. then called a French army into Switzerland to protect his family estates. The Swiss made a second Thermopylæ of the church-yard of St Jacob at Basle, where 1600 of them withstood 20,000 French under the dauphin Louis, August 26, 1444. They next provoked Charles the Bold of Burgundy, who marched *into* their country, but was defeated at Granson, Murten, or Morat, and Nancy (1477). The confederates themselves aspired to conquest, the people being fired by the desire of plunder, and the nobles by ambition of glory. In 1460, they wrested Thurgau from Austria; and from 1436 to 1450, Zürich, Schweitz, and Glarus contended for Toggenburg, till Berne decided the dispute in favour of Schweitz. The confederated cantons from this time bore the name of the Swiss confederacy in foreign countries. In 1481, Friburg and Soleure entered the confederacy. The emperor Maximilian I. now determined to force the Swiss to join the Suabian league, and to submit to the court of the imperial chamber. But they suspected Germany on account of Austria, and joined the Grisons. Hence arose the Suabian war, which was concluded, after the Swiss had gained six victories over the Germans, by the peace of Basle, in 1499. Basle and Schaffhausen (1501), and Appenzell (1513), were afterwards admitted into the confederacy. But the country and people were disturbed by domestic and foreign wars. In the Milanese war of 1512, the Swiss conquered the Valteline and Chiavenna, and obtained from Milan the Italian bailliages, which form at present the canton of Tessin. They fought on a foreign soil, now for, now against, Milan; at one time for France, and at another time against her, till after the great battle of Marignano, gained by Francis I., in 1515, they concluded a perpetual peace with France, at Friburg, in 1516, which was followed, in 1521, by the first formal alliance with that kingdom.* About this time the work of reformation began in Switzerland. Zuinglius, in 1518, preached against indulgences, as Luther had done in 1517. Even as early as 1516, he had attacked pilgrimages, and the invocation of the virgin Mary; and in 1517, with the knowledge of his patron, the abbot of Einsiedeln, several nuns abandoned the monastic life. His removal from Einsiedeln to Zürich, in 1518, gave him courage to speak more openly, as Luther had, meanwhile, appeared in the cause of reform. But when the principles of the reformation were diffused through Zürich, Berne, Schaffhausen, Basle (by the labours of Œcolampadius), St Gall, Mühlhausen, and Bienne, religious jealousy separated the reformed and the Catholic cantons. (See *Reformed Church.*) In Glarus, Appenzell, and the Grisons, the people were divided between the two confessions. Luzerne, Uri, Schweitz, Unterwalden, Zug, Friburg, and Soleure, adhered to the ancient faith; as did likewise the Valais and the Italian bailiwicks. Fanaticism kindled a civil war. The Schweitzers burnt a Protestant preacher of Zürich. Two Swiss armies, nearly 30,000 strong, awaited the signal for civil war, when the word *concord* was pronounced, and the first religious peace was concluded in 1529. It was agreed that the majority of votes in the communities should decide all questions relating to changes of faith. But the rapid progress of the reformation again provoked the Catholic cantons to war; and the troops of Zürich were routed at Cappel (1531), where Zuinglius fell, and at the mountain of Zug. After the second public peace, the Catholic religion was restored in Soleure and the common provinces. In the mean time, Savoy, which had long possessed episcopal and seigneurial

* From Louis XI. to Louis XV. the Swiss furnished for the French service 1,110,798 men, for which France paid 1,146,888,623 francs. See *Guards.*

rights in Geneva, reduced the city to entire submission. But the oppressive manner in which the ducal authority was exercised, led Geneva, in 1525, to join Berne and Friburg. The duke was forced to yield. Berne and Geneva concluded the perpetual league of 1531, and Berne gained possession of the Pays de Vaud. At the same time, the reformed doctrines were propagated from Geneva by Calvin. By the peace of Lausanne, in 1564, Savoy first renounced her claims upon the Pays de Vaud, and was thus driven from Helvetia, as Hapsburg had been before. About this time (1555), Berne and Friburg divided between themselves the territories of the counts of Gruyere, so that, in all Helvetia, no great family of the ancient nobles retained its patrimonial estates, except that of Neuburg. The Swiss, however, were distracted by religious and political controversies. Aristocracy and democracy struggled for the superiority, and the intrigues of Spain filled the people of the Valteline (1617—21) with a spirit of fanaticism. In foreign, and especially in the French service, the Swiss adopted foreign manners: he sold his blood to foreign masters; and the ancient Swiss purity and simplicity retired to the remote valleys of the higher Alps. At the same time, the connexion of the confederacy with the German empire became less and less close, while the cantons obtained the confirmation of their rights from the emperor Maximilian II. But the influence of France soon became predominant, and Rome swayed the minds of its adherents by means of Jesuit colleges at Lucerne and Friburg; and particularly through the papal nuncio at Lucerne (since 1580). In the thirty years' war, the confederates maintained a prudent neutrality; and, by the peace of Westphalia (1648), the complete separation of Switzerland from the German empire was at length solemnly acknowledged. In 1663, France renewed her alliance with the Swiss, and asserted that they had no right to form alliances with other powers. The conquest of the Franche Comté, in 1674, and the siege of Rheinfeld, in 1678, by the French, together with the erection of the fortress of Hüningen (q. v.), in 1679, excited the apprehensions of the Swiss. They, however, happily maintained their neutrality, even in the war of the Spanish succession (1701—14). During the persecution of the Protestants in France (from 1685), to whom they readily gave an asylum and pecuniary aid, they paid as little regard to the remonstrances of Louis, who viewed the reformers as rebels, as he did to the intercession of the Protestant Swiss cantons in favour of their brethren in the faith. The Swiss had little influence in foreign politics during the eighteenth century; and, until towards its close, they suffered little from foreign interference. This tranquillity, which, however, was often interrupted by internal dissensions, was alike favourable to the progress of commerce, agriculture, and manufactures, and to the arts and sciences. In almost every department of human knowledge, the Swiss of the eighteenth century, both at home and abroad, acquired distinguished reputation, as the names of Haller, Bonnet, Bernoulli, J. J. Rousseau, Lavater, Bodmer, Breitinger, Gessner, Sulzer, Hirzel, Fuseli, Hottinger, John von Müller, Pestalozzi, and many others, bear witness. The people of the democratic cantons enjoyed an almost unlimited freedom, and took a large share in the affairs of government. Those places which were under the general protection of the whole confederacy, were not burdened by excessive taxes; they enjoyed a high degree of civil freedom, and numerous municipal rights. The larger cantons, as Berne and Zürich, in which the government was administered by the capitals, or by a body of the citizens, who enjoyed many peculiar privileges, were also in a flourishing condition. There were no oppressive taxes; but almost every where the government was conscientiously conducted; the administration of justice was cheap and simple, and benevolent institutions were numerous. Notwithstanding all these favourable circumstances, internal dissensions still continued, and new troubles arose in 1790, which shook the political fabric; blood was often spilt, and punishment rendered necessary. Although the Swiss had at first firmly maintained their neutrality in the wars of the French revolution, French power and intrigue gradually deprived them of their former constitution; and, after incorporating several portions of Switzerland with the French and Cisalpine republics, the French converted the Swiss confederacy into the Helvetic republic, one and indivisible, under an executive directory of five persons. The legislative power was divided between a senate and a great council, to which each of the fourteen cantons elected twelve members. It was in vain that some of the democratic cantons attempted to prevent this revolution. They were speedily overpowered. But the oppressions of the French; the arbitrary manner in which they disposed of the highest offices; the great number of weak and corrupt men who were raised to power,—soon made the new officers contemptible. Aloys Reding, a man of enterprising spirit, whose family was celebrated in the annals of his country, formed the plan of overthrowing the central government. Unterwalden, Schweitz, Zürich, Glarus, Appenzel, and the Grisons wished to restore the federal constitution; and Reding imagined that Bonaparte himself, who had just withdrawn the French troops from Switzerland, would favour his plan. The smaller cantons, in their diet at Schweitz (August 6, 1802), declared that they would not accept the constitution which had been forced upon them, and that they preferred a federal government. The consequence was a civil war. Zürich was besieged to no purpose by the troops of the Helvetic republic, against whom its gates were shut. Rodolph von Erlach and general Auf der Maur, at the head of the insurgents, occupied Berne and Friburg. The Helvetic government retired to Lausanne. Aloys Reding now summoned a general assembly, which was held at Schweitz, September 27. Three days after, the first consul of France offered to the cantons his mediation; but the small cantons, guided by Aloys Reding and Hirzel of Zurich, persevered in their opposition. Twelve thousand French troops entered Switzerland, under Ney, and the diet separated. Reding and Hirzel were imprisoned. In December, both parties sent deputies of the eighteen cantons to Paris, to whom Bonaparte transmitted, by Barthélémy, Fouché, and Röderer, the act of mediation of February 19, 1803, restoring the cantonal system, but granting freedom to the former subjects of the cantons. The cantons were now nineteen in number—Aargau, Appenzel, Basle, Berne, Friburg, Glarus, Grisons, Lucerne, St Gall, Schaffhausen, Schweitz, Soleure, Tessin, Thurgau, Unterwalden, Uri, Pays de Vaud, Zug, and Zürich. The republic of Valais was changed, by a decree of Napoleon, in 1810, into a French department; and as early as 1806, he granted

Neufchatel (which had been ceded to him by Prussia, but which was under the protection of Switzerland) to general Berthier, as a sovereign principality. Napoleon assumed the title of "mediator of Switzerland;" and the military service required of the Swiss became more and more oppressive. It was only by great firmness and the sacrifice of immense sums of money, that most of the cantonal governments could avert greater oppression: they were obliged to adopt the continental system; and the canton of Tessin was long garrisoned by French troops. In 1813, when the theatre of war approached Switzerland, France permitted the Swiss to maintain their neutrality; but the allies expressed themselves ambiguously, and large armies were soon marched through the country in various directions to France. Their arrival excited a fermentation in many quarters. The act of mediation was annulled, December 29, 1813, at Zürich, and several cantons, of which Berne (1814) was the first, laboured to revive their old constitutions. Through the influence of the allied monarchs, the cantons were finally prevailed on to assemble a general council; but revolutions and counter-revolutions agitated several of the cantons. Some of them were in arms against each other; others enjoyed a happy tranquillity, and the respect of the foreign powers. All, meanwhile, were engaged in settling their constitutions. The old cantons adhered more or less closely to their former frames of government, and the new cantons endeavoured to give to those which they adopted more stability. A diet was at length assembled at Zürich, and new articles of confederation were agreed upon by nineteen cantons, September 18, 1814. They resembled the old federal pact in many respects. This confederacy was acknowledged by the congress of Vienna. The bishopric of Basle, with Bienne, was given to the canton of Berne, excepting the district of Birseck, which fell to Basle, and a small portion, which fell to Neufchatel. The former relations of the latter place to Prussia were restored, and, with Geneva and the Valais, it joined the confederacy of the Swiss cantons, making their number twenty-two. August 7, 1815, the compact of Zürich was publicly and solemnly adopted, after the deputies of the confederacy at Vienna had given in their accession to the acts of the congress of Vienna, so far as they related to Switzerland (74—84, and 91—95). November 20, 1815, the eight powers, Austria, Russia, France, Britain, Prussia, Spain, Portugal and Sweden, proclaimed, by a separate act, the perpetual neutrality of Switzerland, and the inviolability of its soil. Soon after, Switzerland became a member of the holy alliance. But the political state of the Swiss cantons, as settled by the congress of Vienna, and jealously watched by the holy alliance, gave rise to much disaffection in the great body of the people. Though republics in name, nothing could be less republican than many of their laws and customs: privileges of orders, of corporations, of localities, and of family, interfered with the equal rights of the majority of the citizens. The federal diet was overawed by the holy alliance, and oppressed, in turn, the cantons; the chief towns tyrannised over the country districts, and a few trades or families tyrannised over the towns. Refugees for political offences from the neighbouring states were refused an asylum, and the press was shackled by the diet, in opposition to the voice of the nation, and in compliance with the requests of the great powers. In the democratic cantons, in which the people were not oppressed by their cantonal authorities, they were often disgusted with these servile complaisances of the diet: but in the aristocratical cantons, in which almost all the authority was in the hands of some patrician families, or the corporations of the trades, it was often abused to oppress the mass of the people. This was particularly the case in Berne, Basle, Friburg, Lucerne, Zurich, Schaffhausen and Soleure. Still a third class of cantons was composed of the new members of the confederacy, professedly organized on popular representative principles, but in which, in 1815, the elections were so arranged, that the whole power, in fact, was possessed by a small executive council. In this state of things, the general demand for reform, in the electoral assemblies of Tessin (one of the new cantons), compelled the council (June, 1830) to yield to the public voice, and establish a system of direct elections, and of publicity of proceedings in the great council, and to guarantee the liberty of the press, and the inviolability of persons, as parts of the constitution. This event, and the French revolution of July, 1830, set the example for general risings in various parts of the country. In the new cantons, the popular demands were generally so readily complied with as to prevent any serious disturbances, and the democratic cantons took hardly any part in the troubles; but in the old aristocratic cantons, the opposition was stronger and more systematic. Still, as many of the towns people were favourable to more popular institutions, the governments, even in these cantons, generally yielded, with little opposition, to the wishes of the citizens. After much agitation had taken place, and some open outbreaks, the federative diet decided, July 17, 1832, to submit the pact of 1815 to a revision. This decision, after a number of cantonal changes had occurred, was renewed, Aug. 16. 1847. After many discussions and hesitations, a new federal compact was agreed to by a majority of deputies of nineteen cantons, Sept. 12, 1848. The cantons which then held out were Uri, Schweitz, and Unterwalden. In 1846, these cantons, along with Lucerne, part of Friburg, Zug, and Valais, formed the league of the *Sonderbund;* an ultra Roman Catholic element being at the bottom of the anti-federative feeling. The determination of the majority of the cantons to maintain the federation intact, on principles heretofore subscribed to by all, led to a civil war, which was terminated by the triumph of the federative forces, sent against the malcontent cantons, in the autumn of 1847.

Switzerland, the most elevated country in Europe, consists chiefly of mountains, lying near together, or piled one upon another, with narrow valleys between them. The highest mountains (among which are St Gothard, in the canton of Uri, and the Finsteraarhorn, in the canton of Berne, 14,100 feet above the level of the sea) are found in Uri, Berne, Underwalden and Grisons. Of about sixty Swiss mountains which have been measured, the highest is Monte Rosa, 15,535 feet high; the lowest, Cholet, is 3000 feet high. (See *Alps.*) The lowest region of the productive mountains is covered with thick forests and rich meadows; the middle consists of hills and narrow passes, containing pastures; the third region is composed of sharp and almost inaccessible rocks, either wholly bare, without earth or grass, or covered with perpetual ice and snow. The middle regions are inhabited in summer by herdsmen, who find good pasturage for thee

cattle, and obtain excellent water from the mountain springs and streams. The herdsmen give an account of the milk, butter and cheese, to the owners of the cattle, or pay them a stipulated portion of the proceeds. (See *Sennen.*) The glaciers, more than 400 in number, are either the barren parts of the mountains, or heights which consist only of snow and ice. These icy mountains begin in the canton of Glarus, and extend to the Grisons, thence to the canton of Uri, and, finally, down to Berne. The glaciers are produced by rocky valleys, whose declivities are too small to admit of the ready descent of the water of the melted snow and ice, so that they are gradually filled up by vast masses of snow and ice, which accumulate in them. The continual alternation of hill and valley affords the most striking natural scenes in every part of Switzerland. In some places, within a short distance, one may see at the same time all the seasons of the year; and it is often possible to stand between spring and summer, so as to collect snow with one hand, and to pluck flowers from the soil with the other. Every mountain has its waterfalls; and, as their sources are sometimes lost in the clouds, the cataracts seem to descend from the skies. Switzerland abounds in lakes and rivers, the fisheries of which are valuable, and which serve to embellish the landscape. But none of the streams are navigable. The lake of Zürich, one of the largest in Switzerland, is twenty-five miles in length by three in breadth. The lake of Geneva is about fifty miles long and eight to ten wide. The lake of Neufchatel, twenty-eight by six, and the lake of Lucerne or the Vierwaldtstädtersee, twenty-five miles long, and, where widest, as many broad, are celebrated for their beautiful environs. The largest rivers are the Rhine, the Reuss or Rüss, the Rhone, and the Tessino or Ticino. The Rhine is remarkable for its falls, and the Reuss for a bridge, called the Devil's bridge, which leads over it in the canton of Uri. It connects two mountains, between which the water rolls at the depth of seventy-five feet below it. There are springs of excellent water among the hills, with warm and cold baths, and mineral springs. In Thurgau, a part of Zürich, Basle, Schaffhausen, Berne, Soleure and Friburg, every thing is different; for, although there are some mountains, yet this part of Switzerland is more level; there are here no Alps, no cataracts, few trees, and, in summer, neither ice nor snow. In general, the foot of the mountains almost every where is covered with farms, meadows, vineyards and trees; and even amidst the rocks, there are numerous cultivated patches. Switzerland is rich in minerals, especially lime and clays, slate, black, gray, and dark-red marble, porphyry and alabaster (especially in Valais); also quarts, crystals (weighing sometimes 7—8 cwt.), peat, coal, &c. Silver, copper and iron ore likewise occur. Gold dust is found in the rivers. The flora of Switzerland is peculiarly rich. The cultivation of the vine is carried to a great extent, and a considerable trade is carried on with France, Holland, Britain and Suabia. Fruits are abundant, but corn is not produced in great quantities, owing partly to the great numbers of cattle which are raised here. The breeding of cattle is the chief employment of the inhabitants, for which the rich pastures of the valleys and hills afford great advantages. The Swiss cheeses are imported in great numbers into Germany, France and Italy. Of the wild animals, the most important is the chamois (q. v.); the ibex, the marmot, and the *lämmergeier*, or vulture of the Alps, are also found. Of its manufactures, those of linen, cotton, and, of late years, silk, are the most important. The Swiss confederacy, according to the terms of the federal compact between the twenty-two cantons (Zurich, August 7, 1815,) is a federative state of twenty-two republics, who conduct their domestic concerns wholly independently of one another. Appenzell and Unterwalden, however, consist of two distinct parts; and, in 1832, Basle was also divided into two Rhodes. The confederacy, as its limits were determined by the congress of Vienna (art. 74—84), contains an area of 18,490 square miles, or according to some, of 14,769, with a population, in 1837, of 2,188,009 persons. Among them are 1,217,210 Protestants (mostly Calvinists), 817,110 Catholics, 900 Anabaptists, 1810 Jews, in 92 cities, 100 market towns, 7400 villages and hamlets. The size and population of the cantons are as follows:—

Cantons.	Sq. Miles.	Population.
Zürich,	953	281,676
Berne,	2665	407,913
Lucerne,	761	124,521
Uri,	508	13,619
Schweitz,	466	40,650
Unterwalden,	256	22,571
Glaris,	460	29,348
Zug,	116	15,322
Friburg,	487	91,145
Soleure,	487	63,196
Basle,	275	66,494
Schaffhausen,	169	34,125
Appenzell,	223	54,276
St Gall,	847	188,253
Grison,	2966	84,506
Aargau,	762	182,755
Thurgau,	349	84,124
Tessin,	1173	113,923
Pays de Vaud,	1483	183,582
Valais,	1949	74,798
Neufchatel,	2 6	58,616
Geneva,	96	58,666

In 1827, the population was 2,037,030; showing an increase of 150,979 in ten years. (*Go haischer Hof-Kal. auf das Jahr* 1849.) The German language is common to nearly the whole country, with the exception of the Pays de Vaud, Geneva, and Neufchatel, and a part of the cantons of Valais and Friburg, where the French prevails. Italian is spoken only in a part of the Grisons and in Tessin; Romansh at the sources of the Rhine and Ladin, on the Inn. The Germans are 1,428,671; French, 438,489; Italians, 119,970, and those who speak the Ladin and Romansh languages, 48,090. The prevailing religion is, in some of the cantons, Catholic; in others, Calvinism; and in others, mixed. There are 120 monasteries, of which Tessin has the most (18); 59 for monks, and 61 for nuns; among them are seven Capuchin houses. In 1815, Switzerland contained all that had previously belonged to it, with the exception of Mühlhausen and the Valteline. Frickthal, with the cities of Lauffenburg and Rheinfelden, which belonged to Austria, were annexed to the canton of Aargau. Gersau (for 500 years a free state, and the smallest in Europe, with 1294 citizens, mostly engaged in the manufacture of silk), by an act of the congress of Vienna and the decision of the diet, was again made a part of the canton of Schweitz. In 1815, France ceded some places in Gex, and the king of Sardinia the city of Carrouge, with some villages on the left shore of the lake and on the Rhone, to Geneva. The fortress of Hüningen, in Alsace, opposite to Basle, has been demolished. The castle and lordship of Rhäzüns, above Coire, on the Rhine, in the Grey League, which formerly belonged to Austria, were ceded to the Grisons by an act of the congress of Vienna, January 19, 1819

The diet, which is composed of the representatives of the cantons, and which manages such affairs of the confederacy as are committed to it by the sovereign cantons (such as the declaring of war and making of peace, the concluding of commercial and other treaties with foreign states, the regulation of the federal army, &c.), is held every two years, alternately at Zürich, Berne, and Lucerne, which are called the directing cantons (*vororte*). The *Schultheiss*, or governor of the directing canton in which the session is held, then takes the name of *Landammann* of Switzerland. Each canton has one vote in the diet. Military capitulations, and treaties on subjects of police and economical regulation, may be entered into by the separate cantons with foreign states; but not without the knowledge of the diet. The revenue of the confederacy, arising from the contingents of the cantons, is about £450,000. The public debt, fixed by the congress of Vienna, in 1814, at 3,118,330 Swiss francs, has been cancelled by the interest accruing, from 1798 to 1814, on the capital (£200,000 sterling, and £100,000 sterling) invested by the cantons of Berne and Zürich in the bank of England. The property of this sum is, however, reserved to the two cantons, and also the interest accruing since 1815. The federal army was fixed (February 5, 1841) at 64,019 men, of which half is a reserve. In 1819, an artillery school, or scientific and practical military academy, was established at Thun, by the confederacy; and, in 1820, the first camp for military practice was held at Wohlen. Each canton is governed by its own laws, and the government is administered by a great council, which holds the legislative power, and the small council, which holds the executive, or by the *Landesgemeinde* (or general assembly of citizens), and the *Landrath* (an executive council). In Uri, Schweitz, Unterwalden, Zug, Glarus, Schaffhausen, Appenzell (Inner and Outer Rhodes), St Gall, Grisons, Aargau, Thurgau, Ticino, Pays de Vaud, Valais, and Geneva, the constitutions are democratic; in the remaining cantons, they are of a mixed aristocratic and democratic character. Neufchatel has a monarchical government, with estates.

The literature of Switzerland is a branch of the German; that of Geneva, the Pays de Vaud and Neufchatel, of the French. There is a university at Basle, and the academies of Berne and Zürich have scientific collections. At Lucerne, Winterthur, Zopfingen, and other cities, there are libraries, and cabinets of natural and artificial curiosities. Several learned societies, particularly those for natural history, are distinguished for activity and zeal. The school of Pestalozzi (q. v.) at Yverdun, and the agricultural institute of Fellenberg (q. v.) at Hofwyl, are celebrated. In 1824, appeared at Zürich *Kritische Anzeigen der Schweizerischen Literatur* (Critical Notices of Swiss Literature), containing a notice of the best works printed in and concerning Switzerland, and of the labours of Swiss literati abroad. The history of Switzerland by John von Müller is a classical work; it has been continued by Glutz-Blotzheim to the perpetual peace with France in 1516. His valuable labours were interrupted by an early death. Balthasar's *Helvetia, oder Denkwürdigkeiten für die 22 Freistaaten der Schweizerischen Eidgenossenschaft* (Helvetia, or Memoirs of the 22 Republics of the Swiss confederacy, 1st vol., Zürich, 1823), may be joined with it. Zschokke's History of the Swiss Nation (in German, Aarau, 1822; French by Monnier) is a masterly work. Lardner's Cabinet Cyclopedia contains a short history of Switzerland. Raoul-Rochette's *Histoire de la Révolution Helvétique de* 1798—1803 (Paris, 1823) is less accurate and impartial than Zschokke's Historical Memoirs of the Helvetic Revolution. On the ancient history of the country, see Haller's Historical and Topographical Account of Helvetia under the Romans (2 vols., 3d edit., Berne, 1818). On Swiss public law, Usteri's Manual is valuable (2d edit., Aarau, 1821); also the Helvetic Almanac, and Picot's *Statistique de la Suisse* (Geneva, 1819). Lutz's Complete Description of Switzerland (in German, alphabetically arranged, 2d edit., Aarau, 1827, 3 vols.), is a valuable work. See the separate articles, *Basle, Berne, Geneva, Lucerne, Neufchatel, Chaux de Fonds, Zürich*, &c.

Travels in Switzerland. This beautiful country is so much visited, that it may, perhaps, be acceptable to our readers to have a few of the best guide-books pointed out, and a few directions given for the traveller. Ebel's Guide to the most useful and pleasant Way of Travelling in Switzerland (3d ed., Zürich, 1810, 4 vols., in German) is the best companion. It embraces all Switzerland. The abridgments which have appeared in Geneva and Paris are not satisfactory. Reichard's *Guide des Voyageurs en Italie et en Suisse* (Weimar, 1819); also Glutz-Blotzheim's Manual for Travellers in Switzerland (in German, 5th ed., Zürich, 1823); the *Nouveau Guide des Voyageurs dans les XXII Cantons Suisses, traduit d'un Manuscrit Allemand du Professor H. par R. W.;* Simond's Tour in Switzerland; and Dr William Beattie's Switzerland, with illustrations by W. H. Bartlett, Esq., deserve to be mentioned. Coxe's Travels describe the state of the country before the French revolution. The late numbers of the Helvetic Almanac afford an accurate view of the statistics of the different cantons. Of works relating to particular parts of Switzerland, the best are Ebel's Description of the Mountaineers of Switzerland (Tub., 1798—1802, 2 vols.), and, above all, Travels in the Bernese Oberland, by J. R. Wyss (Berne, 1816, 2 vols.), with excellent maps. The same region is described in *Voyage pittoresque d'Oberland, accompagné de Notices historiques et topographiques* (Paris and Strasburg, 1812). Of the maps of all Switzerland, that published by Keller and Scheuermann (Zürich, 1815 and 1819) is particularly worthy of attention. The great atlas of Weiss embraces only a part of Switzerland. For the use of naturalists, we mention *Manuel d'Herboriser en Suisse et en Valais, rédigé selon le Système de Linné* (Winterthur, 1811); and *Précis d'un Voyage botanique fait en* 1811 *par Villars, Lauth et Nestler* (Paris, 1812.) For travelling in Switzerland, the months of July, August, and September afford the most settled weather. The most delightful season is in September, and often even in October, when the shores of the lakes of Geneva, Neufchatel, and Bienne, and the charming scenes in the Pays de Vaud, enchant the visitor. The beginning of summer, and even the close of spring, are often equally favourable. The Alpine meadows, which are then decked with the most beautiful and rarest flowers, delight the eye, and afford rich stores to the botanist. The curious atmospheric phenomena, which are frequently seen, and on elevated mountains, even below the spectator, afford a new and sublime spectacle. The mild warmth, and the long days, render travelling, at this period, peculiarly pleasing. May, however, is commonly more beauti-

ful than June, which is often rainy. Most travellers devote only six or eight weeks to visiting Switzerland, and limit themselves to the most interesting parts. With a proper and systematic plan, one can travel through all the cantons in three and a half months, if he proceeds mostly on foot, and remains in every place only as long as is necessary to view all its curiosities; but, owing to the frequent changes of weather, it is impossible to reckon upon three weeks in succession dry and warm. as much as fourteen days, therefore, ought to be allowed out of the three and a half months for obstructions from rain or storms. There are no proper extra posts in Switzerland, though persons travelling in their own coaches may procure a change of horses. There are good regular coaches, however. Most travellers who arrive at the frontier places in the post-coaches, or in their own carriages, hire the horses and carriages which are always in readiness in the towns. The prices at which horses and mules are let, are high. The horses and mules are so used to the steep and rocky mountain roads, that, even on the brink of a deep precipice, the traveller feels himself perfectly safe. Those should be chosen, however, which have been used to carry, and not to draw. Roads lead over the Cenis, the Simplon, and, since 1818, over the Splügen. The road over the Simplon may well be compared with the proudest works of the ancient Romans. (See *Alps, Roads over.*) Over the other summits, no one can travel, except on foot, or, perhaps, part of the way on horseback. In the valley of Chamouni, and in Grindelwald, there are very low and small four-wheeled carriages, which are extremely inconvenient. It is possible to travel in these a part of the way, also, over the great mountain of St Bernard. On account of the sudden changes of weather and the cold air on the mountains, it is necessary to be provided with warm clothing. The traveller, on excursions, should wear a light and easy dress, with half-boots, or, what is still better, shoes with gaiters, fastened tight about the feet to prevent gravel from getting in. A traveller should provide himself with two pairs of shoes, very strong, with thick heels and large-headed nails, to be worn over stony passes, in wet weather, and on glaciers; and with light ones for the smooth plains. Experienced travellers disapprove of the common irons fastened to the shoes. The Alpine shoes, invented by Pictet, are very good. The soles are at least six lines in thickness, with a strong but pliable upper leather, covering the whole foot, and with a covering of leather rising about one and a half inches above the sole, to secure the foot from any blow. Large steel nails, or rather screws, with heads somewhat more than four lines wide, which resemble a truncated four-sided pyramid, are inserted in the soles and heels, about seven in the former and five in the latter. In the intervals between the steel nails, common nails are driven in so that the heads touch one another. With this durable and not heavy shoe, one may walk safely over the naked granite, over ice and smooth grass. A staff, pointed with iron, is indispensable. In warm weather, a straw hat is preferable to a felt one. A cloak, of oiled taffeta or oiled linen, to keep off the rain, is very convenient and warm, and, for this reason, a good protection on the high mountains or in a piercing wind. The traveller should also take a flannel shirt, the best protection against sudden colds, light woollen pantaloons, and a great coat of light cloth; also a covered flask for cherry brandy to bathe the tired limbs. The best comes from Grindelwald. To the mineralogist, the apron of thin leather, invented by Pictet, deserves to be recommended. It is never well for one to travel on the mountains alone, nor, on the other hand, in company with more than three or four persons, because of the scanty accommodations of the inns in the small places. A guide should always be procured; and very intelligent ones are easily to be met with. If a person is not used to walking, he should begin with short journeys every day; but walking in Switzerland, even for females, is not so difficult as is commonly supposed. The mountains should be ascended, where it is possible, on the western side. The best descent is on the eastern declivities. It is unsafe to travel on the high mountains in spring until after the avalanches have rolled down the sides. After a long and violent rain, a person should wait two days before traversing the high valleys among the rocks, where pieces are liable to fall from the sides at such seasons. In snowy vales and among the glaciers, it is well to cover the face with a green or dark gauze. Volatile alkali, diluted with water, mitigates the burning pains in the face, caused by the bright reflection of the sun's rays from the fields of snow and the glaciers. One should never travel over the glaciers after a fresh fall of snow (which sometimes happens even in the summer months), particularly at mid-day; for a traveller might then very easily break through the soft mass. To these rules the traveller will easily add such as his own experience may suggest. Many circumstances combine to make travelling in Switzerland more expensive than in the adjacent countries. But few of the cantons produce the necessaries of life in sufficient quantities for the inhabitants. In many places, the people are obliged to procure them from a distance; and then the expense of conveyance augments the price. Inn-keepers on the mountains and in retired valleys are especially subjected to this advanced price, and are, therefore, obliged to charge higher than those in cities and frequented roads. The hotels, in towns and in large villages, often even in the midst Alpine vales, as in Lauterbrunnen and the valley of Chamouni, are very good. In Italian Switzerland, and generally beyond the southern chain, it is common to agree upon the price to be paid to inn-keepers, guides, servants, and the like, beforehand; for otherwise a person is very liable to be imposed on. The expenses for one who makes only a short stay at the various places, are, of course, greater than for one who remains longer. If a person devotes five or six months to travelling through Switzerland, in a carriage or on horseback, his daily expenditure will amount to twelve or sixteen Swiss francs;* but if he limits himself to six, four, or two weeks, his expenses will be at least eighteen francs a day. If he travels on foot, and has a guide who carries his luggage, twelve francs a day will be sufficient. The difference in the standard of money in the different Swiss cantons is inconvenient, particularly since some cantons have begun to refuse to admit the money of others. The Manual of Glutz-Blotzheim, before mentioned, presents a useful view of the worth of the different coins. The old louis-d'or (twenty-four livres tournois), the French twenty franc piece, the Brabant, Bavarian and

* A Swiss franc is about the value of a shilling sterling.

Würtemberg dollar, and French five franc piece, are in most general circulation. The reckoning by Swiss francs (sixteen to a louis-d'or) is pretty general. In the hotels they reckon much by French francs. Any one who intends to visit all the cantons can proceed in the following order—either through Constance, Schaffhausen, Eglisau, and Winterthur, or through Lindau, the lake of Constance, Roschach, and St Gall, to Zürich (see *Voyage de Zuric à Zuric*, 1818); then over mount Albis to Zug, over lake Zug to Arth, at the foot of the Righi, of which Fuessly and Keller have published beautiful sketches, with a description by J. H. Meyer (Views of Mount Righi, drawn from nature, Zürich, 1809); over the lake to Lucerne, which Businger describes in his guide—Lucerne and its Environs, with a good Map of the Lake of the four Forest-Towns (Lucerne, 1811). The traveller now enters on the route over the mountains. The way leads through Stanzstadt, Stanz, the abbey of Engelburg, and over the Surenian Alps; or from Stanz through Buochs, over the lake of the four Forest-Towns, Rütli, Tell's Chapel to Altorf. Thence you pass on the great road from German Switzerland to Italy, in three days, to Bellinzona. Through Urseren, the road leads from Altorf to Dissentis, and the adjacent springs of the Rhine; and further through Trons to Coire, where a traveller who wishes to visit Graubündten (the Grisons), stops. Among the principal curiosities of the Grisons are the valley of Tomlesch, the bridge of Solis, which is the highest in Europe, the Via Mala, the glaciers of the Rhine, the valley of Misocco, the glacier of Bernina. From Coire, the traveller pursues his journey through Sennwald to Appenzell and Gsais, and then through Utznach and Einsiedeln; or, if he does not intend to visit first the bath at Pfeffers, through Panyx, Elm, and Matt, to Glaris, and thence to Einsiedeln, from which he returns, over Schweitz and the ruins of Goldau, to Lucerne. Then he goes through the charming Entlibuch, or over the battle-field of Sempach, through Zopfingen, Morgenthal, Hindelbank, Hofwyl, to Berne. From Berne, the traveller proceeds over Thur, in four to six days (including the time occupied in returning through Interlaken and Brientz), to the beautiful Oberland, to Lauterbrunnen, to Staubach, over the little Scheideck to Grindelwald, at the foot of the Jungfrau (first ascended by the two Meyers in Aarau, 1811 and 1812; (see *Travels over the Glaciers of Berne*, Aarau, 1813), and of the Schreckhorn, and over the great Scheideck to Haslithal. From Merzringen, the chief place in the valley, those who have not travelled from Altorf to the hospice of St Gothard can go by the new road through the Susten valley. The hospice on the Grimsel, 5887 feet high, is particularly worthy to be visited. Thence the traveller proceeds to the glaciers of the Rhone. From Berne he goes through Murten and Avenches, or Friburg, Murten, Avenches, Payerne, Lausanne, Aubonne, to Geneva. Thence he proceeds to the icy heights and glaciers of the valley of Chamouni, either through Thonon, Evian, Simoens, and Sixte, or through Bonneville and Salenche, to Servoz; thence on to Chamouni, at the foot of Mont Blanc, which requires three days. The glacier of Montanvert and La Flègère, opposite to it, are commonly the limit in this direction. The best guides are Saussure's and Bourrit's works, Pictet's *Itinéraire*, and Gottschalk's description (the Valley of Chamouni, Halle, 1811), with a map. In 1812, Lord published some beautiful views of the valley of Chamouni. If the traveller does not return from Chamouni to Geneva, he either takes a difficult path through the valley of Valorsine, and the village of Trient, or the Col de Balme, to Martigny, at the foot of the Great Saint Bernard. From this place, one may go over the Simplon road to the Borromean islands (to go and return, six or seven days are necessary), or over St Branchier to the Val de Bagnes (where, in 1818, owing to the fall of the glacier Getroz, lake Mauvoisin broke through its banks, and spread fearful devastation); then to the hospice on St Bernard, and back to Martigny, which requires three days. A good map of the mountain was published by Lapie (Paris, 1803). A full description of it is given by Wibel of Berne in his *Voyage Pittoresque depuis Lausanne jusqu'au Mont St. Bernard*, ornamented with fourteen coloured plates. From Martigny, the traveller goes through St Maurice, by the Pissevache, or, by a circuitous way, which well rewards him for his trouble, through Sitten, and along the new road, so called, over mount Azeindaz, to Bex (where the remarkable salt mines may be seen), and then through Aigle and Clarens to Vevay, whence the traveller may proceed by water to Geneva, if he does not wish to go by land through Lausanne. On the opposite shore of the lake, the road passes through Meillerie and Evian to Geneva; then through Orbe, adjacent to the beautiful valley of the Lac du Joux and the valley of Romainmotier, to Yverdun, and along the lake to Neufchatel, whence a visit may be paid to the manufacturing villages Chaux de Fonds and Locle (in the neighbourhood of the latter is the Saut de Doubs); from Neufchatel through Bienne, or Aarberg, to Soleure, near which rises the Weissenstein, affording from its summit a fine view of the wide valley that divides the Jura from the Alps. It is one of the most splendid prospects in Switzerland. If a person wishes to go through the Münster valley to Basle, he must return to Bienne; and, following the directions in Bridel's text to Birrman's *Voyage Pittoresque de Bâle à Bienne*, two days are requisite to pass over the road leading through Pierre Pertuis, an ancient Roman gate of rock, forty feet high. If one desires to visit the principal curiosities in Switzerland in six or eight weeks, it is best to pursue the following course:—Schaffhausen, Zürich, Zug, Righi, Lucerne, Schweitz, Altorf (perhaps to the hospice on mount Gothard), Berne, Oberland, to Meiringen; from Berne to Lausanne, Geneva; thence to the valley of Chamouni, to Chamouni or Martigny (perhaps along the Simplon road to Domo d'Ossola, or to the hospice on mount Bernard), and, in the way before mentioned, through Bex, Vevay, Yverdun, &c., to Basle. In two or three weeks, the following journey may be made: through Basle, Münsterthal, Bienne, Soleure, Berne, Oberland, Hofwyl, Lucerne, Righi, Schweitz, Zug, Albis, Zürich, Schaffhausen, Constance. If a traveller wishes to visit particularly French Switzerland and the Savoy Alps, he can perform the following journey in about twenty-five days: Schaffhausen, Baden, Aarau, Berne, Friburg, Vevay, Bex, St Maurice, Martigny, Val de Bagnes, Col de Balme, Chamouni, Geneva, Lausanne, Bienne, Münsterthal, Basle. Since Aberly, the following artists have distinguished themselves by views of scenes in Switzerland: Rieter, König, Hegi, Fuessly, Keller, Birrmann, Wocher, and the two Loria.—

See, also, Wetzel's *Voyage Pittoresque aux Lacs Suisses*, Zürich, 1824, containing eighty-five plates.

SWIVEL; a small piece of artillery, carrying a shot of half a pound, and fixed in a socket on the top of a ship's side, stern, or bow, and also in the tops. The trunnions of this piece are contained in a sort of iron crotch, whose lower end terminates in a cylindrical pivot resting in the socket, so as to support the weight of the cannon. By means of this swivel (which gives name to the piece of artillery) and an iron handle on its cascabel, the gun may be directed by hand to any object.

Swivel is also a strong link of iron used in mooring-chains, &c., which permits the bridles or cables to be turned as occasion requires.

SWORD. This weapon, probably because it is more constantly carried about the person than other weapons, such as the arrow, spear, &c., has acquired a peculiar connexion with the circumstances of the wearer. To this day, the surrender of the sword denotes submission, and the breaking of it degradation. In many countries, it has become the emblem of power. In Germany, the sword was one of the imperial insignia. In Turkey, the sultan is girded with the sword of Osman on ascending the throne. In England, the sword of state is one of the regalia, and the "offering of the sword" one of the ceremonies of coronation. In France, the sword is also one of the royal insignia. In the middle ages, knights gave names to their swords; thus Charlemagne's sword was called *Joyeuse*, and Orlando's *Durindana*. The efficacy of no other weapon depends so much upon the courage and skill of the individual. It is the poetical representative of all arms; and, in the middle ages, the word *degen* (sword) was used in German to denote a worthy man; later, a servant, but a servant of a dignified character, and a free man. In this sense, Otfried, in his translation of the Gospels, calls John the Baptist *Christi Thegan*. In a German poem of the fourteenth century, the apostle Peter is called *Gotes Degen*, and the *forste* and *senat* of all apostles. *Thane*, which is derived from the same word, is also an Anglo-Saxon title of honour familiar to the readers of Shakspeare. Under the emperors of Rome, no one was allowed to wear a sword except soldiers; hence the custom of presenting the sword on investing with a military dignity. Trajan, when he made Sura Licinius commander of his guards, put a naked sword into his hands, with the words, "Take this, and use it for me if I rule well, against me if I rule ill." The secular infeoffment of crown vassals, in the middle ages, was performed by presenting the vassal a naked sword. To this day, decapitation with the sword is considered more honourable than hanging, in those countries where both modes of execution are in use, as in many on the continent of Europe. In England, the axe is used, and only in cases of high treason. As soon as the art of forging metals was invented, arms of metal were probably made; and the sword must have been one of the first, as the club, and similar weapons, would naturally lead to it. Wooden swords are found at present among many savage tribes. Some historians mention Belus, king of Assyria, as the inventor of the sword. The Greeks ascribed the invention, according to Diodorus, to the Cretans. From the Scriptures we learn that swords were used in the earliest times in Asia. Abraham drew his sword to sacrifice his son Isaac. The knife probably originated from the sword by degrees. The knife, in many countries, as in Spain, is still a formidable weapon. Swords were probably made at first, like other weapons, of copper, as men acquired the art of forging this metal sooner than any other. The heroes of antiquity never appear without the sword. Whether the Greeks wore it on the left or right side is not determined; but the Romans, as long as they used short swords, wore them high on the right side, as appears from the bass-reliefs of the columns of Trajan and Antoninus at Rome; and Polybius explicitly states this fact in his history (vi. 21). The kinds of swords are too numerous to be given here. The straight, long sword was used by the Christians of the West in the middle ages, while the Poles, and all the tribes of Sclavonic origin, employed, and still prefer, the crooked sword. The Saracens also had the crooked sword at that time; and it is still the common one in Asia. At present, light cavalry in Europe, as hussars, lancers, &c., wear the crooked sword, while the straight, long sword is the weapon of the heavy cavalry. The latter is, generally speaking, a better and more trustworthy weapon. In the middle ages, double-handed swords also were worn; and in books on the art of fencing, this branch is treated, as is also the art of fighting with the dagger. It was an unwieldy weapon, and probably originated from the wearing of plate armour. The sword of the executioners is, to this day, a double-handed one; but, as it requires considerable skill and coolness, it has been exchanged, in most countries, for the heavy axe. The Highland claymore, a broadsword with a basket hilt, has been introduced into the Highland regiments in the British service. The blade of a sword is divided into the upper, middle and lower part, or the *forte*, *middle* and *foible*. Fencing with the small sword and the broad sword are quite different arts. The former is of a much nobler character. (See *Gymnastics*.) Some places, as Toledo, Saragossa, Damascus, are particularly celebrated for fine sword blades.

SWORD-FISH (*xiphias*); a genus of fishes, remarkable for having the upper jaw prolonged, somewhat in the form of a sword, and constituting at least one third of the total length. It is placed by Cuvier in the same family with the mackerel. The body is elongated, almost destitute of scales, and is carinate on each side at the base of the tail. There are no proper teeth.—The common sword-fish (*X. gladius*) is sometimes more than twenty feet long, the beak included. It swims with greater swiftness than almost any inhabitant of the deep, and is possessed of vast muscular strength. It attacks, and generally puts to flight, the smaller cetaceous animals, notwithstanding its food is usually vegetable. Its flesh is good; and, in some countries, the fishery is an object of importance. It is taken with the harpoon, and usually tears the net, if enclosed. The female approaches the shores in the latter part of spring or beginning of summer. The sword-fish is found in almost all seas.

SYBARIS; an ancient Greek city of Lower Italy, in Lucania, on the gulf of Tarentum. It is supposed to have been built by a colony of Achæans and Trœzenians, about 720 B. C. The Sybarites were celebrated for their luxury and voluptuousness, and had become enervated by the mildness of the climate, the richness of the soil, and their great wealth. Becoming involved in a war with Crotona, the city of Sybaris brought into the field 300,000 men, while the forces of the former

amounted to but 100,000. The Crotonians, however, were victorious, and totally destroyed Sybaris.—*Sybarite* is still used to signify an effeminate voluptuary.

SYCAMORE. This term was given by the ancients to a species of fig (*ficus sycomorus*). By the moderns, it is applied to a European species of maple (*acer pseudoplatanus*); and, in the western parts of the United States, to the Occidental plane, or button-wood. See *Fig*, *Maple*, and *Plane*.

SYCOPHANT, with the Athenians; a man who denounced others on account of violations of law, or kept watch on their doings in order to misrepresent them, and to make them the basis of an accusation. The name is derived from συκον, a fig, and φαινω, I discover, and was originally applied to certain persons who gave information of such as, contrary to the Athenian laws, exported figs. Subsequently, every false accuser, cheat, or other wretch, who strove to injure men, whether by legal process or in the course of ordinary dealing, was called by this name. It was in Athens a term of great reproach.

SYDENHAM, Thomas, a celebrated English physician, was born in Dorsetshire, in 1624, and, in 1648, took the degree of bachelor of medicine at Oxford. He subsequently commenced practice as a physician at Westminster, and speedily attained great reputation. From 1660 to 1670 he held the first place in his profession, though it was not till the latter part of his career that he became a licentiate of the college. Being a great sufferer from the gout, he was unable, in the latter part of his life, to go much from home; but he continued to benefit society by his writings and advice till near the time of his decease, in 1689. Doctor Sydenham's improvements form an era in the history of medicine. He first applied himself to an attentive observation of the phenomena of diseases, founding his practice on the obvious indications of nature, rather than on prevalent theories, drawn from the principles of chemistry or mathematics. Febrile disorders attracted his especial notice, and, in 1666, he communicated to the public the result of his observations, in a work entitled *Methodus curandi Febres propriis Observationibus superstructa*, which was re-printed, with additions, under the title of *Observationes Medicæ circa Morborum acutorum Historiam et Curationem* (1675). Among his principal works are *Epistolæ Responsoriæ duæ*, 1. *De Morbis epidemicis a* 1675 *ad* 1680; 2 *De Luis venereæ Historia et Curatione* (1680); *De Podagra et Hydrope* (1683, 8vo.); and *Processus integri in Morbis fere omnibus curandis*, published posthumously.

SYDNEY; capital of the British colony of New South Wales, in Australia; lat. 33° 15′ S.; lon. 151° 15′ E.; population, about 30,000. Sydney is situated on a cove, on the south side of Port Jackson, about seven miles from its mouth. The water is of sufficient depth to allow ships of the largest size to come close up to the shore. Port Jackson is one of the finest natural basins in the world, stretching 15 miles into the country, with numerous creeks and bays. The anchorage is every where excellent, and ships are protected from every wind. The streets of Sydney are built with some regard to regularity, and cover a considerable extent of ground. The best houses are of white free-stone, or brick plastered, and have a light appearance. A British air is studiously given to every thing; yet the parrots and other birds of strange note and plumage, and the show of oranges, melons, and lemons, bespeak a foreign country. There are several banks, a savings institution, schools for the poor, and several higher seminaries. Several newspapers, and other periodicals, are also published at Sydney. The whale and seal fisheries are carried on from here with success. See *Australia* and *New South Wales*.

SYDNEY; a free port in the eastern part of the island of Cape Breton, on a bay, which is sometimes called *Spanish River*, and sometimes *Dartmouth Harbour*. The entrance of the harbour is about two miles wide. The harbour itself is very large and well protected. The town stands at the head of the harbour, in a very pleasant situation, and seems to enjoy great local advantages as a commercial place. There are mines of good coal on the western side of the harbour, and the place is admirably situated for trade in lumber and fish. Still, it is neglected; and the population is only 450 or 500. It is the seat of justice for the whole island. The public buildings are the barracks, government store, commandant's house, court house, three houses of worship, and a market house. The town is well built, and has a pleasant surrounding country. Sydney is important, at present, in a commercial view, principally on account of its extensive coal mines. A great portion of the coal exported from this island has been derived from these mines; and the quantity exported from the island in 1828 was 10,000 chaldrons.

SYDNEY, Algernon and Sir Philip. See *Sidney*.

SYENE, or ASSUAN, or ESSOUAN; a town of Upper Egypt, on the east side of the Nile, six miles below the first cataract; lon. 32° 55′ E; lat. 24° 5′ N. It is the most southerly town of Egypt, forming its frontier towards Nubia. It is celebrated in the annals of ancient astronomy, for the attempt made, about 276 B. C., by Eratosthenes (q. v.), to measure the height of the sun, according to which Syene was said to lie directly under the tropic. A well was formed, which was supposed to mark the precise moment of the summer solstice, by the image of the sun reflected in it. But according to modern observations, Syene is found to lie 37′ 23″ north of the tropic. In the Nile, opposite to the town, is the island of Elephantina, remarkable for its ancient ruins and quarries of stone. There are, also, some ruins at Syene. See Burckhard's *Nubia*.

SYENITE. See *Sienite*.

SYGAMBRIANS, or SICAMBRIANS; a German tribe, which occupied the country on the Rhine, from Emmerich southwards, in the Sieg, and on the Lippe eastwardly, to the frontiers of the Bructeri. After the victories of Germanicus (q. v.) we hear nothing of them for some time; but when the Romans, by the command of Claudius, withdrew to the west bank of the Rhine, the Sygambri re-occupied their former seats, and, at a later period, formed one of the great confederacy of tribes who took the common name of Franks. See *Germany*, *History of*, and *Franks*.

SYLLA. See *Sulla*.

SYLLABLE (from the Greek συλλαβή, literally *comprehension*, or *collection*) is the least natural division of articulated speech, or, in other words, syllables are the natural elements of speech. Men have gone farther, and, in most languages at least, have divided syllables again into letters; but the circumstance that the consonants cannot be pronounced without the aid of vowels (hence their name), or as syllables, shows the natural division

of words into syllables. We may then say, with Adelung, a syllable is a sound produced by a single opening or closing of the mouth, and, consequently, consists of one vowel or diphthong, or of either together with one or more consonants. This definition has some few exceptions, according to the artificial divisions of some languages: in general it is perfectly correct. A vowel is always necessary for a syllable, though it may not always be written, nor even be supposed, by particular nations, to exist. It is evident that it would be impossible to pronounce such a word as *Srb*, the native name for Servia, without supplying some vowel sound. Syllabic alphabets are such as have signs for all the syllables composing the language, and for the syllables only. Such is the Cherokee alphabet, which has eighty-five signs, or characters, for its elementary syllables, and which has been spoken of in the article *Indian Languages*.

SYLLABUB; a kind of drink, ordinarily made of white wine and sugar, into which some new milk is thrown by a syringe.

SYLLOGISM (συλλογισμος), in logic; an argument or form of reasoning, consisting of three propositions, having this property, that the conclusion necessarily follows from the two premises, so that if the first and second propositions be granted, the conclusion must be also granted. If the premises be only probable, or contingent, the syllogism is said to be *dialectical*; if they be certain, *apodictical*; if false, under an appearance of truth, *sophistical*, or *paralogistical*. As often as the mind observes any two notions to agree with a third, which is done in two propositions, it immediately concludes that they agree with each other; or, if it finds that one of them agrees, and the other disagrees, which is likewise done in two propositions, it immediately pronounces that they disagree with each other; and such is a syllogism. Of the three propositions of which a syllogism consists, the first is, by way of eminence, called the *proposition*, as being the basis of the argument; the second, the *assumption*, as being assumed to assist in inferring the third; and both, the *premises*, as being antecedent to it. The first is called the *major*, the second the *minor*, the third the *conclusion*. As the conclusion is the principal part, it hence arises that though the proposition and assumption have each its subject and attribute, yet the subject and attribute of a syllogism are properly understood of the conclusion. In the constitution of a syllogism we may consider the matter and the form of it. The matter is three propositions made up of three ideas, or terms, variously joined, and called the *major*, *minor* and *middle*. The following proposition, for instance, forms a syllogism:—Every animal lives; man is an animal; therefore man lives. The predicate of the conclusion is called the *major term*, because it is generally of larger extent than the *minor term*, or subject. The major and minor terms are called the *extremes*. The *middle term*, or *medium*, is the third idea, so disposed in two propositions as to show the connexion between the major and the minor term in the conclusion; whence the middle term is sometimes called the *argument*. The proposition which contains the predicate of the conclusion, connected with the middle term, is usually called the *major proposition*: that which connects the middle term with the subject of the conclusion is called the *minor proposition*. In a regular syllogism, the major proposition is placed first, the minor second, and the conclusion last. Syllogisms are distributed, with regard to the question to be proved, into universal affirmative, universal negative, particular affirmative and particular negative, and with respect to their nature and composition, into single and compound. Single syllogisms may be divided into simple, complex and conjunctive. Simple, or categorical syllogisms, are made up of three plain, single or categorical propositions, in which the middle term is evidently and regularly joined with one part of the question in the major, and with the other in the minor, whence follows a plain, single conclusion. A complex syllogism is that in which the whole middle term is not connected with the whole subject, or the whole predicate, in two distinct propositions, but is intermingled, and compared with them by parts, thus:—The sun is a senseless being; the Persians worshipped the sun; therefore the Persians worshipped a senseless being. Conjunctive syllogisms are those in which one of the premises—viz. the major—has distinct parts joined by a conjunction or some such particle of speech. Compound syllogisms are made up of two or more single ones, and may be resolved into them. The chief kinds are the *epichirema*, *dilemma*, *prosyllogismus* and *sorites*. A syllogism in which one of the premises is suppressed, but so as to be understood, is called an *enthymeme*.

SYLVESTER II., whose true name was Gerbert, was born of an obscure family in Auvergne, and at an early age entered the monastery of St Gerard, in Aurillac. After laying a foundation for all the sciences cultivated in that age, he travelled into Spain to hear the Arabian doctors, and, at length, became so distinguished, that he was appointed by Hugh Capet preceptor to his son Robert. Otho III., emperor, who had also been his pupil, conferred upon him the archbishopric of Ravenna; and on the death of Gregory V., in 999, procured his election to the papacy, when he took the name of Sylvester. He acted with great vigour in this capacity, and maintained the power of the church with a high hand. He was also a great promoter of learning, and a proficient in various branches of science himself. He expended large sums in the collection of books; composed a number of works, particularly on arithmetic and geometry; and with his own hands made a clock, a globe, and an astrolabe. A number of his letters, on various subjects, were printed at Paris in 1611; but the most complete collection has been given by Du Chesne. He died in 1003.

SYLVIUS, ÆNEAS. See *Piccolomini*.

SYMBOL (in Greek συμβολον; Latin, *symbolum*; from συμβαλλω, to suspect, divine, and compare); a word of various meaning even with the ancients, who used it to denote a sign, a mark, watchword, signal, token, seal-ring, &c. Its meaning is still more various in modern times. *Symbol* is generally used as synonymous with *emblem*. It is not confined, however, to visible figures, but embraces every representation of an idea by an image, whether the latter is presented immediately to the senses, or merely brought before the mind by words. Men, in the infancy of society, were incapable of abstract thought, and could convey truths only by means of sensible images. In fact, man at all times has a strong propensity to clothe thoughts and feelings in images, to make them more striking and living; and, in the early periods of our race, when man lived in intimate communion with nature, he readily found, in natural objects, forms and images for the expression of moral truths; and even his conceptions of the Deity were derived directly from

natural objects. Every thing in nature was an image and sign of the Deity; every natural phenomenon was regarded as divine. The priests, who had advanced in intelligence beyond the great body of the people, when they attempted to communicate such ideas of the Deity as the people did not find directly in nature, or to explain the laws of nature, were obliged to use images to make themselves understood. These images were in part verbal, in part addressed immediately to the senses. But, however strikingly a symbol may embody an idea, it is always attended with some uncertainty and liability to various interpretations. The attributes differ from the symbol in this circumstance, that the former is only a peculiar sign, added to an image for the sake of more perfect representation; the latter is independent and intelligible of itself: all attributes are symbols, but all symbols are not attributes. Though attributes are used to express not only moral conceptions, but also actions and historical facts, they still remain a kind of symbols, expressive of the spirit and essential character of the action or fact. Allegory always has an artificial laboured character: the symbol ought to be a natural expression of an idea. It is not necessary that the symbol should comply with the rules of art, and be beautiful in itself; the chief thing required is, that it should actually designate ideas in a lively manner. Thus the forms in Indian and other mythologies, often strange, and sometimes even disgusting, are not less genuine symbols, than the harmonious and beautiful forms of the Greeks. In a narrower sense, however, the images and conceptions of Greek mythology and art have been called, in modern times, *symbolical*, and contradistinguished to the allegorical. In this case, *symbolical* means chiefly the perfect embodying of the spiritual in a form entirely appropriate to the idea. The symbol relates particularly to the highest ideas—those of a religious character. The idea may be more or less perfectly apprehended, so that the same symbol may convey very different notions to different persons. Thus we find the same symbols which were presented to the people in the rude forms of ancient heathenism, and which the people but imperfectly understood, preserved also in the most elevated systems of philosophical religion, with their meaning fully unveiled. The initiated fully understood the symbol; the people, who had perhaps lost its original signification, required to have it explained to them. The more a religion is confined within the limits of the visible world, the more immediately its doctrines are derived from the phenomena of nature; the richer is it in symbols; whilst a revealed religion, whose doctrines are addressed more directly to the intellect, and contain ideas beyond the circle of the phenomena of nature, will become necessarily poorer in symbols, and richer in distinct notions. Paganism, therefore, abounds so much more in symbols than Judaism and Christianity. Symbols are also the signs through which the Deity is believed to reveal his will, or unveil futurity, or manifest his power. Such signs may be particular displays of the powers of nature, or voices, prophetic words, and oracles. The word *symbol* further received a particular application in the Greek mysteries, which clothed their mysterious doctrines in symbols and maxims, not only in order to veil them from the uninitiated, but also to present them to the initiated in the most expressive images. And, as the initiated recognised each other by signs and words, which were peculiar to the mysteries, and presupposed the knowledge of their meaning, such signs were called also *symbols*. But as the use of such signs recalled also the sacred obligation entered into at the time of initiation, particularly that of silence, and of living in a manner corresponding to the doctrines of the mysteries, therefore a sacred obligation, a vow, made to God, a fellow man, or a society, was called *συμβολον*, which term is also applied to the oath of soldiers, and to the watch-word or sign by which those on the same side recognised each other, or communicated something to one another in a way unintelligible to the enemy. *Symbol* also signified a token, by which those who had given and received hospitable entertainment recognised each other at a future time, or which was given as a pledge of any contract or obligation.

Christian Symbols. The various meanings of the word *symbol*, all originating from one root, existed already, as we have seen, before the Christian era, and naturally found their application in the Christian church. There was already a sacred meaning connected with the word; and opposed to paganism as the first Christians were, and averse to receive any thing of it into their church, yet a word of this character would not appear objectionable to them. Besides, the anxious fear of every thing which savoured of paganism, had already considerably diminished when the word *symbol* became general among Christians. Christian teachers may even have felt themselves called upon to show that they also had their symbols, when the persons initiated into the heathen mysteries often boldly opposed their doctrines to those of the Christians, and pointed to their mysterious symbols as means of distinction and sanctification. The Christians also treated their symbolic doctrines and rites as sanctifying rites, constituting signs of recognition and means of union among the members of their community, and separating them from the whole of paganism and Judaism. They therefore called the sacraments *symbols*, as visible signs of an invisible salvation; and not only signs, but, properly speaking, pledges of this salvation, and of the divine promises and grace. In this sense, baptism and the Lord's supper, as the proper sacraments, are called *symbols*, yet always with a sanctifying epithet; so also are the water of the fount, and the bread and wine. Symbols, further, are all Christian rites, all exercises of worship, as far as they are considered necessary expressions of the ideas designated by them. The sacraments and rites are also symbols in the sense of signs of distinction; because every one who partakes in them, shows thereby that he belongs to the Christian community; and even the mere sight of the sacraments was originally prohibited to the unbaptized. These symbols must be distinguished from the *types*, so called, viz. the persons, rites, &c., of the Old Testament, which prefigured what is told in the New. Certain signs of the Christian church are symbols in the proper sense of the word; as the sign of the cross, and the Virgin with the Child. Besides these, there are the *symbolic attributes*, by which artists distinguish the various evangelists, saints, apostles, &c., in their representations; e. g. to Matthew is always added the man, to Mark the lion, to Luke the ox, to John the eagle—the four creatures which appeared in the vision of Ezekiel. The name of *symbols* is also given, in the Christian church, to those doctrines, expressed in short formulæ, which are acknowledged by all Christians; therefore to the confessions, so called, which con-

tain the essential points of the belief of the various sects. The Holy Scriptures remain the true foundation of faith and the rule of the faithful; but the symbolic confessions are intended to give a short sketch of the opinions of all the members of each religious sect respecting the truths to be acknowledged as the essential doctrines of the Bible, and to prevent arbitrary interpretations of it. Symbols, in this sense, are not put upon an equal footing with the Bible; but because, according to the opinions of the sect, they contain the sense of the Bible, every one must profess his belief in them, who wishes to be acknowledged as a member of the particular denomination. For the symbolic books, see *Creeds*.

SYMBOLICS; the science which treats of the symbols of the various religions, particularly of the ancient religions, founded on the manifestations of the Deity in the phenomena of nature, or whose doctrines are given in symbols taken from natural objects. See the articles *Symbol*, and *Creutzer, George Frederic*.

SYMPATHETIC CURES; pretended or real cures, not by means of physic, but of the secret powers of bodies, which do not necessarily come into direct contact with the patient, but have a mysterious influence on his condition. The operation is attributed to a certain sympathy of the sufferer with other individuals, or with spirits, stars, animals, plants, stones, &c. Full belief in the power of such means of cure has a very great effect in such diseases as are chiefly seated in the soul, or in the nervous system, e. g. diseases of the mind, epilepsies, &c.

SYMPATHETIC INKS. See *Ink*.

SYMPATHY (from συν, together, and πασχω, I suffer), in physiology, is that quality of the animal organization, by which, through the increased or diminished activity of one organ, that of others is also increased or diminished. The idea of an organized system—the union of many parts in one whole, in which all these parts correspond to each other—includes the idea of a mutual operation, of which sympathy is a part. The medium between the organ from which the action proceeds and that to which it extends, has been sometimes supposed to be the nervous system, sometimes the vascular or the cellular system, or the juices; and it cannot be denied, that, in some sympathetic phenomena the nerves and the vessels appear to be the media; but there are objections to considering them as the cause of sympathy in general, for experience teaches, that sympathy takes place also between such organs as have no discoverable connexion by nerves or vessels. The phenomenon of sympathy appears even in the healthy body; e. g. a strong light, thrown upon the eye, sometimes produces sneezing; tickling causes laughing; and some physiologists have even called the change of voice at the age of puberty, and the increased secretions of the liver, the salivary glands, the pancreas, and the coats of the stomach at the time of digestion, a sympathetic action. But the effect of sympathy is much more often observed in diseases. There is hardly one in which some phenomena are not to be explained by sympathy. *Sympathy* is further used to express the influence of the state of one individual upon another, e. g. the tickling in the throat, caused by the cough of another person; or the yawning produced by seeing another yawn; or the sorrow produced by witnessing his grief. The effects of animal magnetism are also ascribed to sympathy, and those which the sight of some animals is said to have upon some men.

SYMPHONY (from the Greek συμφωνία; in Italian, *sinfonia*). The word *symphony*, in the ancient music, signifies the union of sounds which forms a concert. When the whole concert was in *unison*, it was called a *symphony*; but when one half of the performers were in the octave, or double octave, of the other half, it was called *antiphony*. At present the word *symphony* is often applied by the French and English to overtures, and other instrumental compositions, consisting of a variety of movements, and designed for a full band. The introductory, intermediary, and concluding instrumental passages in vocal compositions are also called *symphonies*. But the Germans use *symphony* as contradistinguished to *overture*, which, according to its true meaning, ought to be dependent upon the piece to which it forms the introduction. It should contain the chief ideas of the piece, or at least indicate the fundamental disposition of the whole, on account of which, most composers write their overtures after they have finished the pieces for which they are intended. The symphony, on the other hand, is an independent piece, and is therefore capable of a fuller developement of musical ideas. Formerly the overture was used for the symphony. Sulzer, in his General Theory of the Fine Arts, says, "The difficulty of executing an overture well, and the still greater difficulty of composing a good one, has given rise to the easier form of the symphony, which consisted originally of one or more fugue pieces, alternating with dancing music of various kinds, and was generally called *partie*. The overture, indeed, maintained itself still at the beginning of great pieces of church music and of operas, and the *parties* were used only in chamber music; but people became tired of dancing music, unaccompanied by dancing, and were at last satisfied with two allegros, alternating with a slow passage. This species of composition was called *symphony*, and used both in chamber music and before operas and pieces of church music. The instruments necessary to a symphony are the violin, tenor violin, and bass instruments—a number of each: flutes, horns, hautboys, may be added. Among the old composers of symphonies, Benda, Bocherini, Dittersdorf, Pleyel, &c., were famous, but are now mostly forgotten. The greatest modern masters in this kind of composition are Haydn, Mozart, Beethoven.

SYMPLEGADES (Συμπληγαδες, from συμπλησσω, to dash together); small rocky islands at the mouth of the Thracian Bosphorus, which were fabled to strike together, and destroy ships, as they passed. Juno conducted the Argonauts safely through them, and Orpheus rendered them immovable by his lyre. They were also called *Cyanean* (κυανεος, azure) islands or rocks, from their blue appearance.

SYMPOSIA; the feasts of the ancient Greeks. See *Feasts of the Ancients*.

SYMPOSIARCH; he who provided all things necessary for a συμποσιον. See *Feasts of the Ancients*.

SYMPTOMS, in medicine; the phenomena of diseases, from which we infer the existence and the nature of the disease. Symptoms have their seat in the functions which are affected by the disease so as to be raised above their usual activity, or depressed below it, or even to become changed in the nature of their action. The organs themselves are often changed in their appearance, structure, size,

&c. Symptoms may be perceptible by the patient alone (e. g. pain, and all change of sensations), or by the physician also (e. g. all diseased movements). The more a function or an organic system is extended through the body, the more frequently will it be the seat of morbid phenomena: the nervous, the vascular and the cutaneous systems, for instance, are affected in most diseases; hence also irritability, the power of nutrition, &c., which extend through the whole organization, are so easily affected by diseases, and thus afford symptoms. If the latter are in the organs originally affected, they are called *idiopathic;* but if they are caused by sympathy in other and distant parts, they are called *consensual* or *sympathetic.* The temperament, age, sex, mode of living, &c., of the patient, produce a considerable variety in the symptoms of every disease. They are sometimes further divided into symptoms of disease, symptoms of causes, and symptoms of symptoms. The first are the essential indications of the disease: they may be idiopathic or consensual. The symptoms of the cause are such as are accidentally produced by the cause of the disease; e. g. when a cold, which produces an inflammation of the lungs, produces at the same time rheumatic pains, coughs, &c., the latter, being of secondary importance, are considered mere symptoms of the cause, which has produced the chief disease—the inflammation. Symptoms of symptoms may be illustrated by the case of vomiting, which, being occasioned by a disordered state of the stomach, may itself produce great pain, spitting of blood, &c., which would then be symptoms of a symptom. That symptom which contributes chiefly to indicate a disease, is called the *pathognomic* symptom.

SYNAGOGUE (from the Greek συναγωγη, an assembly); the place in which the Jews assemble on the Sabbath (Saturday) to offer prayers, and listen to the reading of the Old Testament and to religious instruction. They were first introduced after the Babylonish captivity, and were originally applied to purposes of instruction; but after the destruction of the temple by the Romans, religious services were performed in them. Each synagogue has a rabbi or president, several elders, a reader, door-keeper, and a receiver of alms. The liturgy of the modern Jews, of which there are copies in Hebrew and the modern languages, is not very different from the Christian liturgies, which were formed in imitation of it. It comprises prayers for the Sabbath, and for the fast and festival days. The date of its composition is uncertain. The nineteen daily prayers are recited every day, either in public at the synagogue, or wherever the person may happen to be. In the time of our Saviour, any person could conduct the services; but this duty is now usually discharged by a rabbi. The prayers are repeated aloud by the whole assembly.

SYNCHRONISM (from συν, with, together, and χρονος, time) is the placing together the accounts of contemporaneous persons or events. To this method is opposed the *ethnographic*, which connects all belonging to the same nation. Synchronistic tables are very useful.

SYNCOPE, in physiology and medicine; fainting; a considerable diminution or complete interruption of the motion of the heart and of the function of respiration, accompanied by a suspension of action in the brain, and consequent temporary loss of sensation, volition, and the other faculties, of which the brain is the organ. It takes place from a variety of causes, some of an exciting, others of a depressing nature. It is familiar to hypochondriac and hysteric persons, and may be brought on in all those who have much mobility of nerves by any sudden or violent emotion, or even strong sensation. It is a very usual consequence of violent pain, such as that which accompanies a surgical operation. Women are more prone to fainting than men, in consequence of greater susceptibility to impressions made on the nervous system. But we find, even among men, frequent peculiarities of constitution, which, notwithstanding general strength of frame, dispose them to faint, from causes which appear slight, such as certain odours, the sight of blood, a wound or sore, the presence of a cat, mouse or spider, or other objects for which a person has conceived an unaccountable aversion. Sometimes the cause is to be found in disturbed digestion, worms, and other irritations acting upon the nerves of the stomach or intestines. Other causes act more directly on the circulation, as the sudden depletion of the blood-vessels by hæmorrhage, or by large evacuations of any kind, such as purging, vomiting, or even sweating. The removal of fluids which have collected in any part of the body, such as the hydropic water in ascites, or the matter of a large abscess, is often followed by fainting. Causes which suddenly diminish the supply of blood to the head, tend peculiarly to produce it in those who are disposed to it. This sometimes happens from rising suddenly from the horizontal position, and stretching out the arms towards an object placed above the head, as in reaching a book from a high shelf in a library. Fainting sometimes marks the invasion of acute diseases, and is sometimes a symptom of some mechanical obstruction to the circulation from organic affections of the heart or of the large vessels in its vicinity. The recovery of the patient from the actual fit, is, in general, easily effected, by merely placing him in a horizontal position, dashing cold water on the face and hands, or chafing the temples with stimulant ammoniacal liquids; which may also be held to the nostrils when the breathing is not entirely suspended. If the fit is of long continuance, it is proper to employ the same means as are used for the recovery of drowned persons. Frequent fainting, especially if it be found to observe certain periods, or to occur more particularly upon waking in the morning, is a mode in which epilepsy very often commences; and when this is suspected, no time should be lost in applying the proper remedies.

SYNCRETISM; the attempt to reconcile discordant views, particularly religious views. There are various derivations of the word. Plutarch (*De Fraterno Amore*) derives it from the name of the island of Crete; the tribes of which, he says, endeavoured to protect themselves by compacts among themselves against internal feuds and attacks from without. The Protestant parties were early called upon to unite, like the Cretans, against the Roman see; for instance, by professor Dav. Pareus, of Heidelberg, towards the end of the sixteenth and the beginning of the seventeenth century. At a later period, the word received another meaning and was derived—probably more correctly—from the Greek συν and κερασαι (to mix). In the sixteenth century, when the study of ancient literature was revived in Italy, and Plato came in repute, in addition to the general favourite Aristotle, some scholars, as Joh. Francis Pico (see *Mirandola*), Bessarion and others,

who honoured Plato much, but were unwilling to give up Aristotle entirely, were called *syncretists*. In the same way the term *syncretism* was applied to the union of the academicians and peripatetics. It was particularly used of the Alexandrian school. This word came into general use in Germany after the beginning of the seventeenth century, when George Calixtus, professor of theology at Helmstädt, having acquired liberal opinions far in advance of his age, attempted a union of the various religious parties. *Syncretist* then became a word of great odium.—See Walch's *Introduction to the Controversies of the Lutheran Church* (in German).

SYNDIC, in government and commerce; an officer, in various countries, intrusted with the affairs of a city, or other community, company of art or trade, &c., who calls meetings, makes representations and solicitations to the magistracy, &c.

Syndic is also a person appointed to act in some particular affair, in which he has a common interest with his constituents, as when he is one among several creditors of the same debtor.

SYNECDOCHE, in rhetoric: a figure in which the whole of a thing is put for a part of it only, or a part for a whole. This figure is of very considerable latitude, and is used, 1. when the genus is put for the species; 2. when the species is put for the genus; 3. when the essential whole is put for one of its parts; 4. when the matter or form is put for the whole being; 5. the whole for a part; or, lastly, the part for the whole.

SYNEDRIUM. See *Sanhedrin*.

SYNOCHA, AND SYNOCHUS. See *Fever*.

SYNOD; an ecclesiastical assembly convened to consult on church affairs. (See *Council*.) A synod may be composed of a bishop and the clergy of his diocese (*synodus diœcesalis*, diocesan synod), or of an archbishop and the bishops of his province (*synodus provincialis*), or of the whole clergy of a state under a papal legate (*synodus universalis*, or *nationalis*). Synods, in the Presbyterian church, are composed of several adjacent presbyteries. (See *Assembly, General*, and *Scotland, Church of*.) The convocations of the English clergy are provincial synods; but they have virtually expired. (See *Convocation*, and *England, Church of*.) The holy synod at Petersburg is the supreme ecclesiastical council of the Greek church in Russia. (See *Greek Church*, and *Russia*.) The superintendents and inspectors, with their parochial clergy, also form synods in Lutheran countries, but rather for purposes of advice and mutual encouragement, than of exercising any controlling authority.

SYNONYMES, or words having the same signification, strictly speaking, do not exist in any language. Different dialects of the same language may indeed have different words of the same meaning; but as soon as these pass from the dialect into the literary or generally adopted language, they either take the place of some other word of the same signification, or receive themselves a new shade of meaning, and are then added to the others. It is true that the similarity in the meaning of words is often so great that much discrimination is required to ascertain the different shade of each word; and an abundance of such synonymes proves great acuteness in a nation. The languages of the East, so rich in metaphors and imagery, manifest the vivid imagination of its inhabitants, while most of the languages of Western Europe, by their numerous synonymes, demonstrate the acuteness of those who speak them. The Arabian language, equally distinguished for the copiousness of its imagery and the number of its synonymes, strikingly exhibits the wit, imagination and discrimination of this people. The more a nation advances in civilization, the more it classifies ideas, unites the various species under the genus, and the more synonymes are required, as they are words which, with a general resemblance, have characteristic differences, as *cruelty* and *atrocity*, *riches* and *treasures*. Synonymes form an important subject of philological study, and one which requires much knowledge of the etymology and history of the language investigated. The want of works in this branch of study was early felt. Towards the end of the second century, Jul. Pollux wrote his *Onomasticon*—a work of some merit, on Greek synonymes. Vaugelas, Girard, Beauzée and Roubaud have written on French synonymes; Blair, David Booth, and Crabb on English; Stosch, Heynatz, Eberhard (continued by Maass and Gruber), on German; and doctor Ramshorn (Altenburg, 1828) has lately republished the Latin synonymes of Dumesnil (Ernesti's edition).

SYNTAX (*σύνταξις*, construction); that part of grammar which treats of the manner of connecting words into regular sentences. A word expresses a single notion, but by itself is little more than an articulate sound, which, like the cry of animals, intimates a wish or a feeling. A succession of such sounds, properly arranged and connected, becomes language. The art of constructing sentences is, therefore, not less important than the power of speech; it is, indeed, the intellectual part of language, and a characteristic of reason. One class of words—the particles, or the accessory parts of speech, as they are sometimes called—serve merely to indicate the relations in which the principal or necessary parts (noun and verb) stand towards each other, or rather like the sinews of the human body, to bind together what would otherwise be a heap of disconnected and useless limbs. In every language, there is some fundamental principle, which pervades and regulates its whole construction, although it may occasionally admit of particular variations. Passion, or the excited imagination, for instance, will often violate, as the grammarians call it, the general laws of construction. In some languages, the principle of juxtaposition prevails, and little diversity of arrangement is possible. The relations of the subject, the action and the object are indicated by their respective positions. In the transpositive languages, these relations are indicated by the changes in the forms of the words; and the modes of arrangement are various. Still, in the structure and disposition of sentences and parts of sentences, the logical relations of the thoughts must regulate the construction, even where it appears to be most arbitrary. See *Language* and *Philology*.

SYNTHESIS (literally, *connexion*, *union*) is a term used generally as contradistinguished to *analysis*. Combining and separating are the chief operations by which we acquire knowledge; the former, however, is first in time. When an object is presented to our vision, we form the idea of a whole out of its parts; but the intellect in forming general notions, separates the given subject (analysis), and then unites (synthesis) what is common to several things, excluding what is peculiar to each. A synthetic or progressive proof or demonstration is one which proceeds from the reasons to the consequences, or from the general to the special: an analytical or regressive one ascends from the consequences to the reasons. This also explains the

meaning of the expression *synthetic* and *analytic* method; the former is that process in science, which begins with the principles, and from them deduces a particular conclusion, as is strictly done in mathematics; yet mathematicians themselves give the name of *synthesis* to that part of their science which contains the proofs of the theorems already laid down; *analysis* they call that part which seeks to form theorems.

SYNUSIANS. See *Apollinarians*.

SYPHAX, king of the Massæsylians in Africa, allied himself with the Romans in the second Punic war, but, being repeatedly defeated by Masinissa, was prevented from joining Scipio in Spain. But this state of things was soon changed. Masinissa was deprived of his crown by a usurper; and Syphax was thus enabled not only to return into his dominions, but, deserting the alliance with the Romans, and joining the Carthaginians, to conquer the kingdom of his rival. Syphax, to whom Hasdrubal had given in marriage his daughter Sophonisba, who had been previously betrothed to Masinissa, declared in favour of Carthage, on the appearance of Scipio and Masinissa with an army in Africa, and raised a large body of troops in her cause, but was defeated and made prisoner. Livy says that death spared him the disgrace of being carried into Rome in triumph by Scipio; but Polybius, the friend of Scipio, states that he formed a part of the triumphal procession of the conqueror.

SYPHILIS (from the Greek σφίλος, feeble); the name now most frequently used for the venereal disease, which is thus called in a very fine poem, written in Latin hexameters, by the Italian Fracastorio (first printed in Venice, 1530, 4to.) The history of this disease is one of the most difficult parts of the history of medicine. It is uncertain whether that violent and truly epidemic disorder of the skin, which appeared in the last ten years of the fifteenth century, was really what we now call syphilis, or not rather a variety of the leprosy, which soon after entirely disappeared. Towards the end of the fifteenth and at the beginning of the sixteenth century, a disease, till then unknown, appeared in Europe, and which, by its rapid extension, its horrible consequences, its great contagiousness, the inefficacy of all the remedies employed against it, perplexed the physicians, and excited a general horror. Respecting its origin, nothing certain is known. The physicians of that time were, generally speaking, too ignorant to investigate the origin of a disease which they were but rarely able to cure. Until lately, it was pretty generally believed that this malady was carried by the vessels of Columbus from America to Europe; but the most accurate examination of this opinion shows its incorrectness. The first author who expresses this opinion was a physician of Nuremberg (Germany), of the name of Leonhard Schmauss, in 1518: he founded his opinion upon the fact that the Guaja wood, which had been introduced from America in the meantime, had become known as a good remedy for the disease; for, said he, nature always provides an antidote in the vicinity of a poison. The principal support which his opinion received was from the testimony of the son of Columbus, and his successor Oviedo; but the first speaks only of a disease like scald head said to predominate in St Domingo; and the other, a tyrant, like most of the Spaniards in America at that period, delights in representing his nation as the favourite people of God, and the Americans as cursed. A careful inquiry shows only that the crew of Columbus brought a contagious disease with them, which destroyed the greater part of their number, and communicated itself to those who had intercourse with them. This is easily explained by the imperfect care taken of the health of such a crew, and the uncommon hardships of such a voyage in those times. At all events, their complaint was not the venereal disease, as this broke out almost at the same moment, in the summer of 1493, in the south of France, in Lombardy, and in the north of Germany. Now, the vessels of Columbus did not arrive till April at Seville; and the disease could not possibly have spread so far from this place within two months. Others have sought for the origin of this disease in the expulsion of the Marranos (secret Jews) from Spain, between 1485 and 1493. Many thousands of these unhappy persons died of the plague on their passage by sea to Italy, Greece, &c. Thousands of others suffered by the leprosy; and, without doubt, they carried misery and sickness with them wherever they went. But that this particular form of disease existed among them cannot be proved; and, moreover, though Germany was not visited by these emigrants, the syphilis showed itself simultaneously, in 1493, in Halle, Brunswick, Mecklenburg, &c. As to the opinion that the venereal disease had always existed in some form, it only amounts to a play upon words, as a mere diseased state of the genitals is far from amounting to syphilis, especially if we consider the horrid consequences which that disease produced at the time referred to. The most probable conclusion is, that the venereal disease was produced by an epidemic tendency existing at that time, which gave this new form to the leprosy then so widely spread. The ancient writers, for many years, described syphilis more as a terrible disease of the skin and bones in general than as a mere affection of particular parts; more as a plague than as a disorder of particular individuals. A new form of disease could be developed the more readily, as the political relations of that time brought the nations very much into connexion with each other: Spaniards, French, Germans, traversed Italy, and all these, together with the Italians, spread through Germany. The disease brought by the sailors from America, akin to scurvy, may also have contributed its part. It is certain that the disease was then far more terrible than now. It made the patient an object of horror to his friends, and almost inevitably reduced him to despair, as no physician was able to aid him, and the remedies used were almost as shocking as the disease. Since contagion, at that period, took place much easier than now, and houses of ill fame, which contributed greatly to spread the disease, were found every where, the disorder had by no means the same character of disgrace connected with it as at present. On the contrary, Ulrich von Hutten, who suffered from it for years, and at length recovered his health by the use of guaiacum, and the strength of his constitution, always enjoyed public esteem, and even dedicated his work on the disease to the first spiritual prince of Germany, without indecorum or offence. Like other diseases, it gradually diminished in virulence, particularly after Paracelsus had found in mercury, and Swediauer in acids, the most effective remedies against it; and great suffering does not arise from it at present except in consequence of neglect. Yet it is still a formidable disease, as it injures more or less the general health, and lays the foundation for other diseases of a very

obstinate character—gout, rheumatism, complaints in the bladder, &c.

SYPHON. See *Siphon.*

SYRACUSE (now *Siragosa*, with a population of 13,800 souls), anciently the chief city of Sicily, and one of the most magnificent cities in the world, with 300,000 inhabitants, is now greatly reduced, but still has an excellent harbour, capable of receiving vessels of the greatest burden, and of containing a numerous fleet. The ancient city was of a triangular form, twenty-two miles in circuit, and consisted of four parts, surrounded by distinct walls, namely, Ortygia, between the two harbours; Acradina, extending along the sea-side; Tyche, so called from its containing a temple of Fortune (Τυχη), an inland division; and Neapolis, forming the western part. At present, the only part inhabited is the south-east corner, containing Ortygia and a part of Acradina. Siragosa is insulated, walled, and entered by drawbridges. The streets are regular, but narrow, and the houses tolerably built. It contains an hospital, and a number of churches and convents. The cathedral is the ancient temple of Minerva. The papyrus is found in the neighbourhood. Syracuse was founded by a colony of Corinthians, B. C. 736. It became the largest and most wealthy city in Sicily, and, according to Thucydides, possessed a greater population than Athens, or any other Grecian city. It was at one time governed as a republic, at another by Gelon, Hiero, Dionysius (see these articles, and *Timoleon*), and other rulers. It was besieged, B. C. 414, by the Athenians; and again, B. C. 215, by the Romans, under Marcellus and Appius. It was defended near three years by the genius and enterprise of Archimedes (q. v.) but at last fell into the hands of the Romans (B. C. 212), and continued in their possession till the downfall of their empire. Here are remains of the ancient amphitheatre, of an oval form, 300 feet in length and 200 in breadth: the arena, seats, and passages of communication, were cut out of the rock. The catacombs (q. v.) still exist, and form a remarkable feature of Syracuse. They are only seven or eight feet high; but their extent is such that they form a kind of subterranean city, with a number of narrow streets, some of which are said to be a mile long, and contain tombs and sepulchral chambers. The speaking grotto, or, as it was called by the ancients, the *Ear of Dionysius*, is a cave 170 feet long, 60 high, and from 20 to 35 wide, with so strong an echo, that the slightest noise is overheard in the small chamber near the entrance, in which Dionysius is said to have listened to the conversation of his prisoners. The fountain of Arethusa, still a striking object, from its discharge of waters, now serves merely as a resort for washerwomen. Theocritus and Archimedes were natives of Syracuse; and the Romans found here an immense number of works of art, which they carried off to Italy. See *Sicily.*

SYRENS. See *Sirens.*

SYRIA; a country of Western Asia, bordering on the Mediterranean sea, and forming a part of the Ottoman empire. It is called by the Arabs *Al-Scham*, or *Bar el Cham;* by the Turks and Persians, *Sur* or *Suristan;* and in the Scriptures, *Aram.* It has Asia Minor, or Natolia, to the north, the Euphrates and the great Arabian desert on the east, Arabia Petræa to the south, and the Mediterranean on the west. It is divided into four pachalics, Aleppo, Tripoli, Damascus and Acre. Square miles, about 50,000; population, 2,400,000. The chief towns are Aleppo, Damascus, Hamah, Hems, Jerusalem, Antioch; the seaports, Alexandretta, Tripoli, Bairout, Saida (Sidon), Sur (Tyre), Acre and Jaffa. The leading features in the physical aspect of Syria consist of the great mountainous chains of Lebanon, or Libanus, and Anti-Libanus, extending from north to south, and the great desert lying on the south-east and east. The valleys are of great fertility, and yield abundance of grain, vines, mulberries, tobacco, olives, excellent fruits, as oranges, figs, pistachios, &c. The climate, in the inhabited parts, is exceedingly fine. The commerce has never been so great in modern as in ancient times, and has of late diminished. An extensive land communication was formerly carried on from Syria with Arabia, Persia, and the interior of Asia; but it has been interrupted by the disturbed state of the countries. Syria is inhabited by various descriptions of people, but Turks and Greeks form the basis of the population in the cities. The only tribes that can be considered as peculiar to Syria are the tenants of the heights of Lebanon. The most remarkable of these are the Druses and Maronites. (See the articles.) The general language is Arabic; the soldiers and officers of government speak Turkish. Of the old Syriac no traces exist. No country was more celebrated in antiquity than Syria. In the south-west was the land of promise, the country of the Israelites, and the cradle of Christianity. (See *Palestine.*) Phœnicia, particularly its cities of Tyre and Sidon, were famous for commerce. Damascus was long the capital of a powerful kingdom, and Antioch was once a royal residence, and accounted the third city in the world in wealth and population. Balbec and Palmyra still exhibit splendid ruins of their ancient greatness. (See the articles.) Here have the Assyrians, Jews, Greeks, Parthians, Romans, Saracens, the crusaders, and the Turks, struggled at different periods for possession. Ninus, Semiramis, Sesostris, Alexander, Pompey, Antony, Cæsar, Titus, Aurelian, &c.; at a later period, Godfrey of Bouillon, Richard Cœur de Lion, Saladin, &c., (see *Crusades*); and, still more recently, Napoleon and Mahomed Ali, have in turn acted a part on the plains of Syria. Ignorance, superstition and barbarism now cover the land, and no traces of its civilization remain but ruins. See *Turkey.*

SYRIAN LANGUAGE. See *Semitic Languages.*

SYRIAN OR CHALDÆAN CHRISTIANS is the name which the Nestorians give to themselves, because they use the ancient Syrian in their religious service: they also possess the New Testament in this language. This Christian sect was formed in the fifth century, by the union of the adherents of Nestorius (see *Heretic*), who had been excommunicated, in 431, by the synod of Ephesus, on account of refusing to call Mary the mother of God, and to give up the doctrine of the existence of two natures in Christ. Though this doctrine of two natures in Christ was soon after received into the creed of the orthodox church, and monophysitism (see *Monophysites*) was declared heretical, yet the Nestorians, who would only call the virgin Mary the mother of Christ, remained excommunicated, and, towards the end of the fifth century, established their ecclesiastical constitution under the protection of the king of Persia, to whom they had fled. The other Christians in Persia joined them in 499, and they gained many adherents in Eastern Asia, where the Christians of St Thomas

also joined them. In the eleventh century, they converted the Tartar tribe, whose Christian ruler is known in history under the name of *Prester John*. His people remained attached to Christianity and the Nestorian faith, after having been reduced, in 1202, by Gengis Khan, under the dominion of the Mongols. Until the wars of Timour, in the fourteenth century, there existed, also, in Central and North-eastern Asia, Nestorian communities. The Nestorians are believed to have carried Christianity even to China, as has been concluded from a Christian document of the year 781, found in China; and the connexion of Lamaism with Christianity has also been explained by the influence of Nestorian missions. The chiefs of the Syrian Christians are hereditary patriarchs. The principal one among them resided, in the fifth century, in Babylon; at present, he resides at Elkesh, near Mosul, in Mesopotamia, and has the title *Catholicos*. Under him are five bishoprics. He, and another Nestorian patriarch at Diarbekir, in Syria, acknowledge, at present, the supremacy of the pope, and are, with their flocks, united Nestorians, who, like the united Greeks, have retained their old rites. They have only been obliged to renounce the marriage of the priests, and to adopt the seven sacraments. The doctrine and worship of the Nestorians agree perfectly with those of the orthodox Greek church, except that they are hostile to pictures in the churches, where they allow no image but that of the cross to be seen. The Syrian patriarch at Giulamork, in the high mountains of Acaria, and the bishops and dioceses under him, do not belong to the united Nestorians. The Syrian language is a Semitic dialect, and important for the study of Hebrew. The study of it was first scientifically pursued by Michaelis, the father, then by his son, in 1748, afterwards by the Swede Agrell, and, since that time, particularly by A. Theoph. Hoffmann at Jena (*Grammatica Syriaca*, Halle, 1827, 4to.).

SYRINX; a Naiad, daughter of the river Ladon, in Arcadia. Flying from the pursuit of Pan, she was arrested in her course by the waters of the Ladon, and calling upon her sisters for aid, was changed by them into a reed. The wind sighing through it produced sweet sounds, which charmed the god, who made himself a pipe from the reed, and called it *syrinx*. The syrinx was composed of seven pieces of reed, of unequal length, joined together with wax, and was the favourite instrument of the Greek and Latin shepherds.

SYRTES; two large sand banks in the Mediterranean, on the coast of Africa, one of which was near Leptis, and the other near Carthage. The Syrtis Minor, or Lesser Syrtis, is in the south-east part of Tunis; and the Syrtis Major (now Sidra) in the eastern part of Tripoli.

SYRUPS are viscous liquids, in the composition of which are commonly put two parts of sugar to one of some liquid. Generally, water, charged with the remedial principles of plants, is used in the preparation of syrups. The process, varied according to the nature of the remedies employed, may be conducted with or without heat. These preparations are likewise simple or compound.

SYSTEM (Greek, *συστημα*, a putting together); an assemblage of facts, or of principles and conclusions scientifically arranged, or disposed according to certain mutual relations, so as to form a complete whole. The object of science is to collect the fragmentary knowledge which we possess, on any subject, into a system, classifying natural objects into orders, genera and species, according to their peculiar properties, or distributing them according to their powers and reciprocal relations, and arranging maxims, rules, facts and theories into an organic, living body. (See *Method*.) *System* is, therefore, sometimes nearly synonymous with *classification*, and sometimes with *hypothesis*, or *theory*. Thus we speak of a *mythological system*, or a *chronological system*, in the historical sciences, of a *botanical system*, or a *mineralogical system*, in natural science, &c. So in astronomy the *solar* or *planetary system* signifies that collection of heavenly bodies which revolve around the sun as a common centre, and the *Copernican*, *Ptolemaic* or *Tychonic system*, the hypothesis by which each of those philosophers respectively explained their position and motions. The purpose of a system is to classify the individual subjects of our knowledge in such a way as to enable us readily to retain and employ them, and at the same time to illustrate each by showing its connexion with all; and although it may appear that a mere arrangement of facts already possessed, implies no addition to our former knowledge, yet it is, nevertheless, true that a simple and judicious classification may suggest new views and point out new relations of things. The constituent parts of a system are a fundamental principle, which serves as a basis for the whole, and a large collection of facts, from which the various laws are to be deduced, which themselves all flow together into the common principle.

SYSTEM, in music. See *Tone*.

SYSTEM OF THE UNIVERSE; a certain arrangement of the several parts of the universe, fixed stars, planets and comets, by which their appearances and motions are explained. We know little of the universe by actual inspection: its infinity escapes the grasp of our limited vision; but reasoning leads us to conclusions beyond the reach of sense. (See *Astronomy*.) We first become acquainted with our own globe, and with the other planets revolving with it round the sun, by observation; and from this little corner of the universe we draw our inferences as to the rest. In our own system, we see the sun forming a fixed centre, about which the earth and the other planets, with their moons, regularly revolve. Our earth we know to be the residence of organized, sensitive and thinking beings: observation teaches us that the other planets of the solar system resemble the earth in many respects; and we therefore conclude that they are the residences of sensitive and rational beings. Further observation makes it probable that the fixed stars are bodies like our sun, since they shine by their own light, and never change their relative positions. From this we are led to conjecture that each of them has its train of planets like our earth, and that there are as many solar systems as fixed stars. Then, as observation proves to us, that all the bodies of our system are mutually related to each other, we may conjecture that the different solar systems are not entirely disconnected with each other. Wherever we turn our eyes, we see connexion, order and stability; and we suppose these laws to embrace the whole universe, which thus forms a harmoniously framed whole. New observations confirm our reasonings on this point: they teach us that the fixed stars, which were formerly considered absolutely stationary, have a common motion, which becomes perceptible only in long periods; and we are led to the hypothesis

that the whole host of stars, with all their planetary trains, revolve around some common centre, a central sun, which some astronomers suppose to be Sirius. The system of the universe is therefore the same, on a great scale, as the solar system is in miniature. This vast thought seems beyond our comprehension; and the innumerable motions of these millions of worlds in infinite space elude our conception. Here are perpetual motion and perpetual order, produced by the common principle of attraction which binds the universe together. All things appear to be balanced against each other; but the Unsearchable holds the scales in his almighty hand.—There are three systems of the world, or explanations of the solar system, which have acquired most celebrity: 1. That of the Greek astronomer Ptolemy, who conceived the earth to lie immovable in the centre of the universe, while the heavenly bodies revolved about it in solid circles; this is called the *Ptolemaic system*. 2. The *Tychonic system*, proposed by Tycho de Brahe (see *Tycho*), was an attempt to improve the former. It supposed the earth stationary in the centre of the universe, with the sun and moon revolving around it, while the other planets revolved round the sun. 3. The *Copernican system* is that which is now received and is demonstrated mathematically to be correct. See *Copernicus*, *Solar System*, *Fixed Stars*, *Planets*, and *Astronomy*.

SYZYGY; the conjunction or opposition of any two of the heavenly bodies. See *Moon*.

SZENT; Hungarian for *saint;* found in many geographical names, as *Szent Ionos* (St John).

SZIGETH, Var (properly *Nagyszigeth*, or *Frontier-Szigeth*, to distinguish it from two places of the same name in Hungary), is of historical importance on account of its heroic defence by count Nicholas Zrinyi. Szigeth is, at present, a market town, on a low island, formed by the Almas, and belongs to the county of Schümeg. It is fortified. It contains one Greek and two Roman Catholic churches (of which one was erected for a mosque), one Franciscan monastery, and the castle of count von Festetics. The inhabitants are partly Magyars, partly Germans and Rascians. The place has some commerce. As early as in 1556, Szigeth was twice besieged without success by the Turks. In 1566, the noble defence of it by Zrinyi took place. When Zrinyi at last preferred death to a dishonourable captivity, not one of its defenders survived. (See *Zrinyi*.) The Turks themselves admitted a loss of 7000 janizaries and 20,000 men at the siege of Szigeth. In 1689, the margrave of Baden took it again. Lon. 17° 56′ E.; lat. 46° 8′ N.

T

T; the twentieth letter in the English alphabet, representing the sound produced by a quick and strong emission of the breath after the end of the tongue has been placed against the roof of the mouth near the roots of the upper teeth. The strength with which the breath is emitted in pronouncing *t* is all that distinguishes this sound from that of *d*. T is, therefore, a lingual: it is also a mute. As *d* and *t* are so nearly related, it is natural that they should often take each other's places, as is the case also with *t* and *s*, on account of the similarity of their pronunciation. (See the article *S*.) One of the main differences between Lower and Upper German (see *Low German*) is that the Lower German, almost invariably, puts a *d* where the Upper German has a *t*. On account of the hardness of this letter, it is used to separate liquids or vowels, as in the German words *kenntniss öffentlich*, and the French *fera-t-il*, *y-a-t-il*. The English *th*, which, though a compound character, represents but a single sound, has two pronunciations, as in *this* and *thing*: the former is a sound between *d* and *t*, and the latter between *t* and *s*; so that foreigners whose native language does not contain these sounds, often say *dis* and *sing* for *this* and *thing*, or *nossing* for *nothing*. The Greeks had a proper character to designate the consonant between ϑ and σ, viz. ϑ or 9, which, however, was accompanied by a lisp. The Latins, who had no such character, used the *th* instead, particularly in such words as were directly derived from the Greek. The most ancient northern tribes of Europe had also the sound of *th*; and their *runes* (q. v.) had a proper character for it, which, however, Adelung thinks can be proved to be derived from the Greek *t*. The language of the Anglo-Saxons also contained a consonant sound between *d* and *t*, pronounced with a lisp, like the Greek *t*, and designated by a character resembling our p, for which their descendants, when they exchanged the Anglo-Saxon alphabet for the Latin, substituted *th*. The ancient Germans had no alphabet which can be called properly their own, but adopted the Latin characters after their conversion to Christianity. It is not known whether there existed a *t* in their ancient dialects, pronounced with a lisp, like our *th*; but it seems, nevertheless, that they were sensible of a sound between *t* and *d*, and made various attempts to express it. The unknown translator of a piece of Isidorus, considered the most ancient German writer, uses *erdha* for *erde*, earth; *dhuo* for *da*, there; *dhanne* for *dann*, then; *dher* for *der*, the masculine article; *dhiz* for *dies*, this. Yet he does not add an *h* to every *d*, and writes *abgrunidin*, *mittungardes*, *herduuom*, &c. The *th* appears more rarely in his works; yet he writes *anthlutte* for *antlitz*, face. The next writer in the order of time, Kero, uses neither *dh* nor *th*, and writes *teil* for *theil*, part; *tuan* for *thun*, to do; *tat* for *that*, deed. Yet Otfried, who seems to have reflected more deeply on his language, revived the *th*. However this may be, it is certain that the ancient pronunciation of the German *th* is lost; and there exists, at present, in that idiom, no middle sound between *t* and *d*, though the Germans use the *th* in writing. *Theil*, *thun* and *ruthe* do not differ at all in sound

from *teil*, *tau* and *rute*. T is used as an abbreviation on ancient monuments, &c., for *Titus*, *Titius*, *Tullius*. As a numeral, it signified 160, according to the verse:—

T quoque centenos et sexaginta tenebit.

T, with a dash over it, thus, $\overline{T}$, signified 160,000. Among the Greeks, ϟ denoted 300, and ϡ, 300,000. The ט of the Hebrews signified 9; and with two points placed horizontally over it, thus, ⁘, it denoted 9000. Sometimes the acute accent over this or any one of the first nine letters multiplied its value a thousand times. T, on French coins, denotes the mint of Nantes. When the Roman tribunes approved of senatorial decrees, they subscribed a T. In music, T signifies *tenor*, also *tace*, to indicate silence; and in concerts it is likewise the sign of *tutti*, a direction to the whole band to play after a solo. It also stands for *trillo*, a shake. The word T is used also to denote things of this form, as a T bandage, in surgery, one consisting of two bands which cross each other; or the T palace in Mantua. (q. v.)—For the use of T in modern abbreviations, see *Abbreviations*.

TA (*great*); a Chinese word, used in many geographical names, as *Ta-chan* (great mountain).

TAAUT. See *Hermes Trismegistus*.

TABARD (now corrupted into *Tulbot*); an inn in the borough of Southwark (London), from which Chaucer and his companions set out on their pilgrimage to Canterbury. Over the entrance is this inscription: "This is the inn where Geoffrey Chaucer, knight, and nine and twenty pilgrims, lodged, in their journey to Canterbury, in 1383." In the yard is a picture representing their entrance into Canterbury. The original house was, however, burnt down in 1676, when the present building was erected on its site.

TABBY, in commerce; a kind of rich silk which has undergone the operation of tabbying, or being passed through a calender, the rolls of which are made of iron or copper, variously engraven, which, bearing unequally on the stuff, renders the surface unequal, so as to reflect the rays of light differently, making the representation of waves thereon.

TABERNACLE (Latin, *tabernaculum*, a tent) is used in the Hebrew writings for the tent, or sanctuary, in which the sacred utensils were kept during the wanderings of the Israelites in the desert. It was always placed in the middle of the camp, and borne by Levites. It was fixed at Shiloh. After the temple (q. v.) was erected, the holy instruments were removed thither. The *feast of tabernacles* was a Jewish festival, designed to commemorate the nomadic period of the national history, when the people dwelt in tents. The feast continued eight days, during which booths were erected and occupied by those engaged in celebrating the ceremonies.—*Tabernacle* is also used to signify the box in which the host is kept on the altar in Roman churches, and for the niche or cabinet in which the sacred relics, images, &c., are preserved. The Methodists often call their meeting-houses *tabernacles*.

TABLATURE; a word formerly applied to the collection of signs used in a musical composition; so that to understand the notes, clefs, and other marks, in such a way as to be able to sing at sight, was to be skilled in the tablature. The chief signs were letters, ciphers, and, at a later period, the lines indicating the octave in which a note was to be performed. Letters were used until the eleventh century, when the proper notes were introduced. (See *Note*.) As the latter are an Italian invention, they were called the *Italian tablature*; which name, however, soon went out of use; and the old signs alone are now understood by *tablature*.

TABLE, in perspective, denotes a plane surface, supposed to be transparent, and perpendicular to the horizon. It is always imagined to be placed at a certain distance between the eye and the objects, for the objects to be represented thereon, by means of the visual rays passing from every point thereof through the table to the eye; whence it is called *perspective plane*.—*Table*, among the jewellers. A table-diamond, or other precious stone, is that whose upper surface is quite flat, and the sides cut in angles; in which sense, a diamond cut *table-wise* is used in opposition to a rose-diamond.—*Table*, in mathematics; systems of numbers, used for expediting astronomical, geometrical, and other operations; thus we say *tables* of the stars; *tables* of sines, tangents, and secants; *tables* of logarithms, rhumbs, &c.; sexagenary *tables*.

TABLE MOUNTAIN, in Pendleton district, South Carolina, is about 4000 feet above the sea, and 3138 above the valley at its base. It presents, on one side, a tremendous precipice of solid rock, about 300 feet nearly perpendicular. Some have estimated its height to be even three times as great; and we have no measurement of it that can be relied on. At the bottom of the precipice, a dismal valley is sunk far below the surrounding country. The precipice, viewed from this valley, appears like a mighty wall raised to the heavens. The summit of the mountain is often enveloped in the clouds.

TABLE, ROUND. See *Round Table*.

TABLES, TWELVE. See *Twelve Tables*.

TABLEAUX VIVANTS. See *Pictures, Living*.

TABOO. This word, significant of a peculiar custom prevalent among the South sea islanders, is used, in general, to denote something consecrated, sacred, forbidden to be touched, or set aside for particular uses or persons. It is applied both to persons and things, and both to the object prohibited and to the persons against whom the prohibition extends. Thus a consecrated piece of ground is *taboo;* the act of consecrating it is called *taboo*, and the persons who are excluded from entering are also said to be *tabooed*. A particular article of food is sometimes tabooed at a certain season, in order to preserve it against a season of scarcity, &c. The object of the institution seems to have been the imposition of certain restraints upon a rude and lawless people, like the establishment of the cities of refuge, sanctuaries, &c., in the rude ages of European society.

TABOR, the mount of transfiguration, is situated in Galilee, about fifty miles from Jerusalem. See *Galilee*, and *Transfiguration*.

TABORITES. See *Hussites*.

TABULAR SPAR, or TABLE SPAR (*Schaalstein* of Werner); a massive mineral, whose primary form is regarded as a doubly-oblique prism. The cleavage in the direction of two faces, intersecting each other at angles of 95° 25′, is easily obtained, though in one direction it is more easily effected than in the other. The remaining cleavages are with difficulty distinguished; lustre vitreous, inclining to pearly, particularly upon the perfect faces of cleavage: colour white, inclining to gray, yellow, red, and brown; streak white; semi-transparent to translucent; rather brittle; hardness about that of

apatite; specific gravity 2·8; composition lamellar, generally longish, and strongly coherent. It is composed of

Silex,	51·00
Lime,	46·41
Mechanical admixtures,	1·11
	99 12

Before the blow-pipe, it melts on the edges into a semi-transparent colourless enamel. By fusing lime and silex in the requisite proportions, cleavable masses of the present species have been obtained. It was first found at Cziklowa, near Prawitza, in the Bannat of Temeswar, in several copper mines. In Finland, it occurs in limestone, at Edinburgh in greenstone at Castle hill, and in Ceylon along with garnet. In the United States, at Willsborough, New York, upon lake Champlain, a vein of it, mixed with garnet, several feet in width, appears to cross a mountain of gneiss. It has been found abundantly near Grenville, in Canada, and at Easton, in Pennsylvania. A variety of the present species, from Capo di Bove, near Rome, was first called *Woollastonite*, but is now known to belong to tabular spar.

TACHYGRAPHY, or TACHEOGRAPHY. See *Stenography*.

TACITUS, Caius Cornelius, was descended from a plebeian branch of the celebrated Cornelian family, and was probably born at the close of the reign of Claudius, or in the beginning of that of Nero. Of his education and early life we know little. He seems to have been first appointed to public office in the reign of Vespasian, when, according to a statement of the elder Pliny, he was named procurator of Belgic Gaul. On his return to Rome, he was treated with distinguished favour by Titus, and was created questor or edile. He himself alludes to this circumstance, but in very general terms, in his works. In the reign of Domitian, he became pretor (A. D. 88), and one of the quindecemviral college, whose duty it was to superintend the sacrifices. Disgusted with the tyranny of Domitian, Tacitus left Rome on the death of his father-in-law Julius Agricola, but again returned, after the murder of that monster, to live under the mild government of Nerva. The latter rewarded his services with the consulship, A. D. 97. He lived in the closest intimacy with the younger Pliny, and had a very extensive practice in the profession of law, acquiring a high reputation as an orator. His domestic circumstances were no less favourable: his wife, the daughter of Julius Agricola, was distinguished among the Roman ladies of the time for her virtues; and it seems probable that the emperor Tacitus was a descendant of the great historian. The time of his death is uncertain; but it probably took place during the reign of Adrian. We have four historical works from his pen. His Annals contain an account of the principal events from the death of Augustus to that of Nero, a period of fifty-four years. Books 6th to 10th inclusive are lost: the first five books were discovered only 300 years ago, by the treasurer of Leo X., in the monastery of Corvey. His History (of which only four books, and a part of the fifth, are extant) begins with the year 69 A. D., when Galba wore the purple, and ends with the accession of Vespasian (71). His Germany (*De Situ, Moribus et Populis Germaniæ*), and his life of Agricola, are his only other historical works. The Dialogue on the Decline of Eloquence is by some attributed to him. (See *Quintilian*.) The works of this writer have been pronounced, by the unanimous voice of his contemporaries and of posterity, the masterpieces of a great mind. Racine declares him to be the greatest painter of antiquity; and, according to Gibbon, he was the first historian who applied the science of philosophy to the study of facts. Independently of the value of his matter, which is of the highest importance, from the facts and profound views of Roman history, during the first half century of the Christian era, which it affords, his writings are incomparable, considered as works of art. In the choice and disposition of his materials, we recognise the comprehensive genius of a scholar, and the forming hand of an artist, bringing out order and unity in the midst of confusion, and grouping the complicated details of life and manners in artful and expressive pictures. In drawing the character of men and events, he displays a wonderful acuteness and strength; while, amidst the corruption of a degenerated and vicious age, he maintains the elevation of a virtuous mind. His extreme conciseness has no appearance of affectation, but seems to be dictated by the peculiarity of his temper and feelings. His style is forcible, but there is nothing laboured in his expressions, nothing superfluous in his delineation; the colours are used sparingly, but the light and shade are disposed with masterly skill. Among the best editions of his works are those of Gronovius (Amsterdam, 1685, and Utrecht, 1729), of Brotier (Paris, 1771, 4to., and 1776, 12mo.), of Ernesti (Oberlin's, Leipsic, 1801), and of Panckoucke (Paris, 1827, folio.) The whole of Tacitus has been translated into English by Murphy and by Gordon.

TACKING, in navigation. See *Ship*.

TACKLE; a machine formed by the communication of a rope with an assemblage of blocks, and known, in mechanics, by the name of *pulley*. Tackles are used in a ship to raise, remove, or secure weighty bodies, to support the masts, or to extend the sails and rigging. They are movable, as communicating with a runner, or fixed, as being hooked in an immovable situation; and they are more or less complicated in proportion to the effects which they are intended to produce. The application of the tackle to mechanical purposes is called *hoisting*, or *bowsing*. *Ground tackle* implies the anchors, cables, &c.

TACKSMEN. See *Clan*.

TACTICS, Proper, is the branch of military science which relates to the conduct of troops in battle. *Elementary tactics* teaches the preparation of them for it by instruction in military exercises: hence every species of troops, as cavalry, artillery, light and heavy infantry, &c., has its peculiar tactics. Since the French, or, we may say, since the American, revolution, tactics have undergone an essential change. In recent times, a difference has been made between strategy and tactics. (See the articles *Military Sciences*, and *Strategy*.) The word is derived from τασσω, which comes from ταξις (ordered, placed, commanded).

Tactics, Naval. See *Navigation*, *Navy*, and *Ship*.

TADMOR. See *Palmyra*.

TADPOLE; the young produced from the eggs of the frog, which is extremely unlike the animal in its perfect state, seeming to consist only of a head and tail. The head is large, black, and roundish, the tail slender, and margined with a broad, transparent fin. Its motions are very lively. Its

food consists of small water plants and different animalculæ. The mouth has very minute teeth. About five or six weeks after it is hatched, the first change takes place. The hind legs first appear, and, gradually increasing in length and size, are succeeded, in about two weeks, by the fore legs, which are formed at an earlier period beneath the skin. The tail now decreases, so that, in a day or two, it is quite obliterated. After this change, the animal leaves the water, and covers the shores in myriads. The sudden appearance of such multitudes of young frogs has probably induced the popular but groundless belief of their having fallen from the clouds in showers. It has now become a perfect frog. (See *Rana.*) Tadpoles, just after they are hatched, are perfectly transparent; and, when placed before the double microscope, the pulsation of the heart may be easily seen, and the blood protruded thence may be observed in its passage through the whole body.

TÆNARUS. See *Tenarus.*

TAFFEREL; the uppermost part of a ship's stern, being a curved piece of wood, and usually ornamented with some device in sculpture.

TAFFIA, OR TAFIA, in the French West India islands; that spirituous liquor which in this country is called *rum*, made of fermented molasses. Taffia is inferior to rum in taste and smell.

TAGANROC, OR TAGANROKA; a town in the Russian government of Ekaterinoslav, on the sea of Azoph, next to Odessa the most flourishing commercial place in the south of Russia; lat. 47° 13′ N.; lon. 38° 39′ E. Its population, in 1843, was 18,000, mostly Greeks, and rapidly increasing. Only ships of moderate burden can come up to the town; and these must discharge part of their cargoes at Feodosia (see *Caffa*) or Kertsch. (q. v.) These three towns have each its peculiar government. The climate is mild and healthy, and the country around is fertile, producing fruit, corn, grapes, mulberries, &c. Taganroc was founded by Peter I., in 1699. Alexander died here in 1825.

TAGLIACOZZI. See *Rhinoplastic.*

TAGLIAMENTO; a small river of Austrian Italy, emptying into the Adriatic, over which Napoleon forced a passage, March 16, 1797, in the face of the archduke Charles, at the head of the Austrian forces.

TAGUS (Spanish, *Tajo;* Portuguese, *Tejo*), the largest river of Spain, issues from the mountains of Albaracim, a little more than 100 miles from the Mediterranean. Pursuing a south-westerly course, it passes by Aranjuez, Toledo, Talavera, and Alcantara, enters Portugal, and passes by Abrantes, Santarem, and Lisbon, and, about seven miles below Lisbon, flows into the Atlantic. Length 450 miles. It receives the tide at a considerable distance above Lisbon, but is navigable only as far as Abrantes. It absorbs the waters collected between two parallel ranges of mountains. It flows through a mountainous country, and its current is much broken by rocks and cataracts.

TAHITI. See *Society Islands.*

TAI; Chinese for *fortress*, in many geographical names. See *Tchai.*

TAIL. For estates in tail, or entailed estates, *see Entail.*

TAKROUR. See *Nigritia.*

TALAPOINS; priests of Fo. (q. v.)

TALAVERA; a town in Spain, lying on the Tagus, thirty-five miles west of Toledo. A severe battle was fought here July 28 and 29, 1809, between the French, under Soult, and the *British*, under Wellington, in which the former were defeated. See *Spain.*

TALBOT, JOHN, first earl of Shrewsbury, a famous commander, born in 1373, was the son of Sir Richard Talbot. In 1414, he was appointed lord-lieutenant of Ireland, in which post he continued seven years, and performed great services for the crown, by keeping the native Irish in subjection. In 1420, he attended Henry V. to France, served under the regent, the duke of Bedford, and, by his exploits, rendered his name terrible to the enemy. He commanded the troops sent to the province of Maine, and made himself master of Alençon. He afterwards joined the earl of Salisbury at the siege of Orleans. (See *Joan of Arc.*) Talbot was soon after made prisoner. After a captivity of three years, he was exchanged; on which he repaired to England to raise fresh troops, and, recrossing the sea, took several strong places in succession, and, for his eminent services, was made marshal of France, and, in 1442, earl of Shrewsbury. The following year, he was appointed one of the ambassadors to treat of peace with Charles VII.; after which he was sent once more to Ireland, and the earldom of Wexford and Waterford, in that kingdom, was added to his honours. The English affairs in France continuing to decline, he was made lieutenant-general of Aquitaine, in which capacity he took Bordeaux, and received the allegiance of several other towns. Receiving intelligence that the French were besieging Chatillon, he marched to its relief, and made an attack upon the enemy; but he was left dead on the field of battle, 1453, at the age of eighty; and, the English being wholly routed, their expulsion from France soon followed.

TALC; a well known and widely diffused species of mineral. It is rarely seen under a distinctly crystalline form. Its primary form is believed to be a right rhombic prism of 120° and 60°. It is sometimes seen in minute hexagonal plates, and in a figure resembling the frusta of two cones, applied base to base. Cleavage highly perfect; fracture not observable; lustre pearly upon the faces of crystallization and of cleavage; colour various shades of green, as blackish-green, leek-green, celandine-green, and apple-green; streak similar to the colour; semi-transparent to translucent. It exhibits different colours, sometimes in different directions; sectile in a high degree: thin laminæ are easily flexible. It is one of the softest of all solid minerals. The massive kinds present a great variety of structure. The composition varies from imperfect columnar to granular and impalpable. The individuals are sometimes strongly coherent with each other, or flat, so as to give rise to an imperfect slaty structure. The species talc has been subdivided into a great number of varieties or subspecies, the most of which depend upon colours, composition, and foreign admixtures. The varieties of dark-green (leek-green, and celandine-green) colours, inclining to brown, constitute the *chlorite*, which has been subdivided into *common*, *slaty*, and *earthy* chlorite. The first of these contains the granular or crystalline varieties; the second embraces those in which the individuals can scarcely be traced, and which exhibit a slaty texture; the earthy chlorite consists of such as are but loosely coherent, or already in a state of loose, scaly particles. Immediately with those varieties of chlorite whose composition is impalpable, the *green earth* is

connected. The species talc comprehends the varieties of pale-green, particularly apple-green, gray, and white varieties, and is divided, in popular language, into *common*, *earthy*, and *indurated* talc. Simple varieties are common talc; also such compound ones in which cleavage is transformed into slaty structure, or such as consist of columnar particles of composition: earthy talc, or *nacrite*, consists of loose particles, or such as are but slightly cohering; and indurated talc refers to imperfect and coarse slaty varieties, in which this kind of structure is more the effect of composition than of imperfect cleavage. If this structure be sufficiently imperfect to become coarse and indistinctly granular, *potstone*, *soapstone*, *lapis ollaris*, or *steatite*, is formed, which, possessing the united properties of softness and tenacity, may be easily turned, and wrought into vessels. Four varieties of the present species, foliated talc, analyzed by Vauquelin, slaty chlorite, analyzed by Gruner, green earth, analyzed also by Vauquelin, and steatite by Klaproth, have yielded

Silex,	62·00	29·50	52 00	59 50
Magnesia,	27·00	21·39	6·00	30·50
Oxide of iron,	3·50	23·39	22·00	2·50
Alumine,	1·50	15·62	7·00	0·00
Water,	6·00	7 30	1·00	5 50
Potash,	0 00	0·00	7 50	0·00
Lime,	0·00	1·50	0·00	0·00

These analyses, as well as those of several other varieties of the species, show that our information respecting its chemical constitution is still very defective. Before the blow-pipe, some of them lose their colour, and are fused with difficulty; others are changed into a black scoria; still others are infusible. Common talc, indurated talc, steatite, potstone, and slaty chlorite, constitute beds of themselves in primitive mountains. The latter often contains imbedded crystals of magnetic iron. Common chlorite is found in beds in rocks consisting chiefly of ores of iron and calcareous spar with augite. Other varieties, and, among them, the small scaly crystals of chlorite and earthy chlorite, occur in veins of various descriptions, and in the crystal caves of the Alps. Green earth occurs in amygdaloidal rocks, lining vesicular cavities. Tyrol, Salzburg, Switzerland, Sweden, Norway, Scotland, and New England abound in those varieties which by themselves form mountain masses. The soapstone of Cornwall is impalpable in its composition, nearly white, or sometimes mottled with green and purple: when first raised, it is so soft as to allow of being kneaded like dough; but, by exposure, loses a part of its moisture, and is then translucent on the edges, yields to the nail, and possesses an unctuous feel. A similar variety is met with in Wales. It is included in serpentine, and sometimes embraces veins of amianthus. The white varieties of steatite, or those that become so by calcination, are employed in the manufactory of the finest porcelain; other varieties are said to be used in fulling. The Arabs, according to Shaw, use steatite in their baths instead of soap; and it is confidently asserted, that the inhabitants of New Caledonia either eat it alone, or mingle it with their food. Humboldt says, that the Itomaques, a savage race, inhabiting the banks of the Orinoco, are almost entirely supported, during three months of the year, by eating this variety of talc, which they first slightly bake, and then moisten with water. The varieties known under the name of potstone have been in use for the construction of a variety of utensils from time immemorial. It is particularly valuable as a fire-stone for furnaces, and is worked into plates in the fabrication of stoves. Numerous localities of it exist in the north-western part of Massachusetts, and, in Vermont, green earth is used, both raw, as a green colour, and burnt, as a reddish-brown colour, for painting houses, &c. Its most important deposits are the Monte Baldo, near Verona, Iceland, and the Tyrol. The Venetian talc, a variety of common talc, of a greenish-white colour, formerly used as a medicine, seems to be no longer in use, except for the purpose of removing oil-spots from woollen clothes. The localities of common talc are too numerous to be mentioned; a few, however, which are somewhat remarkable, may be indicated. At Cumberland, in Rhode Island, it occurs of a delicate green colour, in large columnar pieces, which are contained in a rock of steatite. At Smithfield, in the same region, a beautiful white scaly talc is found, in irregularly shaped masses, disseminated through white limestone. A delicate apple-green variety of columnar talc comes from Bridgewater, in Vermont, where it occurs in veins in a steatitic rock.

TALE; a nominal or imaginary money in China, estimated by Americans as bearing the proportion of 133 dollars to 100 tales.

TALENT. See *Drachm*.

TALES. This term, though used somewhat indefinitely, may, perhaps, be correctly defined as signifying those simple fictitious narratives, in prose or in verse, which hardly extend beyond a single adventure, or group of incidents, without the variety of plot and character which characterizes the novel and the romance. Thus it answers to the French *conte*, the German *märchen*, and the Italian *novelle*. (See *Novel*, and *Romance*.) "A work of great interest," says Sir W. Scott (preface to Lady of the Lake), "might be compiled upon the origin of popular fiction, and the transmission of similar tales from age to age, and from country to country. The mythology of one period would then appear to pass into the romance of the next century, and that into the nursery tale of the subsequent ages. Such an investigation, while it went greatly to diminish our ideas of the richness of human invention, would also show, that these fictions, however wild and childish, possess such charms for the populace as enable them to penetrate into countries unconnected by manners and language, and having no apparent intercourse to afford the means of transmission." While, in some countries, the people have found amusement in fictions founded on their remote history, or in listening to mythological narratives, the natives of the East have long been celebrated for their tales or stories, founded on familiar incidents and comic scenes, or on wild legends of good and bad spirits. The Hitopadesa (see *Pilpay*) of India, and the Thousand and one Days, Thousand and one Nights, the *Tootinameh*, or Tales of a Parrot, &c., of Arabia and Persia, are specimens of the wealth of the Eastern story-tellers in these narratives. (See *Arabian Nights*.) From their Eastern neighbours, the Asiatic Greeks borrowed something of their love for this amusement, as appears from what we know respecting the Milesian Tales, which, however, have all perished. The *Gesta Romanorum*, composed towards the close of the thirteenth century, and consisting of classical stories, Arabian apologues, and monkish legends, was the great source from which the Italian *novelle*, the French *contes* and *fabliaux*, and the English tales, were de-

rived. The earliest collection of Italian *novelle* was the *Cento Novelle Antiche*, made not long after the date of the *Gesta Romanorum*, and composed of anecdotes and stories from the romances of chivalry, the *fabliaux* of the French *trouveurs*, and chronicles, together with incidents and jests, gathered from tradition, or of contemporaneous origin. Then came Boccaccio (q. v.), who gave a more dramatic form, and more grace of style to his *Decameron*. He was followed by Sacchetti, Ser Giovanni, Bandello, Massuccio, &c. They were imitated in France in the *Cent Nouvelles*, tales full of imagination and gayety, supposed to be related at the Burgundian court. The *Cent Nouvelles* of Margaret of Valois (q. v.) were of a similar character. The tales of the *trouveurs* (q. v.), which were recited at festival meetings among the Northern French, are of still earlier origin than the Italian *novelle*. Le Grand has published a collection of them under the title of *Fabliaux ou Contes du XII. et XIII. Siècle* (Paris, 1779, 5 vols), from which a selection has been translated into English by Way (Tales of the XII. and XIII. Centuries, second edition, with notes, by Ellis). A more recent collection of these *fabliaux* was published at Paris, in 1823, in 2 vols. (*Nouveau Recueil de Fabliaux et Contes, du XIII. et XIV. Siècle*, by Meon). In England, the first important work which marks the complete transition from Anglo-Norman to English literature, is that of Chaucer (q. v.), whose Canterbury Tales were borrowed from the same sources as the narratives of the Italian novelists and the French *fabliers*, or immediately from these latter productions themselves. (On the sources of Chaucer, see Ritson's edition of Warton's *History of English Poetry*.)—Of a different character from the foregoing, are the fairy tales and popular stories of the nursery. Of the former, we have given an account in the article *Fairies*. Our common nursery tales are found to exist in the popular traditions of all the Teutonic nations, and seem to be of much higher antiquity than romances and poems of much greater pretensions. "Jack the Giant-Killer and Tom Thumb," observes an English writer, "landed in England with Hengist and Horsa;" and the brothers Grimm (q. v.), who have recently thrown much light on nursery literature in their *Kinder-und Haus-Märchen* (second edition, 3 vols., 1820), do not hesitate to refer the origin of these stories to the Scandinavian sagas. See, on this subject, the article *Antiquities of Nursery Literature*, in the Quarterly Review, volume twenty-first.

TALESMEN. See *Jury*.

TALIACOTIUS, or TAGLIACOZZI. See *Rhinoplastic*.

TALIESIN; the most celebrated of the ancient British poets, and therefore termed *Pen Beirdd*, or the chief of the bards. He flourished between 520 and 570; and many of his compositions are extant, and have been printed in the Welsh Archæology. He was ranked with the two Merlins, under the appellation of the three principal Christian Bards. Tradition represents him as an orphan exposed by the side of a river, where he was found by Elfin, the son of Gwyddno, by whom he was educated and patronised. He studied in the school of the famous Cadog at Llanveithin, in Glamorganshire, and, in the mature part of his life, was the bard of Urien Rheged, a Welsh prince, as appears by many of his poems addressed to that chieftain. See *Bard*.

TALISMAN (Arabic, *figure*) is a figure cast or cut in metal or stone, and made, with certain superstitious ceremonies, at some particular moment of time, as when a certain star is at its culminating point, or when certain planets are in conjunction. The talisman thus prepared is supposed to exercise extraordinary influences over the bearer, particularly in averting disease. In a more extensive sense, the word is used to denote any object of nature or art, the presence of which checks the power of spirits or demons, and defends the wearer from their malice. The amulet (q. v.) is much the same as the talisman, though, according to some, it is more limited in its virtues. As they were both used most frequently, and perhaps, originally, to avert disease, we find them playing a conspicuous part in the history of medicine, among all nations, from the earliest to the most recent periods. The nature of the talisman has been very different among different nations. The Egyptians made use of images of their gods and of sacred animals, such as the ibis and the scarabæus; the Greeks used little tablets, inscribed with the Ephesian words, &c.; the Romans employed various idols, which they suspended upon the body by chains; the Arabians and Turks make use of sentences from the Koran; and we also find, in the East, medals of particular metals struck under a particular constellation, and marked with magical signs; in the middle ages, relics, consecrated candles, and rods, rosaries, images of saints, &c., were employed, and still are, in some parts of Christendom; among some savage nations, the *fetich* (q. v.), and, among the American Indians (see *Indians*), the medicine, are of a similar character. In the middle ages, astrology, and the knowledge of the virtues of talismans and amulets, formed an important part of medical science; and the quacks of modern times sometimes have recourse to similar means. See *Magic*.

TALLAHASSEE, the seat of government of Florida Territory, is situated in Middle Florida, about twenty-five miles north of Apalachee bay (lat. 30° 28′ N.; lon. 84° 36′ W.), and is 870 miles from Washington. The position of this town was fixed upon as the seat of government in 1824. It was divided into lots in 1825, and immediately incorporated as a city. In two years after the erection of the first building, its population was 800. In 1842, it contained about 2500; and the county of Lean, in which it was situated, contained 8493. The situation of Tallahassee is remarkably pleasant, and is supposed to be healthy. The ground is considerably elevated, and the country around is high and rolling. St Marks, situated near the head of the bay, is the nearest seaport. An elevated chain of rolling hills bounds the shores of the Mexican gulf; and Tallahassee is three miles north of this ridge. The country around it is generally fertile, and is suited to the cultivation of sugar. At present, it is mostly covered with oak, hickory, pine, wild cherry, gum, ash, dogwood, mahogany, and magnolia. The mahogany is nearly equal to that from Honduras. Fish abound in the neighbouring lakes, and game is abundant in the forests.

TALLART, Camille D'Hostun, Duke de, marshal of France, descended of an ancient family of Dauphiny, was born in 1652, entered young into the army, and, after serving under the great Condé in Holland, and under Turenne in Alsace, was engaged in the brilliant campaigns of 1674 and 1675. He distinguished himself subsequently on various occasions, and, in 1693, was made a lieutenant-general. In 1697, he was sent ambassador to Eng-

land, to negotiate concerning the succession to the crown of Spain on the death of Charles II. In 1702, Tallart was appointed to the command of the French troops on the Rhine, and, soon after, was honoured with a marshal's staff. He subsequently defeated the imperialists before Landau, and, having taken that place after a short siege, announced his success to Louis XIV. in the following terms: "I have taken more standards than your majesty has lost soldiers." In 1704, he was opposed to Marlborough; and, being taken prisoner at the battle of Blenheim, was carried to England, where he remained seven years. On his return to France, in 1712, he was created duke; and, in 1726, was appointed secretary of state. His death took place in 1728.

TALLIEN, JOHN LAMBERT, a French republican statesman, born at Paris in 1769, was the son of the porter to the marquis de Bercy, to whom he was indebted for his education. He commenced his political career as secretary to the deputy Broustaret, and then published a daily journal, called *Ami du Citoyen*, which was affixed to the walls of the metropolis. The Jacobins furnished the expenses of printing this paper, the object of which was to excite the indignation of the populace against Louis XVI. and his ministers. Tallien soon became one of the most popular men of the revolutionary party, and was deeply concerned in the terrible commotions of the 10th of August, at which time he was secretary of the commune which had installed itself at the Hôtel de Ville, and which continued its sittings in spite of the assembly, becoming the centre and origin of the intrigues and massacres of that disastrous period. Being nominated a deputy to the convention, from the department of Seine and Oise, he often mounted the tribune, and was the constant advocate of violent measures. In the session of December 15, 1792, he strongly urged the immediate trial of Louis XVI. objected to allowing him counsel, and added new charges to the accusation against him. He afterwards voted for his death, and against an appeal to the people; and on the day of execution, January 21, 1793, he was president of the convention. He took part in most of the sanguinary proceedings which occurred during the ascendency of Robespierre; and, after defending Marat, assisting in the destruction of the Girondists, and becoming the advocate of the infamous Rossignol, he was sent on a mission to Bordeaux, where he showed himself the worthy associate of Carrier, Lebon and Collot d'Herbois. He was checked in this sanguinary career by the influence of madame de Fontenay, a woman remarkable for her personal beauty, who, having been imprisoned at Bordeaux, as she was going to join her family in Spain, owed her life to the compassion of Tallien. (See *Chimay.*) He took her with him to Paris, whither he went to defend himself before the convention against the charge of moderantism. After the fall of Danton and his party, Tallien perceived that he should become one of the next victims of Robespierre, if he did not strike the first blow. Accordingly, at the sitting of the convention of the ninth of Thermidor, 1794, he ascended the tribune, and, after an animated picture of the atrocities which had taken place, and which he ascribed to Robespierre, he turned to the bust of Brutus, and, invoking the genius of that patriot, drew a dagger from his girdle, and swore that he would plunge it into the heart of Robespierre, if the representatives of the people had not courage to order his immediate arrest. On the morrow, Tallien had the satisfaction to announce to his colleagues that their enemies had perished on the scaffold. (See *Robespierre.*) Being elected a member of the committee of public safety, the Jacobins replaced his name on their list. At this period he married his *protégée*, madame de Fontenay. He took a part in all the proceedings of the assembly, and used his power and influence to promote the interests of justice and humanity. This was the most honourable period of his life; but the recrimination and opposition which he experienced prevented him from enjoying tranquillity. In July, 1795, he was sent, with extensive powers, to the army on the coasts of Brittany; but after the victory of the republicans at Quiberon, he returned to Paris. He subsequently became a member of the council of five hundred, under the constitution of the year III.; but his influence gradually declined, and he was at length reduced to such a state of political insignificance, that he thought proper to retire to private life. Domestic uneasiness induced him to wish to leave France; and he followed Bonaparte to Egypt, as one of the savans attached to the expedition. He became a member of the Egyptian institute, and editor of the *Décade Egyptienne*, printed at Cairo; besides being administrator of the national domains. After Bonaparte left Egypt, general Menou treated Tallien harshly, and obliged him to return to France. The vessel in which he sailed was captured by the British, and he was taken to London, where he received much attention from the leaders of the whig party. The duchess of Devonshire having sent Tallien her portrait, enriched with diamonds, he kept the portrait, but returned the diamonds. On revisiting his native country, he discovered that he had lost his wife, as well as the favour of Bonaparte, who was then rising to sovereign power. He appears to have been reduced to distress, but at length obtained, through Fouché and Talleyrand, the office of French consul at Alicant. He died at Paris in 1820. Madame Tallien, having been divorced from her husband (by whom she had a daughter named Thermidor), was married, in 1805, to Joseph de Caraman, prince de Chimay.

TALLOW; animal fat melted and separated from the fibrous matter mixed with it. (See *Fat.*) Its quality depends partly on the animal from which it has been prepared, and partly on the care taken in its purification. It is firm, brittle, and has a peculiar heavy odour. When pure, it is white and nearly insipid; but the tallow of commerce has usually a yellowish tinge, and is divided, according to the degree of its purity and consistence, into candle and soap tallow. It is manufactured into candles and soap, and is extensively used in the dressing of leather, and in various processes of the arts. There were exported from Russia, in 1831, 4,091,544 poods (63 to a ton) of tallow. Large quantities are also exported from South America.

TALLOW-TREE (*stillingia sebifera.*) This interesting tree is a native of China. It belongs to the natural family *euphorbiaceæ*. The branches are long and flexible; the foliage so much resembles that of the Lombardy poplar, that it might readily be mistaken, were the leaves serrated. The flowers are inconspicuous, and disposed in straight, terminal spikes. The capsules are hard, smooth, and brown, divided internally into three cells, each containing a nearly hemispherical seed, which is covered with a sebaceous and very white substance. At the close

of the season, the leaves turn bright red, and as the capsules fall off, leaving the pure white seeds suspended to filaments, the tree presents a very beautiful appearance. From a remote period, this tree has furnished the Chinese with the material out of which they make their candles. The capsules and seeds are crushed together, and boiled; the fatty matter is skimmed as it rises, and condenses on cooling. The candles made of this substance are very white; and red ones are also manufactured by the addition of vermilion. Sometimes, three pounds of linseed oil and a little wax are mixed with ten of this substance, to give consistence. The tallow-tree is cultivated in the vicinity of Charleston and Savannah, and, indeed, is almost naturalized in the maritime parts of Carolina.

TALMA, François Joseph, the greatest tragic actor of France in our day, was born at Paris in 1763, but passed his youth in England, where his father practised as a dentist. He was sent to Paris to complete his studies; and his taste for the theatre was awakened by the dramatic masterpieces and the performances of distinguished actors which he here witnessed. The susceptibility of his temperament showed itself early. While at school, he and some of his companions performed a tragedy, in which he had to describe the last moments of a friend condemned to death by his father: the situation affected him so powerfully that he burst into a flood of tears, which continued to flow for some hours after the conclusion of the piece. After his return to London, Talma associated himself with some other young men, for the purpose of representing French plays, and displayed such brilliant powers as to attract the notice of distinguished individuals, who urged him to appear on the London boards. But circumstances led him to Paris, where he entered the royal school for declamation, and soon after (1787) made his *début* at the *Théatre Français* in the character of Seide in Voltaire's Mahomet. He was received with applause, and from this moment devoted himself with zeal and perseverance to the study of his art. He sought the society of distinguished literati and artists, studied history for the purpose of becoming acquainted with the manners and customs of nations, and the characters of remarkable individuals, and made himself master of the attitudes, costumes, expression, and drapery of the ancient statues. Talma rendered an important service to the French stage by introducing a reform in the costume. The revolution, which now broke out under his eyes, with all its scenes of violence and passion, its displays of exalted virtue, and its excesses of cruelty, contributed to develope his peculiar talent. Chenier's tragedy of Charles IX., or St Bartholomew's, was brought forward at this time, and Talma studied the character of Charles in history, and his person in medals and portraits, and exhibited them with such truth and life, that his reputation as the first French tragedian was established beyond dispute. The principal parts which he created, or carried to the highest perfection, were Seide, Othello, Hamlet (those of Ducis), Sylla (or rather Napoleon, of Jouy), Regulus, the grand master of the templars, Charles IX., Charles VI. (of Delaville), Manlius, and Orestes. He died at Paris in 1826.—See Moreau's *Mémoires sur Talma* (3d ed., 1827). Talma was the author of *Réflexions sur Lekain et sur l'Art théâtral* (1825). "Talma," says madame de Staël, "may be cited as a model of power, and of discretion in the use of it, of simplicity and true grandeur. He possesses all the secrets of the various arts: his attitudes recall to mind the fine statues of antiquity, and the expression of his face, and every look, ought to be the study of our best painters. There is in the voice of this man a magic which I cannot describe; which, from the moment when its first accent is heard, awakens all the sympathies of the heart; all the charms of music, of painting, of sculpture, and of poetry; but, above all, the language of the soul: these are the means which he uses to excite in him who listens, all the effect of the generous or the terrible passions. What a knowledge of the human mind he displays in the manner of conceiving his parts! He is the author himself, come again to realize, by his looks, his accents, and his manner, the person he means to present to your imagination." His person is described as regular, but not striking, his voice full and agreeable, his countenance approaching the antique, and full of expression. These physical advantages were combined with a penetrating mind, a warm imagination, deep feeling, and great sensibility. It is well known that he was a great favourite of the emperor Napoleon, who treated him with much distinction, and loved to converse with him. Talma was buried, according to his own directions, without any religious ceremonies; and he likewise left orders that his children should be educated in the Protestant faith; unwilling that they should belong to a church which condemned his profession. His wife, previously known as Mlle. Vanhove, was a distinguished actress. She retired from the stage in 1810.

TALMUD (from the Hebrew *lamad*, he has learned); doctrine. It signifies, among the modern Jews, an enormous collection of traditions, illustrative of their laws and usages, forming twelve folio volumes. It consists of two parts, the Mishna and the Gemara. The Mishna is a collection of rabbinical rules and precepts, made in the second century of the Christian era. The whole civil constitution and mode of thinking, as well as language of the Jews, had gradually undergone a complete revolution, and were entirely different, in the time of our Saviour, from what they had been in the early periods of the Hebrew commonwealth. (See *Hebrews*, and *Jews*.) The Mosaic books contained rules no longer adapted to the situation of the nation; and its new political relations, connected with the change which had taken place in the religious views of the people, led to many difficult questions, for which no satisfactory solution could be found in their law. The rabbins undertook to supply this defect, partly by commentaries on the Mosaic precepts, and partly by the composition of new rules, which were looked upon as almost equally binding with the former. These comments and additions were called the oral traditions, in contradistinction to the old law or written code. The rabbi Juda, surnamed the *holy*, was particularly active in making this collection (150 B. C.), which received the name of *Mishna* (q. v.) or second law. The later rabbis busied themselves in a similar manner in the composition of commentaries and explanations of the Mishna. Among these works, that of the rabbi Jochanan (composed about 230 A. D.) acquired the most celebrity, under the name of *Gemara* (Chaldaic for *completion* or *doctrine*). This Mishna and Gemara together formed the Jerusalem Talmud, relating chiefly to the Jews of Palestine. But after the Jews had mostly removed to Babylon, and the

synagogues of Palestine had almost entirely disappeared, the Babylonian rabbis gradually composed new commentaries on the Mishna, which, about 500 A. D., were completed, and thus formed the Babylonian Talmud.

TALUS, in mythology; a brazen image which Vulcan gave to Minos, or Jupiter to Europa. It was endowed with life, and had a single blood-vessel running from the neck to the heel, and closed with a brazen nail. Talus was the protector of Crete, and went three times daily around the island, to defend it against attacks. The fable says that he prevented the enemies of Crete from landing, by heating his body in fire, and then embracing them with his glowing arms. Other stories are also told of him, which seem to indicate that Talus was probably a brazen statue, serving as a beacon, placed by the Phœnicians on a promontory of Crete. Medea, by her arts, eventually destroyed Talus, when she landed with the Argonauts. Another Talus is mentioned; a son of the sister of Dædalus, who invented the saw, compasses, and other mechanical instruments. His uncle became jealous of his growing fame, and murdered him privately; or, according to some, threw him down from the citadel of Athens. Talus was changed into a partridge by the gods. He is also called *Calus*, *Acalus*, *Perdix*, and *Taliris*.

TAMAHAMA. See *Tammeamea*.

TAMARIND-TREE (*tamarindus Indica*); a large and beautiful tree of the East Indies, belonging to the natural family *leguminosæ*. The leaves are pinnate, composed of sixteen or eighteen pairs of sessile leaflets, which are half an inch only in length, and one sixth in breadth. The flowers are disposed, five or six together, in loose clusters: the petals are yellowish, and beautifully variegated with red veins. The pods are thick, compressed, and of a dull brown colour when ripe. The seeds are flat, angular, hard and shining, and are lodged in a dark, soft, adhesive pulp. The tamarind-tree exists also in Arabia, Egypt, and other parts of Africa; but that of the West Indies is perhaps a different species, distinguished by the shortness of the pods, which contain two, three or four seeds only. In the West Indies, the pods are gathered in June, July and August, when fully ripe; and the fruit, being freed from the shelly fragments, is placed in layers in a cask, and boiling syrup poured over it till the cask is filled; the syrup pervades every part quite down to the bottom; and when cool the cask is headed for sale. The East India tamarinds are darker coloured and drier, are more esteemed, and are said to be preserved without sugar. This fruit has an agreeable acid and sweetish taste, is refrigerant and gently laxative. A simple infusion in warm water forms a very grateful beverage, which is advantageously used in febrile diseases. The Turks and Arabs carry the pods, prepared with sugar or honey, either green or ripe, in their journeys across the deserts; and they are found to constitute an agreeable and wholesome article of food.

TAMBOUR; a species of embroidery introduced into this country, in the course of the last century. This branch of art does not at the present day prevail in Great Britain to the extent it did some years ago; latterly, the *sewing* of muslins, &c. has taken its place, and in a great degree superseded it. The Swiss, from whom the working in tambour is derived, appear to have always maintained a superiority in this description of work. A single tambour worker usually sits at a low circular frame, over the top of which the silk, linen, or muslin is stretched by means of a hoop, much in the same way as the head of a drum is tightened. A frame of different construction is used when several workers are employed on the same fabric; consisting principally of two rollers, which, when properly fixed, stretch the linen, &c. to the necessary degree of tension. As the work proceeds, the finished part is wound over one roller, whilst a fresh surface is at the same time unwound from the other. The needle, which is about half an inch in length, terminates in a small hook with the point curving inwards. This is fixed in a handle of bone, ivory or wood, of the thickness of a quill, by means of a small screw on the side. The worker, holding the thread on the under side of the frame, passes the needle through the muslin, &c., from the upper side, and by a continued series of loops interwoven together, succeeds in producing a very minute and beautiful chain line, with which she traverses the outline of any pattern previously sketched upon the fabric she is employed to ornament. Machines have been constructed for tambour working, and continue to be used with much success. The embroidering machine invented by Mr Heilmann of Mulhausen has obtained much credit in this country and throughout the continent; and though its operations differ from the principles of manual tambouring, the patterns wrought by it more resemble tambour work than any other species of embroidery. We therefore introduce a full description of this ingenious piece of mechanism, together with plans, sections and elevations necessary for a clear illustration of the principles on which it works.

Our admiration of the ingenuity exercised in its construction is excited not less by a survey of the rich embroideries executed by it, than by the rapidity of its movements and the delicacy of its operations when in motion. Within a small space, one hundred and thirty embroidering needles are seen, each copying the same design, and performing its task with unerring exactness. The usefulness of the invention is attested by its introduction into the manufactories of England, France, Germany, and Switzerland, where its advantages are appreciated and acknowledged.

A mechanical contrivance to execute at once one hundred and thirty copies of a design in embroidery, and that too with all the delicacy and exactness which this kind of work requires, is very difficult of construction, since an almost imperceptible irregularity in the details would altogether derange the operations of the machine. The house of Koechlin at Mulhausen, however, have surmounted all difficulties in the construction of the machines; and from their admirable models the mechanics of Birmingham produced others in no wise inferior, though it does not appear that they have been able to suggest any improvement on the original invention.

The price of a machine, having one hundred and thirty needles, and two hundred and sixty pincers, is £250 or 5000 francs; and this, it is estimated, will perform the work of fifteen embroiderers, while it requires only one man and two girls to keep it in action. It is necessary that the man be of some experience in the trade, since he has to superintend and assist the operations of the machine, by tracing the design with the point of the pantograph with one hand, whilst with the other he turns a handle for placing and drawing all

the needles. Finally, by working two pedals alternately with his feet, he opens one hundred and thirty pincers in the first carriage, after they have fixed the needles in the cloth, and shuts the same numbers of pincers in the second carriage when they have received the needles from the pincers of the first. The girls have only to re-thread the needles, and observe that none fall from the pincers.

Referring to Plate LXXXVIII. we describe the details of the machine under the following heads:—1. *Arrangement of the Frame;* 2. *Position of the Cloth;* 3. *Arrangement of the Carriages;* 4. *Arrangement of the Pincers.*

Arrangement of the Frame.—The frame is of cast iron, and requires to be fixed on a firm, immovable base, not liable to be shaken by the movement of the machine or the motions of the assistants. Fig. 1. is a transverse section of the machine. Fig. 2. is an elevation of the side where the workmen is placed; in this figure the end of the frame forms two equal rectangles A B B A, A B B A, similarly placed, the one on the right, and the other on the left, and united in the centre by a third rectangle of less width, but more elevated, A D C A. These rectangles are cast in one piece, and the horizontal and vertical sections of the sides are perfectly equal. The four feet of the frame, marked *a*, are firmly fixed to the floor by screws. The other end of the frame is perfectly similar to this, and the corresponding parts are distinguished by the same letters with an accent; thus, A′B′B′A′, A′B′B′A′, are the symmetrical rectangles, and A′D′C′A′ the connecting rectangle, analagous to ADDA; and *a′* denotes the six feet of this end, corresponding to the feet *a* in fig. 2. Between each foot *a*, and its corresponding one *a′*, there is a cross-piece of cast-iron A″, of which the form and position are seen in fig. 1. Thus at the lower part, the two ends of the frame are bound together by six cross bars similar to A″; at the extremities of each of the cross bars, there are also supports *a″* to strengthen the frame-work; two of these are seen in fig. 1. At the upper part the two ends of the frame are united by a single beam D″ (fig. 1.) connecting the corresponding angles D and D′. At the top of fig. 3. a section of this beam is shown, and in fig. 1. the form of its fore and hinder edges are represented by a dotted line.

Such is the arrangement of the frame, at once light and durable, which carries all the mechanism of the machine. It was necessary to give an exact idea of it for the better understanding how the other fixed pieces are supported, and the numerous movable parts enabled to execute their movements.

The length of the machine depends on the number of pincers required. The model that was exhibited carried 260 pincers, and was two yards and a half in length; but the scale of our plates would not admit the representation of a machine so long, and we have, therefore, shown one having 120 pincers; the result of which is simply that our cross beams A″ and D″, instead of being two yards and a half in length, are rather less than two yards. The dimensions of the other parts are the same.

The width of the frame should be the same in all machines, as it determines the length of thread that can be put into the needles, and it is an advantage that they should carry as long a thread as those in Mr Hielmann's model.

Position of the Cloth.—The pincers always present themselves at the same point, and it is obvious that a delicate movement must be given to the cloth, in order that all the points through which the needles are required to pass, may be successively presented. The position of the cloth, and the method of shifting it, are important particulars, which we shall endeavour to describe in detail.

The cloth is placed upon a large rectangular frame, the four sides of which are visible in fig. 1. i. e., the two vertical sides F F, and the upper and under horizontal sides F′F′. In fig. 1. are seen two long wooden rollers G and G, with iron pivots at the extremities, and resting upon the sides F of the frame, in such a manner as to revolve freely. Upon these rollers the fabric intended to be embroidered is wound, and stretched vertically to a convenient degree of tension. Each roller has at one extremity a small toothed wheel *g g*, furnished with a catch, and by reference to fig. 3. it will be seen that these wheels enable the workman to tighten the fabric, or transfer it from one roller to the other at pleasure. Two other rollers placed above the former, but in a manner exactly similar, are seen in fig. 3, and, though less distinctly, in fig. 1. One set of rollers presents the cloth to the upper needles, the other to the lower ones; but as the two upper or two under rollers have not their axes in the same vertical plane, the level of the cloth G″ (fig. 3.), will itself be inclined and presented obliquely to the needles, if care be not taken to correct and replace them exactly in the middle of the frame by means of a strong wooden ruler, fixed like the rollers upon the vertical sides of the frame. The form of this ruler is seen at G′, fig. 3.

The cloth should be stretched laterally as much as the strength of the fabric will admit. This being done, strips of brass are stitched upon the borders, and afterwards the packthreads *g″* (fig. 1.) are fastened to those strips, and these being drawn to the sides of the frame F, stretch the cloth to the degree of tension required.

It remains to notice the ingenious contrivance for moving the frame F, in all directions, without suffering it to leave the vertical plane, and also how the cloth is fixed upon it and partakes of its movements, and is thereby presented to the needles in such a way that all the required points are successively stitched and traversed by the thread.

To obtain this result, Mr Hielmann has employed the pantograph, the principles of which we proceed to explain.

Fig. 1. *b b′ f b″* represents a parallelogram, whose four angles *b b′ f b″* are so jointed as to be made at will either very obtuse or very acute; the sides *b b′* and *b b″* are elongated, the one towards the point *d*, the other towards the point *c*, and these points are so chosen that in one position of the parallelogram the line *c d*, which joins them, may pass the point *f*. This purpose may be accomplished in many ways; for, the position of the parallelogram remaining the same, it is evident that if it be wished to remove the point *d* farther from the point *b″*, it is only necessary to bring the point *c* towards the point *b″*, or *vice versa;* but when once the distance *b′d*, is fixed, it is evident that the distance *b′ c* is a necessary consequence of it. The principle of the pantograph is this:—It is sufficient that the three points, *d*, *f*, and *c*, be in a right line in one single position of the parallelogram, to cause them to be in a right line in any position soever.

On looking over figures 1, 2, and 3, we see in fig. 1. that the side *b c* has a handle, by which the workman puts the instrument into action: fig 2. gives a side view of the angles and joints; and fig. 3. gives a more distinct view of the supporting point

on which it turns, and the point of connection communicating motion to the frame and the cloth.

To obtain precision and steadiness, the sides of the pantograph are joined so that the centre of their thickness is exactly in the perpendicular plane of the cloth, and the axes of the joints are also perpendicular to this plane, in which, consequently, all the progressive movements are accomplished. This is obtained by fixing upon the great upper beam D″, an elbow piece d'' (fig. 1. and 3.) having a convenient rising, upon which is fixed the piece d' that receives at the joint the end of the side $b\,d$; this piece d' is fixed upon d'' with a bolt, but it has also an elongated hole, and before closing up the screw hole, it is moved forward or backward until it is got exactly in the plane of the cloth. This done, nothing more is required than to attach the frame to the angle f of the parallelogram, which is done by means of the piece F″ (fig. 1 and 3.)

It is now evident that if the workman take the handle B″ (fig. 1.), and move the pantograph in any manner, that the point f will describe a figure, similar to that described by the point c, though one sixth of the size, and the point f will communicate its motion to the frame and all that is carried by it. Farther, if the frame be well supported in every part, and caused to move in the same level, each of its own points, and of those which are fixed with it, will describe exactly the same figure as the point f. Thus, by the moving of the pantograph, each point of the machine describes a figure the same as that described by the point f; and consequently the same as that described by the point c, but only one sixth of the size. It is sufficient then to give the workman, who holds the handle B″, a design six times as large as that wished to be done by the machine, and at the same time, to arrange it so that he will both easily and surely go over all the tracings of the design with the point c; to facilitate this, they fix into c, perpendicular to the level of the parallelogram, a small rod terminated by a point C″, and place the design upon a vertical table E, parallel to the plane of the cloth and of the parallelogram, and draw it back only the length of the rod c C″ (fig. 1. and 2.); this table is supported by an iron rod e', which is itself fixed upon a metal foot E′ (fig. 1.), which serves other purposes also, as we shall afterwards see. The frame, loaded with its beams and cloth, forms a very great weight; and whilst it is necessary that it should be kept exactly in a level, it is no less necessary that it should move so easily that the workman may carry the point of the pantograph over the table without effort or uncertainty.

1. A cord e (fig. 1.) attached to the side of the pantograph $b\,e$ passes over a returning pulley and carries at its other end a weight which the workman can graduate at pleasure; this weight balances the pantograph, and tends, in some measure, to lighten the frame.

2. The upper side of the frame F′ bears two projecting sockets, of which there is a side view given in E″ (fig. 3); each of these has a long horizontal slit, in which the bolt e'' (fig. 1. and 3.) can work with very little friction, and which thus serves as a conductor to keep every part of the upper frame to its level; for the bolts e'' are fixed in the great beam D″; the length of the slit in each socket E″ should equal the range of lateral motion.

3. The under side of the frame bears two horizontal rails H and H (fig. 1.) each fastened by two claws h h, slightly bent to the left, as is seen in h (fig. 2.); each of these rails is fitted into the hollow of a pulley H′ (fig. 1.) the *bearer* of which, of an oval form, (fig. 4.) is supported upon two triangular edges h' h' on the two branches h'', which form the extremity of a forked lever H″, of which there is a side view in fig. 2.; the two levers similar to H″ ought to be bound together, in order that the sides of the frame may be equally supported; for this reason, they are united by the beam or axle I, the two extremities of which are supported upon metal legs (fig. 2.); a counter-weight I, resting upon the end of the levers H″, and capable, at pleasure, of being brought nearer to or removed farther away from the centre of support, exerts an upward pressure upon the frame, which, without hindering its motions in any way, prevents it from leaving the original level for which the pantograph was regulated; the length of the rails H ought to be equal to the range of the lateral motion of the frame; and the arms of the levers H″ ought to be so long, that the arc which they cause the edges h' of the support of the pulley to describe, form a right line with the highest rising or lowest descent of the frame.

4. Lastly two conductors i i (fig. 1.) supported on metal feet, present vertical slits, in which the lower side of the frame F′ remains fixed.

Arrangement of the Carriages.—Before describing the arrangement and action of the pincers that bear the needles, we shall endeavour to explain the arrangement of the two carriages that carry the pincers and all their mechanism. These carriages, both exactly similar, are placed one at the right and the other at the left of the frame (fig. 2.). The same letters are used in describing their corresponding parts.

Each carriage performs its movements upon an iron rail, composed of two rods well dressed and adjusted horizontally, one at either end of the machine. One of these rods may be seen in its place at K (fig. 2.); there is also a side view of it a little to the right, under No. 2. and a plan of it is shown in fig. 5.; the two projecting portions k k are bolted down upon two brackets, which are themselves fixed upon the two vertical supporters AC and AB of the frame; one of the brackets is seen to the left of fig. 1.; the corresponding bracket of the other rod is seen at the right against the supporters A′B′. The carriage itself is composed of a long hollow cast metal cylinder L (fig. 1. and 2.) having at each extremity a grooved wheel L′, which revolves upon the rail K; these wheels are mounted upon a piece l' forked at the two ends to receive their axes, and the piece l' itself is bolted upon an appendage l (fig. 1. and 6.) cast along with the cylinder L.

The carriage, thus constituted, preserves its equilibrium perfectly secure upon the rods K, and so influences the whole, that the cloth may, with the greatest ease, be moved backward and forward so as to enter or draw the needles.

But to avoid employing a person for these alternate movements of the carriage, M. Heilmann has by an ingenious construction enabled the workman managing the pantograph, without moving from his place, or at all inconveniencing himself, to guide the carriages, and regulate at pleasure the extent of their course and the rapidity of their motions.

A pulley J (fig. 2.) is adjusted to the supporter AB, to the right of the frame, by means of the two pieces J′ and J″; a similar pulley is adjusted at the other end of the frame to the corresponding supporter A′B′ (fig. 1.). In this figure, the last only is shown, the one fixed to AB being left out, to show

the wheel over which it projects. At the top of the pullies J is an iron axle M″ (fig. 1.) sustained by pivots fixed upon the great beams of the frame AC and A′C′; this axle carries, towards its extremities, but inside of the frame, two toothed wheels *m*; the one to the left is seen in fig. 1. the one to the right is hidden by the pulley J; its left extremity projects beyond the frame, that it may carry a toothed wheel M (fig. 1. and 2.). On the pulley J and on the corresponding toothed wheel *m*, there passes an endless chain *j* (fig. 2.); that part of the chain which is to pass over the circumference of the wheel *m* is a Vaucanson-chain; the other part which is to pass over the pulley J is a plain belt; the extremities of the chain, taken as a whole, are fixed, the one in *j′* and the other in *j″* (fig. 2.) on a piece *m″* supported by the extremity of the pin *m′* (fig. 1.) which is itself fixed in the piece *l*, at the extremity of the beam L; this same pin bears likewise a grooved wheel that runs under the shaft K.

The result of this arrangement is, that in making the axis M″ (fig. 1.) or the wheel M (fig. 2.) turn in the direction shown by the arrow, the carriage approaches the cloth; whilst, on the other hand, it will recede from the cloth when the wheel M turns in a direction contrary to the arrow.

The carriage on the left (fig. 2.) is arranged exactly as the carriage on the right, just described; the whole is similar to it, and its details are marked with the same letters, observing, however, that the wheel M, which is on the extremity of the axis M″ agreeing with that of the second carriage, is marked by the letter M′ because it is necessary to distinguish the two wheels M and M′, which are otherwise entirely similar, and mounted in the same manner.

When one of the carriages has advanced and pierced the needles into the cloth, the other is then to receive them, draw them through, extend the thread as it retreats, and on its return insert the needles again in the cloth, through which they will be drawn by the pincers of the second carriage.

For this purpose, M. Heilmann, on the piece O attached to the two supporters AC and AD of the frame, has fixed a curved lever *n o n′ n″* moveable round the point *o*; the curve or crank *n′* bears a toothed wheel O′, and the extremity *n″* bears a toothed wheel O″; the four wheels M M′, O′ and O″ have the same number of teeth and the same diameter; the two wheels O′ and O″ are fixed, the one in connexion with the other, so that they are able to turn the handle N (fig. 1. and 2.), and consequently to turn the wheel O″ along with O′: when the lever *n o* is vertical, the wheel O′ neither touches the wheel M nor M′, but if it be inclined to the one side or the other, it makes the wheel O′ catch successively the wheel M or M′.

Referring to fig. 2. it is manifest, that if we turn the handle N in the direction shown by the arrow, the wheel M will also turn in the same direction, and the right-hand carriage will approach the bar, which prevents the pincers from touching the cloth. That being done, by inclining the lever *n o* in a contrary direction, the wheel O′ will catch the wheel M′ and, by making the handle N turn in the same direction as done just now, the wheel M′ will turn in the same direction as the wheel M, and the left-hand carriage will be thus removed to its limit with a speed proportioned to the power of the hand impelling the handle; it is led back by turning the handle in a contrary direction, and the simple motion of the lever *n o* will be sufficient to act alternately, either on the right or left-hand carriage.

The workman, however, having his hands occupied, the one on the pantograph, the other at the handle, must act with his feet on the lever *n o*. M. Heilmann, to meet this necessity, has conveniently placed two pedals, by means of which the workman executes with his feet a series of operations, not less delicate and minute, than those performed by the hands. Meanwhile, let us describe these pedals, only as a means of putting the lever *n o* in motion, at an appointed spot. The pedals P (fig. 1. and 2.) are moveable around the axes *p*, and have the cords *p′* (fig. 1.) rolled on the pulleys P″ in a contrary direction; these pulleys are fixed on a moveable shaft P‴, sustained on one side in the support E′, and on the other, in a piece K′ (fig. 1 and 2.). Attached to the two great supporters of the frame A C and A D, (fig. 2.) the shaft P‴ bears, at its extremity, a piece represented in a front and side view at No. 3; a little above and to the left of the place that it occupies in fig. 1. This piece has teeth over a portion of its rim, (for a purpose which will be explained hereafter); we observe it supplied with a pin fixed in the curved extremity of the lever *n o*; then it is manifest, that in lowering the pedal P which is at present raised up (fig. 1.) the upper part of the shaft P‴ (seen endwise in fig. 2.) will turn from left to right, and the lever *n o* will incline itself for the purpose of bringing the wheel O′ over the wheel M′, but at same time the pedal at present lowered will rise up, because its cord is forced to roll itself on the pulley as much as the other cord unrolls, so that the apparatus is in full power to act in a contrary direction when necessary.

Arrangement of the Pincers.—The beam L′ (fig. 1. apd 2.) bears, at intervening distances of half a yard, the appendages *q q*, which were cast in the same piece with it. (See also fig. 6. where the scale is larger.) It is to these appendages that the curved branches Q, (fig. 1. and 2.) supporting the whole mechanism of the pincers, are fixed by two bolts. Fig. 6. represents only a part of these branches; but, as they are arranged in nearly the same manner above and below the beam L′, that part, along with figs. 1 and 2. is capable of giving a distinct idea of them. An iron rod, in the form of a triangular prism, seen in S, (fig. 6. and 7.) is extended between the two consecutive branches, Q Q, as seen in fig. 1. and is fixed to each of these branches by means of an ear *s′* (fig. 6. and 7.) into which a bolt passes, crossing the thickness of the branch; and, instead of a simple hole, the ear has a slit, allowing it to go backward or forward. We are then easily able to put successively into a straight line, the three rods S, intended to be placed in the three intermediate spaces of the branches Q; each of which is a little prolonged beyond its two ears, so that, when the complete structure is made, the three consecutive rods may seem to form only a triangular prism, extending from one end to the other of the carriage. This prism is intended to receive and carry a full row of pincers. Figs. 8, 9, 10, and 11, represent the details of the construction of a pincer. In T, (fig. 8.) is seen the lower jaw, as set in its place, and adjusted to the prismatic rod. It will readily be seen that it bears,

1st. Below, a little to the left, a vice *t*, which fixes it on the prismatic rod; and to which it is nearly similar in shape, at its lower end.

2d. Directly to the left, a spring *t′*, for propping

the end of the upper jaw V, by forcing it to shut and press against the lower jaw.

3d. Above, and towards its centre, are two small rounded ears, each pierced through, and separated the one from the other, by a space equal to the thickness of the upper jaw, and intended to receive the corresponding ear *v* of that jaw.

4th. A little to the right of the ears, is a very small vertical nob *t''*, for stopping the needle, if at any time it tended to catch the cloth too far forward.

5th. Directly to the right, a thin plate T', having a cone-shaped hole, larger without than within; a front view of this plate is given in fig. 11.

The upper jaw V, is represented in the same fig. 8; it is put out of its place, that, by raising it a little upwards, we might better show its shape.

The lower jaw being set in its place, it is enough to arrange the upper jaw, and put a peg through it crossing the three ears, that the pincer might be fully mounted. We see at the same time that, of course, it is shut by the action of the spring *t'*, and that we cannot open it but by using on the end of the upper jaw V a pressure from above, capable of overcoming the elasticity of the spring *t'*.

Fig. 9. represents an upper view of the pincer; in which we see the breadth of the jaw and the spring.

Fig. 10. represents a pincer seen at the extremity of a side of the plate T'.

Fig. 12. represents a needle V' of its natural size; the hole is in the centre, the thread passes through it as in a common needle, but it is not doubled; it is enough to mix the thread-ends at the small end with those at the larger, near the needle, and afterwards roll them together, by passing them between the finger and thumb, that they may hold the better, and pass through the cloth with ease.

When a pincer is open, and only half of the needle is thrust through the opening of the plate T, it is lodged in an angular grove, having less depth than the needle's thickness; and when the pincer closes, the upper jaw presses it in the groove; thus, the needle is held secure, provided that it be not prevented by the three edges of its triangular shape.

All the pincers being arranged and adjusted at a proper distance, on the prismatic rod S, to form the upper row of the right hand carriage, as seen in fig. 1. we shall now endeavour to explain how the workman is enabled to open all the pincers of that row at once, when the needles are to be given to the pincers of the opposite carriage, after having fixed them in the cloth.

To gain that object, there is an axis of iron U, broader than thick in form, turning on itself, and extending from one end to the other of the carriage (fig. 1.); a section of it is seen in U, (fig 13.) This axis is supported by two kinds of forks *u* (fig. 6.) which are bolted to the extremity of the branches Q; and it is kept in proper play by a nob *u'*; those parts of the axis by which it rests on the forks, are round, and the latter are of such a height, that when its flat portion is turned upwards, it only touches the extremities of all the upper jaws, V, without pressing them, so that the pincers remain secure; but, when we turn it a little on itself, it leans on the extremities of these pincers, and opens them by acting on the elasticity of the spring *t'*.

The workman must now be enabled to turn the axis U, whether it be to open the pincers, or shut them, for they may shut of themselves, by means of the springs *t*, as soon as the axis U is brought upwards.

M. Heilmann, with that intention, adapts to the two extremities of the axis U, two toothed sectors *x x*, a front view of which is seen in fig. 2.; each of these sectors regularly catches with a vertical rod X (fig. 1. and 2.) impinging against the branch Q, on which it is kept by props, and the rod X itself in its lower part is furnished with a horizontal peg *x'* (fig. 1.) perpendicular to its surface; by means of these pegs, motion is given to the rod X, to the sector *x*, and consequently to the axis *u* for opening and shutting the pincers. But to see how the workman performs this operation with his feet, let us return and consider the pedals P (figs. 1. and 2.). We have already shown that the frame P'', which is set in motion by these pedals, bears on its right extremity (fig. 1.) a piece P'', intended to put the lever *n o* in play. A front view of this piece is given above its place (fig. 2.), and to the left under No. 3. It is observed that it has teeth throughout two thirds of its circumference, and that it is used as a pinion; by its toothed part it catches with a sector *r*, mounted on the extremity of the shaft R, which can turn on itself, and it is supported by props *r' r'*, fixed in the centre of the horizontal and lower cross beams of the frame. The axis R bears also two branches Z Z (fig. 2.), set crosswise on itself, and terminated by the forks *z* and *z'*. They are intended to receive the pins *x'* of the rods X; their manner of working can be easily understood. In fine, by reverting to fig. 2. let us suppose that the workman, by turning the handle N in the direction of the arrow, draws back the right hand carriage; the carriage then returns; he fixes the pegs *x'* in the forks *z'*, into the cloth; he plants the projecting half of the needles that it bears, and these halves penetrate into the pincers of the left hand carriage, which are open to receive them; it is now necessary to shut the left hand pincers, that they may take up the needles, and open those on the right hand that they may lay them down. That is the whole process which the workman performs with his foot, at a single stroke; he presses on the pedal that is raised for the purpose of drawing the cords which bears it; then the rotatory motion resulting from it in the corresponding pulley, communicates itself to the shaft P', to the pinion *p''*, to the sector *r*, to the shaft R, and simultaneously to the two branches Z Z; the extremities *z z* of these branches (fig. 1. and 2.), rise up, and bear the pins *x*, in their ascending movement. Consequently the rods X remount by gliding in their grooves, and set in motion the sector *x* and the shaft U, which last, in turning, presses on the end of all the upper jaws V, and at once opens all the pincers: by the same motion of the branches Z Z, the forks *z' z'*, terminating on the left, descend, drawing along with them the pins of the rods X of the left hand carriage, and turn round the corresponding sectors and the shaft on which they are mounted, that it may strike with its flat side on the ends of the upper jaws V, and thus the whole pincers of that side are shut by the springs *t'*.

By this method the workman shuts the left hand pincers and opens those on the right, which last will remain open till they have received the needles after the return of the left hand carriage. The same motion of the pedal which produces this double effect, changes also the position of the lever *n o* (fig. 2.), and leads the wheel O' on the wheel M', so that the workman has only to turn the

handle N, to give motion to the left hand carriage, which draws the needles and inserts their points.

The threads are drawn out just as the carriage withdraws; but, this tension offering no elasticity, there may result inconveniences. These M. Heilmann has prevented, by applying to the carriages a mechanical construction, by means of which all the threads are equally pressed at the same time, by a weight regulating them; this alone remains for us to explain.

We observe, in fig. 1. a little under the prismatic rod which bears the pincers, a rod Y, extending from one end of the carriage to the other, and even exceeding it a little at each end. This shaft is borne by the pieces y, fixed on the branches Q (fig. 2. and 6.), in which they turn; at its left extremity, it bears two small bars y' and w, and at its right extremity a single small bar y' and a counterpoise y'', seen in fig. 2. The extremities of the two small bars y' are joined by a somewhat thick and straight wire. When the carriage comes near the cloth, and before the wire can touch it, the small bar w (the direction of which is seen in fig. 2.), meets a peg w' (fig. 1.), leaning against it, and raising it more and more; the small bars y' y', and the wire are raised at the same time, and take the position represented in fig. 7.; on the contrary, when the carriage, in leaving this position, removes away the cloth, the small bar w, glides in its descent on the pin w', and withdraws to a certain distance; after that the counterpoise y'' lets fall the small bars y', and drives the wire joining them, on all the threads bearing the needles; the whole process then resumes the position shown in figs. 2. and 6.

Throughout all the preceding remarks, we have only had in view the upper row of the pincers and needles, that the explanations might be the more perspicuous. But in reference to figs. 1. and 2. we see, on both the right and left hand carriages, a lower row of pincers and needles, which are mounted at the lower extremity of the branches Q, exactly like the rows in the upper part. The mechanism opening and shutting the pincers is also the same, and acts at the same time, as seen in fig. 2. since there are for that row a shaft, a toothed sector, and corresponding sliding rods X X. The threads are also pressed by a structure altogether similar to the one described above, when using the letters Y y, y', w and w'.

REMARKS ON THE MOTION OF THE MACHINE.

The size of the designs that the machine can execute, is not only limited by the extent of the movements that may be given to the frame which bears the cloth, but also by the number of needles which it works; for all the needles executing the same design, and upon the same horizontal line, it is evident that their distance ought to be a little larger than the breadth of the design, without which the motion of the frame would lead before one needle, a portion of the cloth that had been embroidered by another, and thus cause a repetition of work. Consequently, if we wished it to work with 130 needles, which would make 65 above and 65 below, and that each drawing should have, for example, 2-10th parts of a metre* of horizontal breadth, we see that the distance of two needles in juxtaposition ought to be something more than 2-10ths of a metre, and we would require a machine having more than 65 times 2-10th parts of a metre, or more than 13 metres in length. But the arrangement of the mechanism of the whole does not permit us to give the machine so much length, and hitherto about 2½ metres have been allowed for the working part; but in order to place, in this space, 130 needles, that is to say, 65 above and 65 below, we must place them at the distance of about 4-100th parts of a metre; which is the maximum breadth of the embroideries that it may be made to execute. In order to obtain larger breadths, we must diminish the number of the needles, and leave more space between them. However, if the machine has the inconvenience of being limited in the direction of its breadth, it has the advantage of having no limit in the direction of its length or height; it can, for instance, embroider at once 130 ribbons as long as we please; in fine, it is sufficient to arrange these ribbons on two rolling instruments, and at once embroider the whole height that the vertical motion of the frame can allow. The workman then puts a mark at the point where he stopped on the table, and for an instant stops the machine, to roll the embroidered part on one of the rollers, and bring a new surface before the needles. He causes the point of the pantograph to go up or come down, according as he has stopped above or below; and in the same manner causes the design that he pictures out on the table to go up or down; and with a little art, he readily finds out the mark to go on with the work. The workman should not follow with the pantograph over the markings of the design on the table, but he should stop the point of that instrument on the spot of the drawing through which the needle is to enter. He ought to carry it back, and stop it anew on the spot through which the needle is to spring up again, or re-enter while returning from the other side, and thus in succession.

To facilitate this object, the drawing on the picture is composed of three narrow lines, terminated by the spots of the needles' entrance and return, so that the workman has always before him the series of broken lines that he ought to follow with the point of the pantograph, as, if he should happen to leave that tract for an instant without having left a token to mark the spot where he has reached, he has to look at the staff already done, and so comparatively find out the spot where he ought to resume his work, so as to occasion no blank, or to go over the same grounds a second time.

REFERENCES TO PLATE LXXXVIII.

ABCD, fig. 1. the front end of the frame
A'B'C'D', the back end of the frame.
A'', fig. 1. lower cross beams uniting the feet of the two ends of the frame.
a, the six feet of the front end of the frame.
a', the six feet of the back end of the frame.
a'', fig. 1. buttresses uniting the cross beams A'' to the perpendicular posts of the frame.
B'', fig. 1. handle of the pantograph.
b b' b'', three of the angles of the pantograph.
c, point of the b b' on which the tracer is fixed.
C', (fig. 2.) tracer of the pantograph.
D', cross beam, in form of a gutter, which unites the upper parts of the frame.
d, fixed point around which the pantograph turns.
E, table on which the design to be embroidered is put.
E', support of the table.
e, cord attached by one end to the side b c of the pantograph, passing over a return pulley, and carrying a weight at the other end.
e', iron spindle by which the table E is bound to its support E'.
E'', fig. 3. grooved rail fixed to the side F of the frame.
e'', spindle (or rod) fixed upon the cross beam D'' and working in the grooved rod (or rail E''.
FF', figs. 1 2. and 3. vertical beams (or posts) of the frame which bears the cloth.
F F, horizontal sides of the same frame.

* The metre is a French measure of length, containing 39·37023 English inches.

F', fig. 1. and 3. bearer (or claw) fixed upon the upper side of the frame F, and by which it is fastened to the pantograph.
f, fourth angle of the parallelogram, which forms the pantograph.
G, fig. 1. 2. and 3. four rollers or cylindrical beams of wood adjusted upon the vertical posts of the cloth frame.
G' two rods (or rails) fixed upon the same posts, and serving to preserve in the same vertical plane the cloth rolled upon each system of beams.
g, toothed wheels (of support) mounted upon one of the ends of the rollers G.
g', catches which hold the wheels g.
G' cloth.
G'', fig. 1. pack threads which stretch the cloth laterally.
H, guides fixed to the under sides of the cloth frame.
A, fig. 1. and 2. bent claws (or bearers) which support the rails H.
H', grooved pulleys (or wheels) upon which the rails H work.
h' h'' fig. 1. and 4. knives (or edges) upon which are borne the capes of the pulleys H'.
H'', large levers which carry at one end the capes of the pulleys H', and at the other end a counter weight I, fig. 2.
h'', the two extremities of the forks of the levers H''
I. moveable counter-weight upon the ends of the levers H'', fig. 2.
I', main beam upon which the levers H'' are mounted and supported, in order that they may give solidity to each other, and that the two ends of the frame may be depressed and raised with the same force, fig. 2.
I'', the two supports of the extremities of the main beam I', fig. 1. and 2.
i, two iron feet, having a vertical cleft in which the under side of the frame works, and serving to keep to the same level during its movements.
J, fig. 2. pulleys mounted upon the extreme beams of the frame.
J' and J'', pieces which support the pulley J, fig. 2.
j, endless chain.
j' and j'', point to which the extremities of the endless chain are attached, fig. 2
K, fig. 1. 2. and 5. Rods which support the carriages; fig 5. shows one of these rods looking from above, with the appendices k by which it is fixed upon the brackets (projections) of the beams of the frame.
K', fig. 2. piece bolted to the two beams A D and A C, and supporting the extremity of the axle P''.
k, appendices of the rods K.
L, fig. 1. 2. and 6. main beam of the carriage, bearing at its two extremities appendices l, by which it is attached to the pinion supporters i, and carrying besides *appendices*, q q intended to receive the great *branches* Q Q.
l, appendices by which the main beam L is fixed upon the pinion f.
L', pinions which bear the carriage upon the rods K.
i' pinion supporters, forked at the two ends, to receive the axles of the pinions L', fig. 2.
M M', fig 1. and 2. toothed wheels, mounted upon the anterior extremity of the axles M'' and on the outside of the frame.
m, fig. 1. toothed wheel mounted upon the main beam M' inside the frame.
M''M', two main beams turning in the sockets fixed upon the great beams of the frame, A D, A'D' and A C, A'C'.
m', bolt traversing the piece l, and supporting the pinion which works under the rail K.
m'', a piece supported also by the bolt m', and serving to fasten the two extremities of the endless chain, fig. 2.
N, fig. 1. and 2. handle by means of which the wheel O' fig. 2. is turned in sending forward or bringing back the carriage.
n n' n'', Jointed (elbowed) lever, carrying two toothed wheels O' and O'', and having its point of support in o upon the cross beam O.
O, cross beam uniting the sides of the frame A C and A D.
o, the point of support of the lever n n' n''.
O' and O'', two toothed wheels working always together, mounted upon the points n' and n'' of the jointed lever n n' n'', and moving with it.
P, fig. 1. and 2. two pedals moving upon the axis p, which is fixed.
P', Pulleys mounted upon the axle p'', and moveable with it.
p', Cords which bind the pedals P to the pulleys P'.
P'', Axis of the pulleys P'.
p', piece fixed to the extremity of the axis P''; it is toothed two-thirds of its circumference; the remaining portion is prolonged and carries a pin which works in the forked end of the lever n o and gives it the motion.
Q Q, fig. 1. 2. and 6. Great cast branches (beams) mounted upon the main beam by means of the appendices q q.
R, fig. 1. main beam sustained at the lower part of the frame, by two sockets r' r'.
r, toothed sector, borne at the extremity of the beam R and working with the pinion p''.
S, fig. 1. 2. and 6. prismatic rod bearing the pincers; it is fixed between the two consecutive branches Q Q, by means of the ears s s'.
T, figs. 8. 9. 10. and 11. lower jaw of the pincer.
t, vice which serve to fix it on the prismatic rod.
T', plate having a hole through which the needle engages itself in the pincer.
t', spring intended to raise the end of the upper jaw.
V, upper jaw.
v, ear by which the upper jaw joins itself, by means of a peg with the lower jaw.
V', fig. 12. needle of the natural size.
U, fig. 1. a beam borne at the extremity of the branches Q Q, the cut of which is seen in figs. 6. 7. and separately in fig. 13.
u, fig. 6. a kind of fork bearing the axis U.
u', peg which catches the axis U in its forks.
X X, fig. 1. and 2. two perpendicular rods, hooked, gliding against the branches Q Q, to which they are adapted.
x, sectors catching with the hooks of the rods X, and mounted on the beam with which they turn.
x', pins fixed perpendicularly to the bottom of the rods X.
Y Y', fig. 1. beams mounted on the branches Q, and turning freely in the gullet.
y y', little bars perpendicular to the axis Y.
y'', counterpoise adapted to the small lever fixed perpendicularly to the axis Y.
w, little bar at the extremity of the axis Y, and intended to make the beam turn at the moment when it leaves it.
w', pin mounted on the frame, and against which the little bar w glides.
w'', two little bars, mounted, one on the upper beam Y Y, the other on the lower beam Y'Y'; they are reunited by a wire, so that the motion of the beam Y Y draws along that of the beam Y'Y'.
Z Z, branches fixed perpendicularly to the axis R, each of these branches so terminated by two forks z z, fig. 2.; the one at the front end, the other at the back end.
z z', forks which terminate the branches Z Z, and which are intended to receive the pins of the toothed rods X X.
No. 1. horizontal section of the upright post A B seen from above, and showing the thickness of the piece and the form of the foot a.
No. 2. section of the rod K.
No. 3. side and front view of the pinion p''.

Tambour, in fortification; a piece of work formed of palisades planted close together and driven into the ground, for the purpose of enclosing an open work. Tambours are sometimes erected before the gates of a city, or fortified post.

TAMBOURINE, or TAMBOUR DE BASQUE; one of the most ancient musical instruments. Wherever we find Hebrew music mentioned, the tambourine or timbrel also appears. The triumphal song of Miriam, after the passage of the Israelites through the Red sea, shows how early vocal music was accompanied by such instruments and by dancing. The invention of the tambourine, or drum beaten by the hand, would seem naturally to have taken place very early, as it is very simple; and many domestic instruments would easily suggest it. How many objects do children turn into a drum! And, in fact, such instruments are generally found, even among the rudest tribes. The use of the tambourine, on sacred or solemn occasions, has descended to modern times, from the Egyptian feasts of Bacchus. In the Bacchanalian songs of the Mænades, on the Thracian mountains, we find continual mention of the drums (kettle drums and tambourines). In the orgies, only the lyre and the flute were originally permitted to accompany the song; but when, according to the fable, Bacchus himself, attended by Satyrs, Fauns and Bacchanals, appeared at the festivals, they brought with them drums, sistrums, and horns. Those musical instruments which are played on by beating, and hence indicate the rhythm most distinctly, have always been very popular at festivals. Luther translated the Hebrew word *toph* by *Pauke* (drum). In English, it is *timbrel*. The Greeks call it τυμπανον; the Romans, *tympanum*; the Arabians, *deff* (*tambour*, in the East, is the name of the guitar); the Spaniards, *adufe* (a word of Arabic origin, and probably carried, with the instrument itself, by the Moors, to Spain). In the East, it was always played on by maidens at the feast and dance, and therefore cannot be compared to our drum. In the middle ages, we find this instrument mentioned among the many used by the Troubadours and minstrels. In those times, it was called *tambour* and *cloquette*, and appeared in every concert. The present tambourine consists of a wooden

or brazen hoop, over which a skin is extended, and which is hung with bells. Sometimes the thumb of the right hand is drawn in a circle over the skin; sometimes the fingers are struck against it. Generally, the hoop has a hole, to give admission to the thumb of the left hand; on this the instrument is supported during the performance, which may be made very graceful by various movements of the body, on account of which the tambourine is generally an attribute of the muse of dancing. The larger tambourine is called *tambour de Basque*, because it is used in Biscay to accompany all the national songs and dances. Steibelt (a German) has recently composed pleasing and brilliant pieces for the pianoforte with the accompaniment of the tambourine.

TAMBRONI, JOSEPH, an Italian poet and historian, born at Bologna, in 1773. He studied in the university there; and, in 1794, was elected palæographer, or inspector of the archives of his native city. When the French invaded Lombardy, he attached himself to Marescalchi, whom he accompanied to the congress of Rastadt and to Vienna, as secretary of the Cisalpine legation. On the return of the Austrians to Italy, Tambroni found an asylum in the mountains of Savoy; but he returned after the battle of Marengo and the foundation of the Cisalpine republic. He was then attached to the Italian legation at Paris, under his friend count Marescalchi; and, in 1809, he became consul at Leghorn, and two years after at Rome. On the fall of the imperial government, in 1814, he retired from public life, and engaged in conducting the *Giornale Arcadico*. Tambroni died at Rome, in 1824. Among his works are *Compendio delle Storie di Polonia* (2 vols.), *Intorno alla Vita di Canova*, besides many letters and poems.

TAMBRONI, CLOTILDA, sister of the preceding, distinguished for her acquaintance with Greek literature, was born in 1758, and, from her early years, displayed an invincible attachment for study, in consequence of which her parents afforded her the means of instruction. She was admitted into the Arcadian academy at Rome, the Etruscan academy at Cortona, and the Clementine at Bologna; and, in 1794, the professorship of the Greek language was bestowed on her, which she retained till 1798, when she was displaced because she refused to take the oath of hatred to royalty, required by the laws of the Cispadane republic. She was afterwards restored by Bonaparte; but the Greek professorship being at length suppressed, she retired to the bosom of her family. Her death happened June 4, 1817. Her works consist chiefly of poems written in Greek, among which is an elegy in honour of Bodoni, the celebrated printer.

TAMERLANE. See *Timour*.

TAMMEAMEA, OR TAMAHAMA, king of the Sandwich isles, in the Pacific ocean, was one of those individuals who are destined to produce a great effect on the state of society around them. He belonged to the race of the native chiefs; and at the death of captain Cook, in 1780, he had arrived at manhood; but he had no concern in that event. Tirrioboo, the king of Hawaii, the largest of the Sandwich islands, having offended his principal officers, he was put to death, and Tammeamea was chosen to succeed him. He soon showed extraordinary talents for his situation; and it was a part of his policy to encourage the settlement of European mariners and others in his dominions. When captain Vancouver visited Hawaii, Tammeamea put himself under the protection of that officer, as the representative of the king of Great Britain; and, as the price of his submission, he was assisted in building a fine vessel, which afforded a model for the construction of several more. Tammeamea thus formed a fleet, with which he conquered the adjoining islands, and traded to China. He subsequently erected a fort on the island of Oahoo, and obtained from the Russians some artillery; while, by encouraging the trading of his subjects with navigators, he added to his own wealth and importance as well as that of his people. This enterprising monarch died in March, 1819. Rhio Rhio, the son and successor of Tammeamea, having made a visit to England, together with his queen, in 1824, both their majesties died in London, after a few months' residence, in consequence of a disease arising from change of climate and habits of life.

TAN, TANA, TANIA; an ending common to a great many names in the Oriental languages, as well as those of Europe, signifying *country* or *place possessed by*; *Mauritania* (country of the Moors).

TANAIS. See *Don*.

TANCRED, with Godfrey of Bouillon, the soul of the first crusade, was born in 1078. History gives us no information concerning his father, a Sicilian or Italian marquis; but his mother was the sister of the celebrated Norman, Robert Guiscard, whose eldest son, Bohemond, was the friend and brother in arms of Tancred. (See *Guiscard*.) In 1096, the two heroes embarked for Epirus, and thence marched to Macedonia. Tancred was present in the van or the rear, wherever danger was to be found, and more than once saved the army from destruction in the snares of the Greeks. On the plains of Chalcedon he united his forces with those of Godfrey; and here they formed that compact which Tasso has celebrated in his Jerusalem Delivered. At the siege of Nice (1097), Tancred first appears among the heroes who directed the course of events, and in the battle of Dorylæum, in which his younger brother fell, he saved the army of the crusaders, when surrounded by 200,000 Seljooks. Godfrey's brother Baldwin and Tancred now advanced over the Taurus towards Jerusalem, a distance of nearly 1000 miles, through an unknown and desolate region, for the purpose of exploring the route. Tancred first penetrated through the passes of the mountains, and obtained possession of Tarsus by capitulation. Baldwin followed him and was faithless enough to take possession of the town ostensibly for his brother, but virtually for himself. Tancred, though exasperated at this act of treachery, nobly exclaimed, "Shall I stain my lance with the blood of my brethren?" and, advancing to Memistra, took the place by storm. Baldwin attempted to repeat his perfidious act, and Tancred now suffered himself to be so far carried away by his resentment, as to turn his arms against him; but the quarrel terminated in the reconciliation of the chiefs. Tancred next marched against Antioch, the capture of which was delayed seven months, by the diseases, want of provisions, and insubordination, which prevailed in the Christian army. The garrison left by the Crusaders in the city, was surrounded by a Persian army, which was defeated by Tancred. After Easter, in 1099, the crusaders set forward for the conquest of Jerusalem. Tancred took Bethlehem, and pressed forward to be the first to see the walls of the holy city. Immediately after his arrival before Jerusalem, he captured an advanced work, which is still called *Tan-*

red's tower. During the scenes of horror which attended the capture of Jerusalem (July 19, 1099), he conducted himself with humanity, and saved the lives of thousands of the enemy, at the peril of his own. For this he was accused of being an enemy to the priests and to religion! The sultan of Egypt was now advancing to attempt the recovery of Jerusalem, but was totally defeated by Tancred, with the loss of his camp, before Ascalon (August 12). Tancred captured Tiberias, besieged Jaffa, and, after the death of Godfrey, endeavoured to effect the election of Bohemond as king of Jerusalem; but the unworthy Baldwin obtained the throne, and Tancred, while engaged in the field against the emir of Damascus, was summoned to appear before the new king, on a charge of rebellion. But, secure in the attachment of his vassals, Tancred, now prince of Galilee, despised the base arts of Baldwin, and hastened to Antioch, whose prince, Bohemond, had been captured by the Turks. The city was equally threatened by the Turks and the false Greeks; but Tancred alternately made head against both, restored his friend to liberty, and, with the utmost disinterestedness, gave him back his territories. When Bohemond returned to Europe to obtain recruits, Tancred was left to protect Antioch, which was menaced at once from Aleppo and by the Greek armies. He was even obliged to encounter the attacks of Baldwin, count of Edessa, and Josselin de Courtenay. Bohemond died at Salerno, and his soldiers either dispersed or entered the service of the Greek emperor: still Tancred succeeded in forcing the Turkish sultan to retreat over the Euphrates. This was his last exploit. He died soon after, in 1112, in his thirty-fifth year. Tancred was the flower and pattern of chivalry. Tasso has immortalized him.—An account of his life may be found in Raoul de Caen's *Gestes de Tancrède*, and in Delabarre's *Histoire de Tancrède* (Paris, 1822).

TANGENT, in general; every straight line which has one single point in common with, and lies entirely outside of, a curve (at least of every such curve as can be cut by a straight line in two points only). This is the geometrical tangent. In trigonometry, the name is applied particularly to that part of the tangent to the circle which stands perpendicular at the end of one of the radii, including a particular arc, and is cut by the prolonged radius passing through the other end of the arc (the *secant*). Trigonometrical tangents, used with the sine and cosine, &c., for the solution of triangles (see *Trigonometry*), have been calculated according to their relative value (i. e. with reference to a radius of a certain magnitude) for every arc; and these relative values, or their logarithms, are generally to be found in the trigonometrical tables, with the sines and cosines of the same arcs. How this calculation of trigonometrical tangents, in reference to sines, cosines and radii, is performed, may be easily understood by a mere comparison of the two similar triangles which originate when we draw these lines and the corresponding arc. The differential calculus gives a very simple method for calculating the tangents by means of the subtangents, under the name of the *direct method of the tangents*. To this direct method the higher analysis adds an inverted method, called the *inverse method of tangents*.

Tangential Force. In order to have a clear idea how the planets are made to revolve in consequence of the attraction which the sun, situated in one focus of their elliptical orbits, exercises upon them, we may imagine that they originally received an impulse urging them forward in a straight line. With this impulse the attraction of the sun (centripetal force; see *Central Forces*) being united, the planet was thus made to describe the diagonal of a parallelogram, whose sides represent the directions of these forces. As there is nothing to diminish the impulse which we have supposed originally given to the planet, it would continue its path in the direction of the diagonal; but the centripetal force, operating continually upon the direction which the planet has obtained, makes it change its direction incessantly. In this way originates (as a diagram, drawn according to what we have said, clearly shows) a motion around the centre of forces. (See *Circular Motion*, and *Central Forces*.) The planet has at each point of its path a certain tendency (the consequence of its previous motion; hence, properly speaking, the effect of its inertness) to continue its last received diagonal direction, and thus to recede from the centre of forces. To this tendency, the centripetal force, directed towards this point, is opposed. The centripetal force may again be divided into two forces, the first of which (the normal force) operates perpendicularly to the orbit, and only contributes to retain the planet in the same, in order to prevent the curved motion from degenerating into a straight one: the latter, however, coincides with the direction of the orbit itself, and, therefore, only affects the velocity. This latter force is the tangential force, so called because the element of the curve coincides with the tangent. The doctrine of central forces is so important, because our imagination, unaided by theory, is almost incapable of conceiving a body which turns around another, exercising an attraction upon it, yet without ever coming in contact with the attracting body. But what has been said shows that a correct proportion of the centripetal force to the original impulse, renders the contact of the body with the sun impossible. Generally, the endeavour of the planet to recede from the centre of forces, is called the *centrifugal* force; but can we, properly, call that a force which is evidently the effect of inertness? The original impulse may be compared to the first impulse which sets the pendulum in motion; after which, if we omit other influences, it would continue its oscillations for eternity, from the mere influence of gravity.

TANGIER, or TANJAH (anciently *Tingis*); a town of Morocco, situated at the west entrance of the straits of Gibraltar, thirty-eight miles southwest of Gibraltar; lon. 5° 50′ W.; lat. 35° 48′ N. The population is about 7000. Tangier was possessed by the British from 1662 to 1784. It afterwards became a distinguished station for piracy; but the disuse of this practice in Morocco has diminished the importance of the town. It now subsists chiefly by supplying the British garrison of Gibraltar with cattle and vegetables. The bay of Tangier is not safe when the wind is in the west, having been encumbered by the ruins of the mole and fortification; the cables are liable to be torn, and the ships to be driven on shore. Tangier, viewed from the sea, presents a pretty regular aspect; but within it exhibits the most disgusting wretchedness. It is the residence of the European and American consuls.

TANNAHILL, Robert, a very popular writer of Scottish songs, was born in Paisley, on the 3d of June, 1774, of parents, who, though in humble

life, were much respected for their intelligence and worth. At an early age, he was sent to school, where he was taught to read, write, and cast accounts; and from thence he was transferred to the loom, the weaving business being at that time the most flourishing in the country. While at school he began to distinguish himself as a rhyme-maker; nor did his poetical propensities desert him at the loom. During work, it was his custom to occupy his mind with the composition of verses. To his loom he attached a sort of writing desk, by which he was enabled, in the midst of his labours, to jot down any lines that might occur to him, without rising from his seat. In this way some of his best songs were composed. He had a correct ear for music, and played the flute well; and whenever a tune greatly pleased him, it was his ambition to give it appropriate words of his own.

After his apprenticeship had expired, he removed to the village of Lochwinnoch, about nine miles from Paisley, where he continued to work at the loom for some time. It may be worth mentioning, that Alexander Wilson, the poet, and future American ornithologist, was at this time also weaving in the same village. He was by some years the senior of Tannahill; and the latter being then unknown to fame, had not the fortitude to seek his acquaintance, although he greatly admired the pieces by which Wilson had already distinguished himself.

About the year 1800, some of the figured loom work, for which Paisley was famed, was beginning to be manufactured in England, and it was reported that great wages were to be had there for weaving it. Tempted by the report, or more probably by a desire of seeing the country, Tannahill left Paisley for England, accompanied by a younger brother. They travelled mostly on foot, often stepping out of the way to view the curiosities of the country, until they reached Preston, which they had marked as the limit of their journey. They found, however, that nothing but plain work was woven there; and while Robert went forward to Bolton, to inquire after figured work, his brother took lodgings at Preston, in the house of an old woman of the Roman Catholic persuasion. At Bolton, Robert found plenty of employment of the desired description: but his brother, notwithstanding the superior wages to be made there, remained at Preston all the time he resided in England, being constrained to do so by the kindness of his old landlady, in whom he found a second mother. The two brothers, though they separated, did not forget each other. Being much attached, they frequently met half-way between Preston and Bolton, and spent a few hours together; they also frequently wrote home to their parents an account of their welfare. Their stay in England lasted two years, and was only cut short by receiving intelligence of the fatal illness of their father. They hurried home without delay, and arrived in time to receive his dying blessing. After that event they did not choose to return to England. The younger brother married, while Robert took up his abode with his mother, and till his death, continued to be a comfort to her.

Soon after his return from England, Tannahill had the good fortune to become acquainted with the late Mr R. A. Smith, a gentleman of distinguished talent as a composer, who set to music, and arranged some of his finest songs. He also formed an intimacy with several other individuals possessed of good judgment in musical matters, who were of service to him in improving his taste for composition, and in encouraging him in his love of song. His own manners were so retiring, and his reliance on himself so small, that without the assurances of friendship, he probably would never have been induced to give to the world many of those pieces which have made his name known.

The first edition of his "Poems and Songs" appeared in the year 1807, and was very favourably received by the public. But the author speedily came to regret that he had so prematurely given it to the world. Errors and faults he now detected in it, which had before escaped him, and he began assiduously to correct and re-write all his pieces, with a view to a second edition. He continued also to add to the number of his songs, and in these reached a high degree of excellence. Some of them indeed may be pronounced to be the very perfection of song writing, so far as that consists in the simple and natural expression of feelings common to all. The extensive popularity which they attained indicates how universally were felt and understood the sentiments which they recorded. But his celebrity as a song writer brought little peace to a mind constitutionally timid and misgiving. For some time before his lamentable end, he was observed frequently to fall into a deep melancholy. His temper became irritable, he was easily agitated, and prone to imagine that his best friends were disposed to injure him. His eyes were observed to sink, his countenance got pale, and his body emaciated. His whole appearance, in short, indicated a breaking up of his mental and bodily powers. The second edition of his poems, which he had prepared for the press, was offered about this time to Mr Constable of Edinburgh for a very small sum, but was unfortunately declined. This tended still farther to depress him, and he came to the resolution of destroying everything which he had written. All his songs, to the amount of one hundred, many of which had never been printed, and of those printed all had been greatly corrected and amended, he put into the fire; and so anxious was he that no scrap of his should be preserved, he requested his acquaintances to return any manuscript which they had ever got from him.

Of the immediate circumstances connected with his death, we have received the following account:—The day previous to that event, he went to Glasgow, and displayed there such unequivocal proofs of mental derangement, that one of his friends, upon whom he called, felt it necessary to convoy him back all the way to Paisley, and to apprise his relations of the state of his mind. Alarmed at the intelligence, his brothers, who were married, and resided at different parts of the town, hastened to their mother's house, where they found that he had gone to bed, and as it was now late, and he was apparently asleep, they did not choose to disturb him, hoping that by the morning he would be better. About an hour after leaving the house, one of the brothers had occasion to pass the door, and was surprised to find the gate that led to it open. On further investigation, it was found that Robert had risen from bed, and stolen out, shortly after their departure. Search was now made in every direction, and by the grey of the morning, the worst fears of the poet's friends were realized, by the discovery of his coat lying at the side of a pool in the vicinity of Paisley, which pointed out too truly where his body was to be found. This melancholy event happened on the 17th of May, 1810, when he had only reached his thirty-sixth year.

Tannahill was small in stature, and in manners diffident almost to bashfulness. In his disposition he was tender and humane, and extremely attached to his home, his kindred, and his friends. His life was simple and unvaried in its details, but even the uneventful character of his existence renders more striking and more affecting its tragic close.

Of his "Poems and Songs," which have been often reprinted, the latter alone preserve his name. His poems, indeed, properly so called, are few in number, and do not rise much above that mediocrity which the great success of Burns, to the misfortune of many a rhymester, allured from its native shades into publicity. But his songs are eminently distinguished by elevation and tenderness of sentiment, richness of rural imagery, and simplicity of diction.

TANNIN; a peculiar vegetable principle, so named because it is the effective agent in the conversion of skin into leather. The oak and its products—gall-nuts, &c.—contain two kindred matters, tannin and gallic acid, which seem, by the powers of vegetation, mutually convertible. The former is supposed to be characterized by its forming, with gelatine, a flexible and unputrefiable compound; and by forming with oxide of iron a black combination, which, having a strong affinity for cotton, linen, silk and wool, is much used by the dyer. Hitherto, tannin has been found only in perennial plants, and chiefly in the more durable parts of these. The barks of almost all trees and shrubs contain it, principally in the parts nearest the wood, because in the outer coats it is changed by the air. It has never been met with in the poisonous plants, nor in such as contain elastic, resinous and milky juices. Decoction of nut-galls contains tannin with a little gallic acid, some tannates and gallates of potash and lime, tannin altered into the matter commonly called *extractive*, and lastly a compound (insoluble in cold water) of tannin with perhaps some pectic acid, which is found especially in the extract of oak bark. The purification of tannin, or its separation from the principles with which it occurs, may be effected as follows:—Mix a filtered infusion of nut-galls with a concentrated solution of carbonate of potash, as long as a white precipitate falls, but no longer, because the precipitate is redissolved by an access of alkali. The precipitate must be washed on a filter with ice-cold water, and afterwards be dissolved in dilute acetic acid, which removes a brown matter from it. This matter is extractive, formed, during the washings, by the action of the air. After filtering the solution, the tannin is to be precipitated by acetate of lead; and the precipitate is to be well washed, although in this operation its colour passes from white to yellow, and it is to be then decomposed by sulphureted hydrogen. The filtered liquor is colourless, and leaves, by evaporation *in vacuo* over potash, tannin in hard, light-yellowish, and transparent scales, which, when exposed to the air, and particularly to the sunbeam, assume a deeper yellow colour. It is not deliquescent; dissolves in water with the greatest facility, and may be readily reduced to powder. Exactly saturated compounds of tannin with acids have no sour taste, but a purely astringent one. In the pure state, they are usually very soluble in water, and cannot be precipitated from it except by a great excess of acid. Tannin forms, with the salifiable bases, very remarkable compounds; that with potash or ammonia in the neutral state is but slightly soluble in cold water, and may be precipitated in the form of a white earth; it dissolves in boiling water, and separates from it, on cooling, in the shape of a powder, which, when drained on a filter, pressed and dried, has quite the aspect of an inorganic earthy salt, and is permanent in the air. The compound with soda has the same appearance; but it is much more soluble. It is known that tannin precipitates solution of tartar emetic. This precipitate is remarkable from a portion of the tannin taking, in the salt, the place of the oxide of antimony.

Proportion of Tannin in different vegetable products.

Substances.	In 400 parts.	In about 8 oz.	In 100 parts.
White inner bark of old oak,	72	—	21
" " " young oak,	77	—	—
" " " Spanish Chestnut	68	80	—
" " " Leicester willow,	79	—	—
Middle bark of oak,	19	—	—
" " Spanish chestnut,	14	—	—
" " Leicester willow,	16	—	—
Entire bark of oak,	29	—	—
" " Spanish chestnut,	21	—	—
" " Leicester willow,	33	109	—
" " elm,	13	26	—
" " common willow,	11	—	—
Sicilian sumach,	78	156	—
Malaga sumach,	79	—	—
Souchong tea,	48	—	—
Green tea,	41	—	—
Bombay catechu,	261	—	—
Bengal do.	231	—	—
Nutgalls,	127	—	46
Bark of oak cut in winter,	—	30	—
" beech,	—	31	—
" elder,	—	41	—
" plum-tree,	—	56	—
Bark of the trunk of willow,	—	52	—
" " sycamore,	—	53	—
Bark of birch,	—	54	—
" cherry-tree,	—	59	—
" poplar,	—	76	—
" hazel,	—	79	—
" ash,	—	82	—
Oak cut in spring,	—	106	—
Bark of alder,	—	—	36
" weeping willow,	—	—	16
" Virginian sumach,	—	—	10
" green oak,	—	—	10
" rose chestnut of America,	—	—	8
" sumach of Carolina,	—	—	6

The most important property of tannin, among those above mentioned, is that displayed in its relation to animal gelatine. They combine with much facility, forming, from a state of solution, a soft, flocculent precipitate, which, on drying, becomes hard and brittle: this has been called *tanno-gelatine*. The combination is not always established in the same proportions, but varies according to the concentration of the solutions and the relative quantities of the substances; nor is the compound in all cases insoluble in water. When the gelatine is only slightly in excess, it consists of fifty-four gelatine and forty-six tannin: when there is a large excess of gelatine, the compound is redissolved. On the formation of this combination, the art of *tanning* depends. The skin of an animal, when freed from the hair, epidermis and cellular fibre (which is done principally by the action of lime), consists chiefly of indurated gelatine. By immersion in the tan liquor, which is an infusion of bark, the combination of the tannin with the organized gelatine, which forms the animal fibre, is slowly established; and the compound of tannin and gelatine not being soluble in water, and not liable to putrefaction, the skin is rendered dense and impermeable, and not subject to the spontaneous change which it would otherwise soon undergo. To render it equal throughout the whole substance of the skin, the action of the tan liquor must be gradual; and hence the tanning is performed by successive

immersions of the skin in liquors of different strength. Sir H. Davy observes, that leather, slowly tanned in weak infusions of bark, appears to be better in quality, being both softer and stronger, than when tanned by dense infusions; and he ascribes this to the extractive matter which they imbibe. This principle, therefore, affects the quality of the material employed in tanning; and galls, which contain a great deal of tannin, make a hard leather, and liable to crack, from their deficiency of extractive matter. Hides increase in weight during the process of tanning from one fifth to one third.

TANNING is a mechanical art, by which the hides and skins of various animals, particularly those of neat cattle, are converted into sole leather, upper leather, harness, &c., by being cleansed of the hair and flesh, and saturated with the tannin contained in the bark of the oak, hemlock, and some other kinds of forest trees. It is a simple process to make leather of hides and bark, but probably one of the most critical of manufacturing operations to make the most and the best leather that can be made from a given quantity of hide. The process is long and laborious. Time and labour are both materially reduced, and the quantity and weight of the leather increased, by various improvements. The improvements alluded to are the substitution of water power for manual labour, in many of the most laborious parts of the process; viz. to soften and cleanse the hide preparatory to the bark being applied to it; to grind the bark; to move pumps for transferring the decoction of the bark from one vat to another (much of which is necessary to be done daily in an extensive tannery), and to roll the leather preparatory to its being sent to market; also the least possible quantity of lime is now used to facilitate getting off the hair: this has been found greatly to add to the weight and quality of the leather. The application of heat to bark in leaches is found to be very important, and more particularly the application of the decoction (usually termed *liquor*) to the hide, rather than the bark, which had been commonly employed. Tanning is a chemical process; and undoubtedly the art will go on improving with the progress of chemical science and the diffusion of chemical knowledge.

TANSY (*tanacetum vulgare*). This plant grows in beds by road sides, and in waste places. The stems are upright, branching, and about two feet high; the leaves doubly pinnate, and incisely serrate, and of an agreeable aspect. It belongs to the *compositæ*. The flowers are yellow buttons, disposed in a large, upright corymb. The whole plant has a strong and penetrating odour, agreeable to some persons, and an extremely bitter taste. It contains an acrid volatile oil, is stimulant and carminative, and the decoction and seeds are recommended as anthelmintic and sudorific. The young leaves are shredded down, and employed to give colour and flavour to puddings; they are also used in omelets and cakes, and those of the curled variety for garnishing.

TANTALITE. See *Columbite*.

TANTALUM. See *Columbium*.

TANTALUS, son of Jupiter, and king of Sipylus, in Phrygia, was a favourite of the gods, who often visited him, until he forfeited their favour by his arrogance. Tradition does not agree as to his crime. According to one account, he offended Jupiter by his perfidy; according to another, he stole away the nectar and ambrosia from heaven; and a third story is, that he murdered his own son Pelops, and served him up for some of the gods The same diversity prevails in regard to his punishment. He is sometimes described as having a large stone suspended over his head, which constantly threatens to fall and crush him, and from which he cannot flee. But the more common account represents him as standing up to his throat in water, with the most delicious fruits hanging over his head, which, when he attempts to quench his burning thirst or to appease his raging hunger, elude his grasp. From this fable comes the English expression to *tantalize*.

TAPESTRY; a kind of woven hangings of wool and silk, frequently raised and enriched with gold and silver, representing figures of men, animals, landscapes, historical subjects, &c. This species of curtain-covering for walls was known among the inhabitants of Eastern countries at an extremely remote era. The most grotesque compositions and fantastic combinations were commonly selected for the display of the talents of workmen in this department of Oriental art, which was afterwards imported into Greece. From these compositions the elegant Greeks are supposed, by Böttiger, to have taken their ideas of griffins, centaurs, &c. At length the refined taste of Athens became visible in the structure of tapestries. The old grotesque combinations no longer, as formerly, covered their surfaces, but were confined to the borders only; and the centre received more regular and systematic representations. In modern times, this description of embroidery has been executed with very great success, and has often employed the talents of the greatest masters in the art of painting. In Flanders, particularly at Arras (whence the term *arras*, signifying *tapestry*), during the fifteenth and sixteenth centuries, the art was practised with uncommon skill; and tapestries were executed there after the masterly designs of Raffaelle in his cartoons. (q. v.) This art was introduced into England by William Sheldon, near the end of Henry VIII's reign. In 1619, a manufacture was established at Mortlake, in Surrey, by Sir Fras. Crane, who received £2000 from James I., to encourage the design. The first manufacture of tapestry at Paris was set up under Henry IV., in 1606 or 1607, by several artists whom that monarch invited from Flanders. But the most celebrated of all the European tapestry manufactures was that of the Gobelins, instituted under Louis XIV., which sent forth very beautiful cloths, remarkable for strength, for elegance of design, and happy choice of colours. The finest paintings were copied, and eminent painters employed in making designs. For a long while Gobelin tapestry was the most costly and favourite method of hanging the walls of chambers. The texture of tapestry is in many respects similar to that of the finer carpetings; but the minuteness of the constituent parts causes the sight of the texture to be lost in the general effect of the piece. See *Carpets*, and *Hautelisse*.

TAPEWORM, one of the most stubborn worms which infest the bowels of beasts, and also of man, has its name from the broad, flat, ribbon-like appearance of each articulation and of the whole body, which is composed of these articulations. Bremser makes two species—*tænia* and *bothryocephalus*—both of which were formerly united in one species, under the name of *tænia*. One kind of both species appears in the human body; namely, 1. *tænia solium*, the single or long-limbed chainworm, in which the

organs of generation are found on one side of every articulation; it is the kind most commonly met with in Germany, France and Britain; 2. *bothryocephalus latus*, the proper or broad tapeworm, in which the sexual organs are found on the flat side of the articulations. It is met with only in Russia, Poland, Switzerland, and some parts of France, and causes little pain. Both kinds often reach the length of twenty or thirty feet, and usually only detached parts pass from the body, but not that which has the head; before this has passed away, the worm reproduces itself, and, moreover, what was formerly doubted, several tapeworms are often met with in one intestinal canal. The symptoms of the tapeworm are a peculiar, sudden sensation of pricking in the stomach, oppression, and undulatory motions in the abdomen, anxiety, cramps, swoons, &c.; but all these symptoms are uncertain, and only the actual passing of pieces of the worm from the body is a certain proof of its existence. The cure is difficult, and requires an experienced physician.

TAPIOCA. See *Manioc*.

TAPIR. The American tapir, when full grown, is six feet in total length, and about three and a half in height. In general form it resembles the hog; but the legs are rather longer in proportion, and the nose is prolonged into a small movable proboscis. The fore feet have four toes, and the hind ones three only. The eyes are small and lateral, and the ears long and pointed; the skin thick, and covered with scattering, short, silky hairs; the tail short, and slightly hairy The teeth resemble those of the horse. It is the largest animal of South America, and is found in all parts of that continent, though most abundant in Guiana, Brazil and Paraguay. It shuns the habitations of men, and leads a solitary life in the interior of the forests, in moist situations, but selects for its abode a place somewhat elevated and dry. By travelling always the same rounds, it forms beaten paths, which are very conspicuous. It comes out only in the night, or during rainy weather, and resorts to the marshes. Its ordinary pace is a sort of trot; but it sometimes gallops, though awkwardly, and with the head down, and, besides, swims with facility. In the wild state, it lives on fruits and young branches of trees, but when domesticated, eats every kind of food. Though possessed of great strength, it makes use of it only for defence; and its disposition is mild and timid. The flesh is dry and disagreeably tasted; but the skin is very tough, and might be applied to useful purposes. The Indian tapir has only been discovered within a few years. It inhabits Sumatra, Malacca, and some of the surrounding countries. The colours are remarkable. The head, neck, feet and tail are black; the rest of the body and tip of the ears white.

TAPROBANA (with the ancients); the name of Ceylon.

TAR; a well known substance obtained chiefly from the pine by burning in a close, smothering heat. Some of the unctuous species of bitumen are also called *mineral tar*. (See *Bitumen*.) The tar of the north of Europe is superior to that of the United States, on account of the latter being prepared from dead wood, while the former is procured from trees recently felled. The mode practised in the Scandinavian peninsula is precisely that described by Theophrastus and Dioscorides, as in use in ancient Greece. A conical cavity is made in the ground, with a cast-iron pan at bottom, from which leads a funnel. The billets of wood are thrown into this cavity, and, being covered with turf, are slowly burnt without flame. The tar which exudes during combustion is conducted off through the funnel above-mentioned into barrels, which are immediately bunged, and fit for exportation.

TAR RIVER. See *Pamlico*.

TARE is an allowance for the outside package, that contains such goods as cannot be unpacked without detriment; or for the papers, threads, bands, &c., that enclose or bind any goods imported loose, or which, though imported in casks, chests, &c., yet cannot be unpacked, and weighed net.

TARENTUM (Τάρας); an old Greek colony in Lower Italy, founded by Lacedæmonian Parthenii, 700 B. C. It was one of the most flourishing and powerful cities of Magna Græcia, and for a long time defended its freedom against the attacks of the Romans. It was also distinguished for luxury and splendour. Pythagoras found many disciples here, and the fine arts were encouraged. Archytas, a mathematician, was a Tarentine. The city was taken by the Romans B. C. 272. The harbour of the modern Taranto is choked up with sand; but the place has some trade, and a population of 14,000 souls. Marshal Macdonald received his title of duke of Tarentum from this place.

TARGUM (*interpretation, translation*); a Chaldee version of the Old Testament. After the Babylonish captivity, the ancient Hebrew had gradually become unintelligible to the common people (see *Hebrew Language*, and *Jews*); and it therefore became necessary to read or explain the Scriptures in the synagogues in the vulgar language of the country. The oldest Targum is that of Onkelos, which comprises only the pentateuch; the second, or that of Jonathan, is a version of the prophets. These are supposed to have been written about the time of our Saviour. The third targum is also a version, or rather a paraphrase of the law, accompanied with many glosses and fables. The fourth, likewise of the law, is called the "Jerusalem targum," because it is in the Syro-Chaldaic language, which was spoken at Jerusalem. The fifth is a paraphrase of the *megilloth* (Ruth, Esther, Ecclesiastes, Solomon's Song, Lamentations); the sixth, of Esther; the seventh, of Job, the Psalms and Proverbs; and the eighth, of the Chronicles. These six are of later origin and less value than the two first mentioned. Several of the targums are contained in the polyglot Bibles. See *Polyglot*.

TARIFF, or TARIF; first a list of certain merchandises; then a list of duties on imports and exports. This word, like many others used in commerce, is derived from the Italian, in which it is *tariffa*: this again comes, like several other expressions relating to commerce or navigation, from the East. In Persian, it is *tarif*. In Arabian, the verb *arf* signifies to *know*, which in the second form becomes *tarif*, signifying to *make known*. The substantive derived from the verb therefore signifies *notification*.

TARN; a department of France. See *Department*.

TARN ET GARONNE; a department of France. See *Department*.

TAROC; a game at cards, perhaps the most interesting, but also the most difficult. It is played with seventy-eight cards, and derives its name from the twenty-two trumps or *tarocs* in it, the most important of which is the *excuse*. If cards, as is said, are an invention of the Arabians, and carried

...ucn attracts ..., it is ob- ...d tartar, ... From ... by adding ... potash in ...ter, as long ...rate of lime ...well washed, ...cid equal in ...mployed, pre- ...ght of water, ... the sulphuric ...forms the sul- ...y, is separated, ... by the water, ... a crystallized ...prisms, white, ...e is sour, and ... They are ...olution so con- ...rance. By the ...tartaric acid is ...rystals are com- ... 75 parts. The

	4·48
	25·62
	69·70
	100·00

... by heat, affording, ... to sublimate, which is ... its origin, *pyro-tartaric* ...ded by some as acetic ...m of a little oily matter. ...with the alkalies and earths, ...tes. The acid appears to ... to enter into combination ..., and to form ternary salts. ... to form salts with an excess ... those bases, with which it ...nds. Tartrate of potash is ...tralizing the excess of acid ... the addition of carbonate of ...finity to water, it is not easily ... a slow evaporation, affords ... It is deliquescent in a humid ...ry soluble in water, whence its ...ble tartar. Tartrate of soda is ...allizable. A triple salt, the tar- ... and soda, formerly named *Rochelle* ... by neutralizing the excess of acid in ...te of potash, by adding carbonate of ...allizes in rhomboidal prisms, soluble ... water. Tartaric acid acts on some ..., and it may be combined with the ... of them by double affinity. By em- ... bi-tartrate of potash to act on these ...ary compounds are obtained. The ...ant of these is that formed with the ...timony. It has long been known, in ...tice, under the name of *tartar emetic*, ... the mildest and most manageable of the ... preparations. It is prepared by boiling ... of the brown oxide (obtained by defla- ...sulphuret of antimony with nitre) with four ... bi-tartrate of potash in 32 parts of water ... an hour: the solution, when strained, is ... to crystallize.

TARTARUS, in the earliest mythology of the ...s; the kingdom of the dead, the infernal regions in general, or the realm of the subterranean Jupiter—Pluto. (See *Cemetery*.) At a later period, it was limited to that part of the infernal regions in which the Titans and the damned were confined. It was represented as a dark and gloomy region, surrounded by a triple wall, and encircled by the fiery river Phlegethon, Cocytus, the stream of lamentation, and Acheron. We find a description of Tartarus in Hesiod, one of the earliest Greek poets; and Virgil (*Æn.* vi, 577) paints the horrors of the place. Here lay the monstrous Tityos (who attempted to violate Latona), stretching over nine acres, while two vultures incessantly gnawed his liver; here Sisyphus rolled a ponderous stone; Ixion revolved on his wheel; Tantalus was tormented with inextinguishable hunger and thirst, and the Danaids toiled in vain to fill their sieves from the waters of the Lethe. See, also, the article *Hieroglyphics*, division, *Egyptian Mythology*.

TARTARY, TARTARS. The old geographers divided the country of the Tartars into European or Little Tartary, and Asiatic or Great Tartary. The former comprised those countries round the Black sea which were inhabited by the Nogay Tartars, and the Budshiac Tartars, or Bessarabians, and a part of the country between the Dnieper and the Dniester. But since these districts have been annexed to Russia (1784), the name has gone out of use; and they constitute the governments of Taurida (q. v.), Cherson (q. v.) and Ekaterinoslav, which contain several commercial cities, and, besides Tartars, have many Russian, Greek, German, and Jewish colonists among their population. Asiatic Tartary, called, from its extent, *Great Tartary*, borders on the Asiatic provinces of Russia, on Persia, Thibet, and the Chinese empire. The northern part (Dschagatai, or Zagatai, or Independent Tartary) contains extensive steppes, and is partly occupied by nomadic tribes, which are governed by separate khans (princes), and differ considerably in their character and manners: some of these khans are under the protection of Russia. The southern part is called *Great Bucharia*, in which, among other commercial cities, is Samarcand, once the residence of Timour. Little Bucharia is subject to China. (See *Bucharia*.) The whole of Central Asia, to the west of Dschagatai, is often improperly styled *Chinese Tartary*. This error arises from the confusion of the Mongol and Mantchoo tribes, who roam over these regions, with the Tartars, with whom they have no affinity. (See *Mongols*, *Calmucs*, and *Mandshures*.) The proper Tartars, or, more correctly, *Tatars*, are divided into numerous branches, and, under different names, occupy a large extent of territory in Europe and Asia. Their true name is *Turks*, or *Turcomanns*, that of *Tatar* being, according to some, a Chinese term for all the nomadic tribes of Central Asia, and, according to others, the name of a Mongol tribe. Once the terror of their neighbours, and not without civilization, some traces and monuments of which still exist, they are now, for the most part, subject to foreign masters. Some tribes continue to preserve their independence, occupying regions too barren to offer any temptation to conquerors, or too remote to be easily accessible; but these circumstances, which have protected them from the arms of foreign conquerors, have also prevented them from being much visited by travellers; and little known of them and of their country. The population in Russia amounts to about t...

by them to Spain, or by the crusaders to Italy, &c. the French and German cards, and the games founded on them, must be explained from national customs; but the taroc would seem to have remained in a great degree faithful to its Oriental origin. The difference between the taroc-cards and the common French consists in those twenty-two tarocs and four others, between the queen and knave, called *cavals*.

TARPAWLING; a broad piece of canvass, well daubed with tar, and used to cover the hatchways of a ship at sea, to prevent the penetration of the rain or sea-water which may at times rush over the decks.

TARPEIA, the daughter of Tarpeius, the governor of the citadel of Rome, promised to open the gates of the city to the Sabines, provided they gave her their gold bracelets, or, as she expressed it, what they carried on their left hands. The Sabines consented, and, as they entered the gates, threw not only their bracelets, but their shields, upon Tarpeia, who was crushed under the weight. She was buried in the capitol, which, from her, was called the *Tarpeian rock*; and there Roman malefactors were afterwards thrown down a deep precipice.

TARQUINIUS, Lucius, surnamed *Priscus*, or the *Elder*, fifth king of Rome, was the son of a merchant of Corinth, who settled at Tarquinii, in Etruria. His wife, Tanaquil, urged him to repair to Rome, where he ingratiated himself both with the king Ancus Martius, and the people; and the former conferred on him the guardianship of his two sons. These he superseded on their father's death, and procured the suffrages of the people for himself. His first step was to admit two hundred plebeians into the senate; after which he engaged in a war with the Latins, and, having finally defeated a confederacy between them and the Sabines and Etrurians, obliged them to sue for peace. For this success, he was honoured with a triumph; and he employed the spoils of war in erecting the Circus Maximus. (See *Circus*.) A confederacy of all the Etrurian tribes against the Romans followed, which, after a war of nine years' duration, terminated in the Etrurians acknowledging him for their sovereign. Tarquin enclosed the city with walls, and constructed those celebrated sewers, which, even at the summit of the Roman splendour, were viewed with admiration. (See *Cloacæ*.) A new war breaking out with the Sabines, he obliged them to purchase peace by the surrender of all their fortresses. Tarquin, who had vowed a temple to Jupiter, Juno, and Minerva, now commenced it on the Tarpeian rock, and thus founded the principal seat of the Roman religion. (See *Capitol*.) He had reached his eightieth year, when the sons of Ancus procured his assassination (B. C. 576). Tanaquil kept his death a secret until the succession was secured to her son-in-law.

Servius Tullius Tarquinius, named *Superbus*, or the *Proud*, is supposed to have been grandson to Tarquinius Priscus. Servius Tullius married his two daughters to the brothers Aruns and Tarquin; the latter of whom was violent and ambitious, while his brother was mild and unaspiring. Their characters were reversed in their respective wives. The tragical deaths of Aruns and the wife of Tarquin, and a criminal union between the latter and his sister-in-law Tullia, followed, and, finally, the murder of Servius, and the accession of Tarquin to the sovereignty, B. C. 534. He supported his usurpation by a band of foreign mercenaries; many of the senators went into banishment, and the plebeians found the yoke press as hardly on themselves. He undertook a war against the Volscians, as also against the Sabines, and was victorious in both instances. Returning to Rome, he twice triumphed, and employed the idle populace in finishing the great circus and sewers commenced by his grandfather. It was in the reign of this Tarquin that the Sibylline books were brought to Rome, where they were for many years resorted to for the purposes of superstition or state policy. Brutus, taking advantage of the anger of the people by the unhappy fate of Lucretia, procured a decree for the banishment of Tarquin and his son; and the king, at the age of seventy-six (B. C. 509), was obliged to abandon his capital, and take refuge in Etruria. The Tarquins interested some of the neighbouring states in their favour, and Porsenna, king of the Clusini, an Etrurian tribe, invested Rome in their behalf, but, discovering treachery in their conduct, renounced their cause. The Latins also took arms in their favour; but the new republic finally triumphed over all its enemies. Tarquin at length, having seen all his sons perish in the field, retired to Cumæ, where he died in the ninetieth year of his age, and the fourteenth of his exile. For a critical examination of the history of the Tarquins, as here given, see Niebuhr's *History of Rome*.

TARRAGONA (anciently *Tarraco*); a town in Spain, in Catalonia; lon. 1° 15′ E.; lat. 41° 9′ N.; population, 7500. It is situated on the coast of the Mediterranean, surrounded with walls and turrets, and has a magnificent Gothic cathedral. Under the Romans, it was the capital of the province Tarraconensis, and was, at one time, one of the chief cities of Spain. In 516, a council was held here. It was besieged and sacked, in 1811, by the French, under marshal Suchet.

TARRAS. See *Cements*.

TARSUS, an ancient city of Asia Minor, the capital of Cilicia, is said by Strabo to have been founded by Sardanapalus. It was adorned by a number of magnificent temples, as well as with a gymnasium and theatre. Its inhabitants enjoyed the privileges of Roman citizens, and the city rose to such distinction as to rival Athens, Antioch, and Alexandria in wealth and grandeur, as well as in the arts and sciences. It is venerable as the birth-place of St Paul. It is now a poor village.

TARSUS OF BIRDS. See *Ornithology*.

TARTAGLIA; a mask in the Neapolitan comedy.

TARTAR, CREAM OF. See *Cream of Tartar*.

TARTARIC ACID. This acid, as it exists in vegetables, is usually combined with potash, forming a salt with an excess of acid—the super-tartrate or bi-tartrate of potash. This salt is deposited in considerable quantity from the juice of the grape during its conversion into wine, or rather from the wine during the slow fermentation which it suffers in the cask. It does not appear to be a product of the fermentative process, but exists before this in the juice of the grape, and is merely separated. It also exists in other fruits, particularly in the tamarind, of which it forms a considerable part. As deposited from wine, it is impure, having mingled with it colouring matter and tartrate of lime. In this state, it forms the crude tartar of commerce, named *white* or *red tartar*, according to its colour. It is purified by boiling it in water, with the addi-

tion of a small quantity of fine clay, which attracts the colouring matter. By evaporation, it is obtained crystallised, forming the purified tartar, crystals, or cream of tartar of the shops. From this salt the tartaric acid is obtained, by adding to a solution of the super-tartrate of potash in boiling water, carbonate of lime in powder, as long as any effervescence is excited: the tartrate of lime which is formed and precipitated, being well washed, is decomposed by adding sulphuric acid equal in weight to the chalk that had been employed, previously diluted with half its weight of water, digesting them with a moderate heat: the sulphuric acid combines with the lime, and forms the sulphate, which, being of sparing solubility, is separated, while the tartaric acid is dissolved by the water, and, by evaporation, is obtained in a crystallized form. The crystals are tables or prisms, white, and nearly transparent. Their taste is sour, and they deeply redden vegetable blues. They are very soluble in water, and form a solution so concentrated as to have an oily appearance. By the action of very strong nitric acid, tartaric acid is converted into oxalic acid. The crystals are composed of acid 66 and water 9 in 75 parts. The acid appears to be composed of

Hydrogen,	4·49
Carbon,	35·63
Oxygen,	59·70
	100·00

Tartaric acid is decomposed by heat, affording, among other products, a white sublimate, which is a peculiar acid, named, from its origin, *pyro-tartaric acid*, which has been regarded by some as acetic acid disguised by the addition of a little oily matter. Tartaric acid combines with the alkalies and earths, forming salts named *tartrates*. The acid appears to have a peculiar tendency to enter into combination with more than one base, and to form ternary salts. It has also a tendency to form salts with an excess of acid, in uniting with those bases, with which it forms soluble compounds. Tartrate of potash is usually formed by neutralising the excess of acid in the bi-tartrate, by the addition of carbonate of potash. From its affinity to water, it is not easily crystallized, but, by a slow evaporation, affords four-sided prisms. It is deliquescent in a humid atmosphere, and very soluble in water, whence its name, also, of *soluble tartar*. Tartrate of soda is soluble and crystallizable. A triple salt, the tartrate of potash and soda, formerly named *Rochelle salt*, is formed by neutralising the excess of acid in the super-tartrate of potash, by adding carbonate of soda. It crystallizes in rhomboidal prisms, soluble in five parts of water. Tartaric acid acts on some of the metals, and it may be combined with the oxides of all of them by double affinity. By employing the bi-tartrate of potash to act on these oxides, ternary compounds are obtained. The most important of these is that formed with the oxide of antimony. It has long been known, in medical practice, under the name of *tartar emetic*, as one of the mildest and most manageable of the antimonial preparations. It is prepared by boiling three parts of the brown oxide (obtained by deflagrating sulphuret of antimony with nitre) with four parts of bi-tartrate of potash in 32 parts of water for half an hour: the solution, when strained, is set aside to crystallize.

TARTARUS, in the earliest mythology of the Greeks; the kingdom of the dead, the infernal regions in general, or the realm of the subterranean Jupiter—Pluto. (See *Cemetery*.) At a later period, it was limited to that part of the infernal regions in which the Titans and the damned were confined. It was represented as a dark and gloomy region, surrounded by a triple wall, and encircled by the fiery river Phlegethon, Cocytus, the stream of lamentation, and Acheron. We find a description of Tartarus in Hesiod, one of the earliest Greek poets; and Virgil (*Æn.* vi, 577) paints the horrors of the place. Here lay the monstrous Tityos (who attempted to violate Latona), stretching over nine acres, while two vultures incessantly gnawed his liver; here Sisyphus rolled a ponderous stone; Ixion revolved on his wheel; Tantalus was tormented with inextinguishable hunger and thirst, and the Danaids toiled in vain to fill their sieves from the waters of the Lethe. See, also, the article *Hieroglyphics*, division, *Egyptian Mythology*.

TARTARY, TARTARS. The old geographers divided the country of the Tartars into European or Little Tartary, and Asiatic or Great Tartary. The former comprised those countries round the Black sea which were inhabited by the Nogay Tartars, and the Budshiac Tartars, or Bessarabians, and a part of the country between the Dnieper and the Dniester. But since these districts have been annexed to Russia (1784), the name has gone out of use; and they constitute the governments of Taurida (q. v.), Cherson (q. v.) and Ekaterinoslav, which contain several commercial cities, and, besides Tartars, have many Russian, Greek, German, and Jewish colonists among their population. Asiatic Tartary, called, from its extent, *Great Tartary*, borders on the Asiatic provinces of Russia, on Persia, Thibet, and the Chinese empire. The northern part (Dschagatai, or Zagatai, or Independent Tartary) contains extensive steppes, and is partly occupied by nomadic tribes, which are governed by separate khans (princes), and differ considerably in their character and manners: some of these khans are under the protection of Russia. The southern part is called *Great Bucharia*, in which, among other commercial cities, is Samarcand, once the residence of Timour. Little Bucharia is subject to China. (See *Bucharia*.) The whole of Central Asia, to the west of Dschagatai, is often improperly styled *Chinese Tartary*. This error arises from the confusion of the Mongol and Mantchoo tribes, who roam over these regions, with the Tartars, with whom they have no affinity. (See *Mongols*, *Calmucs*, and *Mandshures*.) The proper Tartars, or, more correctly, *Tatars*, are divided into numerous branches, and, under different names, occupy a large extent of territory in Europe and Asia. Their true name is *Turks*, or *Turcomanns*, that of *Tatar* being, according to some, a Chinese term for all the nomadic tribes of Central Asia, and, according to others, the name of a Mongol tribe. Once the terror of their neighbours, and not without civilization, some traces and monuments of which still exist, they are now, for the most part, subject to foreign masters. Some tribes continue to preserve their independence, occupying regions too barren to offer any temptation to conquerors, or too remote to be easily accessible; but these circumstances, which have protected them from the arms of foreign conquerors, have also prevented them from being much visited by travellers; and little is known of them and of their country. The Tartar population in Russia amounts to about three mil-

lion souls, residing chiefly in the southern provinces, in stationary habitations, and occupied with agriculture: they are peaceful and industrious in their habits. Some Tartar colonies are distributed among the Russian villages in the governments of Orenburg, Kasan and Tobolsk, and several hordes are independent allies of Russia. The Russian Tartars consist of several branches; the Tartars proper, the Nogays, the Bashkirs, the Kirghises, Yakoutes, and Teleutes. The Tartars proper are descendants of the two great hordes which the successors of Gengis Khan established in Siberia and on the Volga. They comprise the tribes of Kasan, Astrachan and Taurida. They still preserve the peculiar national physiognomy. The true Tartar is well formed, of middle size, slender, with small, but lively and expressive eyes, and of decent and even dignified demeanour: he is frank, kind, hospitable, peaceful, courageous, fond of instruction and of the arts, agriculture and mechanical occupation. The females are not without grace and beauty. About one fifth of these Tartars have embraced the Christian religion; the rest are Mohammedans. Some of them still live in tents, and lead a wandering life. The Siberian Tartars have intermixed with other races, and lost much of their national peculiarity: some of them are stationary, and cultivate the ground; but the most of them are nomads: they are either heathens or Mohammedans. The Nogay Tartars, who dwell on the Cuban and the Volga, and in some other districts, are Mohammedans, and chiefly lead a wandering life: they are much inferior to the Tartars proper in civilization and personal appearance. The Bashkirs are in a still lower condition: they wander in summer, and dwell in villages and wooded huts in winter. (See *Bashkirs.*) The Kirghises, who inhabit the great steppe of Orenburg, breed cattle, live in tents, are Mohammedans, and resemble the true Tartars more nearly than the last mentioned tribes. (See *Kirghises.*) The Yakoutes and Teleutes are few in number, lead a wandering life, worship idols, and are altogether in a low state of civilization. The Bucharians, who are found in Russia, live in cities and villages, and are industrious workmen. See *Turcomania*, and *Usbecks.*

TARTINI, Giuseppe, an Italian musician and composer, a native of Pirano, in the province of Istria, was born in 1692. His father gave him an expensive education, with the view of qualifying him to follow the law as his profession, and had him also instructed in all the accomplishments of a gentleman. Among them music was not forgotten; but it was not till a secret marriage alienated from him the affections of his friends, that he thought of making it conducive to his support. An ecclesiastic, connected with the family, procured him a situation in the orchestra of his convent, where an accident discovering his retreat, matters were at length accommodated, and he was enabled to settle with his wife at Venice. Here the example of the celebrated Veracini excited in him the strongest emulation; and he is said to have retired to Ancona for the sole purpose of being able to practise on the violin in greater tranquillity than circumstances allowed him to enjoy at Venice. While thus occupied, he discovered, in 1714, the phenomenon of "the third sound," i. e. the resonance of a third note when the two upper notes of a chord are sounded; and, after seven years' practice, obtained the situation of leader of the orchestra in the cathedral of St Anthony at Padua. In this capacity he continued to act till death, with increasing reputation, and declining, from devotion to his patron saint, many advantageous offers both from Paris and London. A singular story is told respecting one of his most celebrated compositions. One night he dreamed that he had made a compact with the devil, and bound him to his service. To ascertain the musical abilities of his associate, he gave him his violin, and desired him to play him a solo, which Satan executed in so masterly a manner, that Tartini, awaking in the ecstasy which it produced, and seizing his instrument, endeavoured to recall the delicious sounds. His efforts were so far effectual as to produce the piece generally admired under the name of the Devil's Sonata: still the production was, in his own estimation, so inferior to that which he had heard in his sleep, as to cause him to declare that, could he have procured a subsistence in any other line of life, he should have broken his violin in despair, and renounced music for ever. Besides his musical compositions, Tartini was the author of several treatises on the science. His death took place at Padua in 1770.

TARTSCHE; a round shield, formerly much in use with the Turks. Perhaps the word is of Slavonic origin, as it still has this signification in Russian and Polish.

TARTUFFE; the chief character in Molière's best comedy, first played, in 1664, before Louis XIV. Tartuffe is a hypocrite; and the word is at present used to designate such, not only in French, but also in other languages. Some say that the character of Tartuffe depicts the confessor of Louis XIV., father Lachaise, whom Molière once saw eating truffles (in French, *tartuffes*) with great relish. Others say that the poet, being at the house of the nuncio, saw two monks praying, apparently very devoutly, when a Savoyard entering with truffles to sell, the two monks exclaimed, with great enthusiasm, *O signore, tartuffi! tartuffi!* The latter version does not seem probable. Molière had already many enemies among the clergy, lawyers and physicians; and all the fools and bigots were against the public performance of Tartuffe. Two years Molière applied in vain for permission to the court, the papal legate, the prelates, &c. At length permission was obtained; but just as the curtain was about to rise, it was prohibited again, of which Molière pointedly informed the public himself with these words, referring to the president of the parliament: *Monsieur le president ne veut pas qu'on le joue!* At length, in 1669, Molière succeeded in bringing the play on the stage; and for three months Tartuffe was performed uninterruptedly—a sufficient proof of the justice of its satire.

TASCH; Turkish for *stone*, in many geographical names.

TASSO, Bernardo, a distinguished epic and lyric poet, whose fame has, however, been eclipsed by that of his son Torquato, was born at Bergamo, in 1493, and was of an ancient and noble family. His education was conducted with great care; and he not only cultivated the lighter literature, but devoted himself to the study of politics. He had already become known as a poet throughout Italy, when Guido Rangone, general of the pope, and a patron of learning, took him into his service, and employed him in managing the most difficult negotiations with Clement VII. at Rome, and Francis I. in France. Bernardo subsequently entered into the service of Renata, duchess of Ferrara, but soon left her court, and went first to Padua and then to

Venice. Here he published a collection of his poems, which gave him a place among the first of living poets. Ferrante Sanseverino, prince of Salerno, engaged him in his service, in 1531, as secretary, on honourable and advantageous terms. When the prince followed Charles V. to Tunis, in a galley equipped at his own cost, Tasso accompanied him, and, after his return, was sent on public business to Spain. In 1539, he married the rich and beautiful Porzia de' Rossi, and retired, with the consent of the prince, to Sorrento, where he lived till 1547. But the misfortunes of his master, whose estates had been seized by Charles V., on account of his opposition to the introduction of the inquisition into Naples, involved Tasso in the greatest embarrassments. He was compelled to seek another place of refuge, and was finally invited by the duke of Urbino to take up his residence at Pesaro. The leisure which he now enjoyed was employed in finishing his *Armida*, which he published at Venice in 1560. In 1563, the duke of Mantua engaged him in his service, and appointed him governor of Ostiglia, where he died in 1596. His remains were interred at Mantua under a handsome monument erected by the duke, with the inscription *Ossa Bernardi Tassi;* but his son Torquato afterwards removed them to Ferrara. His chief work, *Armida*, a romantic epic, displays much talent and art; in the expression of the tender passions, in his descriptions of nature, in vivid delineations of adventures and battles, all the ornaments of poetry are happily introduced. His lyrical and other poems, in five books, are among the most charming productions of the Italian muse. We have also a Discourse on Poetry, and three books of Letters, from his pen.

TASSO, TORQUATO. This poet, celebrated for his immortal works, as well as his unhappy fate, the son of the above-mentioned Bernardo Tasso, was born in the year 1544, at Sorrento. His talents early and rapidly developed themselves. While yet a little child, he was always grave and sedate. From his seventh to his tenth year, he attended the schools of the Jesuits in Naples, and learned the Latin and Greek languages thoroughly. He then accompanied his father to Rome, where, under his superintendence, he continued his studies with equal success for two years. He then went to Bergamo, and, six months after, to Pesaro, where his father had met with a favourable reception from the duke of Urbino. Here he shared the instruction of the duke's son. His favourite studies were philosophy and poetry; but he also devoted himself to mathematics and chivalrous exercises. When his father resided at Venice, he remained there with him for a year, and then went, at the age of thirteen years, to Padua, with the intention of studying law. But his genius drew him irresistibly to poetry, and, at the age of seventeen years, he came out with an epic poem, in twelve cantos (*Rinaldo*), which he dedicated to the cardinal Ludovico of Este. Italy received this work with universal applause; and his father consented, after a long opposition, that he should relinquish the study of the law. Torquato now devoted himself with redoubled zeal to literary and philosophical studies, and, with this view, accepted an invitation to Bologna. Here he commenced the execution of a plan of an epic poem, which he had already formed in Padua—the conquest of Jerusalem under the command of Godfrey of Bouillon. But, in the midst of these occupations, he was unexpectedly disturbed. He was falsely accused as the author of a satirical poem in circulation, and was subjected to a judicial examination. This induced him to leave Bologna. He went to Modena, and then accepted the invitation of the friend of his youth, the young Scipio Gonzaga, who had founded an academy in Padua, and wished to see Tasso at the head of it. He studied with great assiduity the philosophy of Aristotle, but still more that of Plato, towards whom he felt himself drawn by the cords of sympathy. Meanwhile, he did not lose sight of his epic poem. How intently the theory of this species of poem occupied him may be seen by the three dialogues which he then composed on the subject. The cardinal Ludovico of Este appointed him a gentleman of his court, and wished that he should be present in Ferrara at the nuptials of his brother Alphonso with an archduchess of Austria. Tasso went, in October, 1565, and attended the splendid *fêtes* with which those nuptials were celebrated. The sisters of the duke, Lucretia and Leonora, both indeed no longer young, but beautiful and lovely, gave the poet their friendship; in particular the latter, who presented him to Alphonso. This prince, who knew that Tasso wished to celebrate the conquest of Jerusalem in an epic poem, received him in a most flattering manner, and warmly encouraged his undertaking, so that the poet returned to his labour, which had been interrupted during two years, and determined to dedicate his work to the duke Alphonso, and to raise in it a monument to the fame of the ducal house, from which he then enjoyed such distinguished favour. For a short time only he left Ferrara to visit Padua, Milan, Pavia, and Mantua, where he saw his father. He returned with increased celebrity. The heart of Tasso was much affected by the unexpected death of his father; but neither this misfortune, nor other distractions, prevented him from labouring every day on his poem, of which he had finished eight cantos, when he travelled in the suite of the cardinal of Este to France, in 1571. Here he was received with distinction by Charles IX., as well as by the whole court. The poet Ronsard was his friend: and they communicated to each other their poetical labours. In the mean time, Tasso may have expressed himself too freely and unguardedly concerning some subjects which then occupied the minds of all: he lost the favour of the cardinal, and, in consequence, appears to have been involved in some embarrassments, and finally departed for Italy. He returned to Rome, and soon entered, according to his wishes, into the service of the duke Alphonso, by the mediation of the princess of Urbino, Lucretia of Este, and the princess Leonora. The conditions were favourable and honourable, and left him in possession of entire freedom. But hardly had he applied himself again to the work, which the world expected with impatience, when the death of the duchess again interrupted his labours. Alphonso soon after made a journey to Rome, and Tasso took advantage of the leisure thus afforded him to compose his *Aminta*, the plan of which had been for a long time in his mind. The representation of an idyl in dialogue, written by Agostino degl' Argenti, at which he had been present six years before, in Ferrara, had delighted him, and suggested to him the idea of a similar work, which he now completed in two months, and which far surpassed all that Italy then possessed of this kind. From this dramatic performance the opera may be considered to have taken its rise. The

duke was most agreeably surprised, on his return, by this performance, and ordered the representation of it to be made with the greatest splendour. Tasso's consideration and favour with the duke increased; but his good fortune excited the envy of many, who continually meditated his ruin. The princess of Urbino wishing to become acquainted with the poem, which was the subject of general admiration, Tasso paid her a visit at Pesaro, where the old prince Guidobaldo, as well as his son and daughter-in-law, received him in a very flattering manner. For several months, he lived in the charming castle Durante, in the most intimate friendship with Lucretia, who willingly listened to the verses in which he immortalized her. With rich presents he returned to Ferrara, and occupied himself again with his epic poem, which he once more reluctantly discontinued, to accompany the duke to Venice, whither the latter went to meet king Henry III., who had just exchanged the throne of Poland for that of France, and who was now invited to visit Ferrara. This journey took place in the hottest season of the year, and brought on the poet a fever, which continued a long time, and interrupted all his labours. During his convalescence, he finished, in the early part of the year 1575, his *Goffredo*— the fruit of so much exertion, and the source of such great misfortunes to him. But he wished, before publishing it, to obtain the judgment of his friends; and their discordant opinions perplexed and agitated him to such a degree as to occasion another burning fever, from which, however, he soon recovered. He immediately examined his work anew, in order to retouch or alter it in particular places. The duke treated him with redoubled attention and distinction. Tasso accompanied him on his journeys of pleasure to Belriguardo, and Lucretia, who had separated from her husband, and had returned to her brother, wished to have the poet always with her. It was with difficulty that he obtained, under these circumstances, in November, 1575, permission to go to Rome, in order to subject his poem to a new and thorough examination. Here he was well received, in particular by his friend Scipio di Gonzaga. By him he was presented to the cardinal Ferdinand de' Medici (brother, and afterwards successor, of the grand-duke of Tuscany), who, knowing that the poet was no longer pleased with Ferrara, proposed to him the service of the grand-duke. Tasso, however, declined, from a feeling of gratitude towards the house of Este. He therefore soon returned to Ferrara, where, not long after, arrived the young and beautiful countess Leonora Sanvitali, wife of the count of Scandiano, a lady whom Tasso ardently admired, and whom he had celebrated in his poems. She, also, on her part, was not insensible to his friendship; and the duke about this time conferred upon him the vacant office of historiographer to the house of Este; thus, to his misfortune, he found himself bound more closely to Ferrara; and the hatred of his rivals and enemies was increased. He was greatly troubled by the information that his poem had been printed in a city of Italy, as it did not appear to him sufficiently finished for the press, and as he saw himself, also, by this means, deprived of the advantages which he had hoped for from the labour of so many years. This and other troubles, partly real, partly imaginary, increased his melancholy: he believed himself persecuted by his enemies, calumniated, accused. In this state of mind, one evening, in the apartment of the duchess of Urbino, he drew his sword against one of her servants. This induced the duke to arrest him, and confine him in a house near the palace; but, upon his entreaty, he restored him to liberty, and merely desired that he would put himself under the care of a physician. A cure appeared to be effected, and the duke took him on a journey of pleasure to Belriguardo, in order to console and divert him, after he had caused the grand inquisitor to satisfy some scruples of conscience which had arisen in Tasso's mind, on account of doubts upon religious subjects. But all this care was not sufficient to restore the poet's peace, and the duke at last saw himself under the necessity of letting him return, according to his desire, to the Franciscans in Ferrara. His situation became continually worse: he imagined himself surrounded by perils, gave himself the most painful reproaches, and, at last, in this state of mental disorder, took advantage of a moment when he was not watched, and, destitute of every thing, without even his manuscripts, made his escape on the 20th of July, 1577. He hastened to his sister Cornelia, who lived in a state of widowhood at Sorrento, in Naples, and who received him most tenderly. By her care, he at last began to grow composed. He repented of his precipitate flight, and presented to the duke and princesses a petition that he might be restored to his place, but particularly to their favour. He, indeed, went back to Ferrara; but his old malady soon returned, and he escaped a second time. In vain did he seek shelter in Mantua, Padua and Venice: at the court of Urbino he first met with a worthy reception. But, notwithstanding all the friendship and care with which he was treated, his melancholy acquired new strength: he thought himself not secure; and, while he fled from imaginary dangers, he rushed upon real ones. He went, at last, to Turin. Here a friend recognised him, extricated him from his embarrassments, and presented him to the marquis Filippo d' Este, who received him in a very friendly and liberal manner. The archbishop of Turin, an old friend of Bernardo Tasso, introduced him to duke Charles Emanuel, who received him under the same conditions as those on which he had lived in Ferrara. Once more the unhappy Tasso took courage, and bright sparks shone through the gloomy mist which had veiled his mind, and which but too soon resumed the ascendency. He longed to be once more in Ferrara, and thought that the nuptials of the duke with Margareta Gonzaga would be the most suitable time for his appearance there. He went, but was bitterly disappointed. He was received on every side with indifference, even with mockery and contempt: neither the duke nor the princesses admitted him to their presence; and he poured forth loud invectives against Alphonso and the whole court. The duke, instead of bestowing pity upon the unfortunate poet, commanded that he should be placed in St Anne's hospital, and confined there as a madman (March, 1579). In order to explain this cruel command of the prince, other causes have been assigned, in particular the love of Tasso for the princess Leonora. But though his passion cannot be denied, yet it can in no way be proved that Tasso overstepped the limits of respect and modesty. It may, indeed, have contributed to aggravate the frenzy which sometimes visited him, and which may perhaps, have been owing to physical as well as to moral causes. That Tasso, by such measures as were taken with him, could not have been cured, is evident. The very thought that he was in a mad-

house must have been revolting to him; and not less painfully must he have felt the severity with which he was treated; the indifference with which all his intreaties and representations were received by the duke and the princess. And yet amidst his despondency this rare genius enjoyed calm and lucid moments, in which he poured forth the most glorious poetical and philosophical effusions. A new affliction to him was the information that his poem had appeared in print at Venice in a very mutilated condition. This first edition was quickly followed in different places by others, of which every successive one surpassed the preceding in correctness and completeness. Thus, in six months, six editions of the Jerusalem Delivered were printed. The printers and publishers enriched themselves, while the unhappy poet languished in close imprisonment, sick, and forgotten. It was not until two years after that he was allowed by the duke, in consequence of his repeated intreaties, several apartments, instead of his prison-like abode. Here he enjoyed greater freedom, received visits from friends and strangers, and was permitted, from time to time, accompanied only by one person to walk out, and to visit some society or place of amusement. The duke even once sent for Tasso, at a time when some French and Italian noblemen were with him; he received him with kindness, and promised him a speedy release. Notwithstanding this he saw himself, even before the end of the year, deprived of his late accommodations. Amidst these melancholy circumstances, a new storm burst over him. Among other writings to which the Jerusalem Delivered had given rise, was a dialogue by Camillo Pellegrino on epic poetry (*Il Carrafa, ovvero della Poesia epica*, 1584), in which Tasso was placed far above Ariosto. This gave occasion to violent contentions. The numerous adherents of the *Divino*, and among these the two academicians of Crusca, Lionardo Salviati and Sebastiano de' Rossi stepped forth in opposition, in the name of the academy, and assailed the Jerusalem Delivered, and its author, in order to defend the Orlando, or at least under this pretext. With dignity and moderation, Tasso replied to the charges of his opponents, which in his situation, embittered by mental and bodily pains, must certainly be considered as a double merit. At the same time, he was occupied about the means of obtaining his liberty. He had called upon the most powerful persons to be his intercessors. Gregory XIII., the cardinal Albano, the grand-duke of Tuscany, the duke and duchess of Urbino, the duchess of Mantua, several princes of the house of Gonzaga, had in vain employed their good offices for him. The city of Bergamo, Tasso's native place, had, for the same purpose, sent a special ambassador to the duke. The latter made promises which he never fulfilled. Tasso's condition continually became worse; he was broken down in body and mind, and suffered periodically from actual madness. At length the hard-hearted Alphonso was softened, and, at the most urgent entreaties, yielded up the person of the poet, after an imprisonment of more than seven years, to his brother-in-law, Vincenzo Gonzaga, prince of Mantua, who promised to keep such a watch over him, that Alphonso should have nothing to fear from him (July, 1586). In Mantua, Tasso met with the most friendly and honourable reception; but his malady had taken too deep root to leave him entirely. He, nevertheless, resumed his literary labours: he completed, among other things, *Floridante*, which had been commenced by his father, and published it with a dedication to the duke of Mantua and Bologna. He also recomposed his tragedy *Torrismondo*. In the next year, he enjoyed the happiness of visiting Bergamo, where his appearance was celebrated by the whole city. The death of the duke of Mantua recalled him to that city. His son and successor manifested towards the poet the same kindness, but not the same friendship and confidence. Tasso began to be discontented with his residence in Mantua. He received an honourable invitation to be professor in the academy at Genoa, but was prevented by his sickness from accepting it. He then formed the resolution of going to Rome. Here he was so well received, not only by Scipio Gonzaga, but also by several cardinals, that he again entertained new hopes; but nothing was effected, and he repaired, in 1588, to Naples, for the purpose of recovering the confiscated fortune of his parents. Here he occupied himself with the recomposition of his Jerusalem Delivered, in order to purge it from the faults which he perceived in it, as well as from the praises bestowed in it upon the house of Este. From Naples he returned to Rome; and, finding there also occasion for discontent, he accepted the invitation of the grand-duke of Florence. He had reason to be satisfied in every respect with his reception, both from the grand-duke and from the people, but soon sighed again for Naples, and with every mark of esteem, and with rich presents, departed in the autumn for Rome, where he arrived sick. Before he had recovered his health, he repaired, in consequence of urgent entreaties, to Mantua, to visit the duke Vincenzo Gonzaga; and it would have been well for him to have remained here, if his continually declining health had not made him desirous to go to Naples. At the invitation of his friends, he went thither in Jan. 1592, and took up his abode with his patron, the prince Conca. The completion of Jerusalem Conquered (the recomposition of Jerusalem Delivered) was his first employment, and was almost concluded, when he became suspicious that the prince wished to take possession of his manuscripts. He communicated this apprehension to his friend Manso, who, with the consent of the duke, and without any violation of gratitude or friendship, received him into his house, which was most charmingly situated on the sea-coast. This had a very favourable influence upon Tasso, who gave the last finish to his Jerusalem Conquered, and immediately commenced, at the desire of the mother of the marquis, his poem Of the Seven Days of the Creation. In the mean time, Hippolitus Aldobrandini had ascended the papal chair as Clement VIII. Tasso had congratulated his former patron upon this event, as he had before done Urban VII., in an excellent canzone, and was at last obliged to comply with the repeated invitation of the pope to come to Rome. The pope, as well as both his nephews, in particular the cardinal Cintio Aldobrandini, paid him the most delicate and friendly attentions Tasso, from gratitude, dedicated to the latter his Jerusalem Conquered; and the return of his malady alone induced him to leave Rome, and again to return to Naples. Here he passed four months very happily in the circle of his friends. Meanwhile Cintio, in order to draw him back to Rome, had procured for him from the pope the honour of a solemn coronation in the capitol. At this news, Tasso set off for Rome, where he arrived in November, 1594, and was received with great distinction. The pope overwhelmed him with

praises, and said to him, "I give to you the laurel, that it may receive as much honour from you as it has conferred upon those who have had it before you." The solemnity was, however, delayed till the spring, in order to give it the greater splendour. During the winter, Tasso's health failed more and more; he felt his end approaching, and ordered himself to be carried into the monastery of St Onofrio, where he died, April 25, 1595, the very day which had been appointed for his coronation. A raging fever terminated his life, at the commencement of his fifty-second year. The cardinal Cintio caused him to be buried honourably in the little church of the monastery; and eight years after, the cardinal Bevilacqua ordered the monument to be erected which is still to be seen there. The Italians, Manso, Serassi and Zuccala (1819) have written his life. Serassi has also published a collection of more than 250 letters by Tasso. The physician Giacomazzi, in his *Dialoghi sopra gli Amori, la Prigionia ed il Genio di Torquato Tasso, etc.* (Brescia, 1827), has expressed the opinion that not Leonora, but Lucretia, afterwards the wife of the duke of Urbino, was the object of the Platonic love of the unfortunate poet. Frederic Schlegel, in his *Geschichte der alten und neuen Literatur* (History of Ancient and Modern Literature), comparing Ariosto, Camoens, and Tasso, says of the latter, "Not only a poetical, but also a patriotic, inspiration for the cause of Christendom animated this poet, in whom love of glory and pious feeling were equally predominant. Yet he has by no means reached the grandeur of his subject; and so little has he exhausted its treasures, that he may be said only to have skimmed over its surface. He was in some degree confined by the Virgilian form, from which he has borrowed with no great success, a few pieces of what is commonly called the *epic machinery*. Tasso belongs, upon the whole, rather to the class of poets who represent themselves and their own exquisite feelings, than of those who reflect a world in their own minds, and are able to lose and forget themselves in it. The finest passages of his poem are such as would be beautiful either by themselves or as episodes in any other epic, but have no necessary connexion with the subject. The charms of Armida, the beauty of Clorinda, and the love of Erminia—these, and similar passages, are the ones which delight in Tasso. In his lyrical poems (*Rime*), there is a glow of passion, and an inspiration of unfortunate love, compared with which the coldness of the artificial Petrarch appears repulsive. Tasso is altogether a poet of feeling; and as Ariosto is, throughout, a painter, so over the language and versification of Tasso, there is poured forth the whole charm of music—a circumstance which has, without doubt, greatly contributed to render him the favourite poet of the Italians. His popularity exceeds even that of Ariosto. Individual parts and episodes of his poems are frequently sung: and the Italians having no romantic ballads, like those of the Spaniards, have split their epic poem, in order to adapt it to song, into what may be called ballads, the most melodious, graceful, noble, and poetical ever possessed by any people. Perhaps this mode of treating their great poem was the best for the enjoyment of it; for, by giving up the connexion, little seems to be lost. How far Tasso's notions on epic art were from being satisfactory to himself, is evident from his many alterations and unsuccessful attempts. His first attempt was a romance of chivalry. Afterwards, in the decline of his powers, he entirely recast the whole of his Jerusalem Delivered, to which he owes his greatest fame, sacrificing to the moral severity or anxiety which he had adopted, the most delightful and glowing passages in the poem, and introducing, throughout, a cold allegory, little calculated to compensate for what he had taken away. He also attempted a Christian epic on the subject of the creation. But even to the most gifted poet, how difficult must it be to unfold a few mysterious sentences of Moses into as many cantos! In this poem, Tasso laid aside the use of rhyme, although his poems derive a great part of their charms from it, and although no poet ever possessed so entire a command of rhyme. He has often been censured for his plays of thought, or *concetti*, as they called it. Many of these, however, are not only full of meaning, but beautiful as images. A poet of feeling and of love may especially be pardoned such trifling errors. If we regard Tasso merely as a musical poet of feeling, it forms, in truth, no proper subject of reproach, that he is, in a certain sense, uniform, and, throughout, sentimental. Uniformity of this sort seems to be inseparable from that poetry which is in its nature lyrical; and it seems to me a beauty in Tasso, that he has spread this soft breath of elegy even over the representation of the charms of sense. But an epic poet must be richer in every thing: he must be multiform; he must embrace a whole world of objects, the spirit of the present time and of past ages of his nation and of nature; he must have command not only over one chord, but over the whole complicated instrument of feeling."—An account of the different original editions of Tasso's works is to be found in *Tassos Leben und Characteristik nach Guinguené, dargestellt von F.A. Ebert*—Tasso's Life and Poetical Character, by Ebert (Leipsic, 1819). The English language possesses three translations of Tasso's Jerusalem Delivered, by Fairfax, Hoole, and Wiffen.

TASSONI, ALEXANDER, one of the celebrated Italian poets, was born at Modena, in 1565. His childhood was rendered unhappy by the early loss of his parents, by sickness, enemies, and various misfortunes. All this, however, did not interrupt him in his studies at Bologna and Ferrara. In 1597, he went to Rome, and became secretary to cardinal Ascanio Colonna, who took him to Spain in 1600, and twice despatched him upon business into Italy (1602 and 1603). Upon one of these journeys he wrote his celebrated *Considerazioni sopra il Petrarca*. At Rome, he was admitted into the academy of the Umoristi. One fruit of his intercourse with the societies of Rome was the ten books of his *Pensieri diversi*, a specimen of which, under the title *Quesiti*, he published in 1608, enlarged in 1612. This work, full of ingenious paradoxes (in which the author was not probably always serious), directed against the sciences, was also seasoned with much wit and elegance, and made a powerful impression. Still more was this the case with the above-mentioned *Considerazioni*, which first appeared in 1609. Considering the veneration in which Petrarch was held by some to be extravagant, he endeavoured, in an unreasonable manner, to diminish the fame of this great poet, and hence became involved in a series of controversies. Tassoni had been without office since the death of cardinal Colonna. Being destitute of the means of an independent livelihood, he entered, in 1613, the service of the duke of Savoy, Charles Emmanuel, and of the cardinal, his son. Here he was alternately in favour and disgrace. This

might have been, in part, owing to his uniform hatred against the Spaniards, with whom the duke was sometimes at war, sometimes at peace. Tassoni has been accused, not without reason, of writing some philippics, (*filippiche*) against the Spaniards, and likewise a treatise entitled *Le Esequie della Monarchia di Spagna*, although he positively denied the authorship of them. In 1623, he left the service of the duke, and devoted himself for three years to study and the cultivation of flowers, of which he was very fond. At that time, he probably completed a work previously commenced (*Il Compendio del Baronio*), which he began in Latin, but afterwards executed in Italian. In 1626, his condition was improved. Cardinal Ludovisio, a nephew of Gregory XV., received him into his service upon advantageous terms. After the death of the cardinal, in 1632, Tassoni entered, with the title of counsellor, into the service of his native prince, duke Francis I. He received an honourable allowance, and resided at court, but enjoyed this good fortune for three years only, when he died, in 1635. The fame of Tassoni is owing, not to the works already enumerated, but to a comic-epic poem, under the title *La Secchia rapita*, which first appeared in 1622, and was published by him, probably for particular reasons, as the production of his youth, although the careful finish of the versification bears the stamp of mature age. The subject of the poem is the war of the Modenese and Bolognese, in the middle of the thirteenth century. In this war, the bucket of a well was removed from the city by the Modenese, who had penetrated into Bologna, and conveyed as a trophy to Modena, where it is preserved as a memorial to the present day. This event, and the fruitless efforts of the Bolognese to recover the lost bucket, Tassoni relates in twelve burlesque epic cantos, characterized by the spirit and grace of Ariosto, and breathing in some places an epic grandeur. The language has the genuine Tuscan character, and the versification is easy and agreeable. If this poem has met the fate of Hudibras, the reason, in both cases, is the same; namely, that the interest of the circumstances has passed away with the time in which the poem was written, so that many allusions, which constitute the very spirit of the poem, and at the time of its publication were easily understood, can now be made intelligible only by means of copious notes.

TASTE, in physiology; one of the five senses, by which are perceived certain impressions made by particles of bodies dissolved by the saliva on the tongue or the other contiguous parts of the body endowed with this sense. As has been already observed in the article *Senses*, taste does not appear to be confined to the tongue, that member being wanting in many animals which do not seem destitute of the sense, and, in many which have a tongue, this member, from its structure, is not adapted to receive impressions from objects of taste. Again, it is not the whole surface of the human tongue, according to some late experiments, which is capable of those impressions that we ascribe to taste. By covering the tongue with parchment, sometimes in whole, and sometimes in different parts, two experimenters in Paris (MM. Guyot and Admyrauld) found, that the end and sides of the tongue, and a small space at the root of it, together with a small surface at the anterior and superior part of the roof of the palate, are the only portions of surface in the cavity of the mouth and throat that can distinguish taste or sapidity from mere touch. A portion of extract of aloes, placed at any other part, gives no sensation but that of touch, until the saliva carries a solution of the sapid matters to those parts of the cavity.* (See *Tongue*.) The little glands of the tongue dissolve the salts contained in articles of food, which, when dissolved, penetrate into the three nerves on each side of the tongue, that are connected with the brain and spinal marrow. Thus we receive those sensations which we call *sweet*, *sour*, *bitter*, *sharp*, *insipid*, *astringent*, and numberless others, which, though we have no names for them, yet are very distinct, as they enable us to recognise particular objects. The impressions thus received we ascribe to the objects that excite them, though acidity is, properly speaking, not more a quality of vinegar than pain is of the whip or spur. The word *taste* thus comes to be applied to the things which excite it; and we say, sugar tastes sweet with the same propriety or impropriety that we say, a flower smells sweet, a bird looks black. This confusion of cause and effect, in common language, is very natural, in fact unavoidable, considering the way in which language is formed. We possess very few words to designate the endless variety of tastes, of which we are very sensible. In this respect taste is similar to hearing. Though we all know how to distinguish a tune on the piano from the same on the guitar, it is impossible to explain distinctly why or how. Our capability of expressing tastes is, however, much greater than of expressing smells. Taste and smell are very closely connected, the loss of one being accompanied with the loss of the other. (See *Smell*.) Many words, designating impressions on the one sense, are used also for those received from the other, and *flavour* is daily applied to both. A *sweet smell* is a very common phrase; and in Thuringia the common people say the nose say *tastes* sweet. In respect to æsthetics, taste signifies that faculty by which we judge of the beautiful and proper, and distinguish them from the ugly and unsuitable. The name results from the similarity of this faculty with the physical taste. The office of both is to discriminate between the agreeable and disagreeable; but the comparison has often been carried too far; thus, because the beautiful is also agreeable, the beautiful and agreeable have often been taken for one and the same; and because matters of physical taste are not proper subjects of dispute (since the same flavour, for instance, may be pleasant to one person and very disagreeable to others), it has been sometimes supposed that taste, in æsthetics, can have reference only to the accidental impression of a work of art on the individual. But æsthetics teaches that, though an individual may not like a picture of Raphael, and find less satisfaction in a drama of Shakspeare than in the coarse productions of a very inferior mind, there is yet beauty in them; that is to say, they answer the demands of certain rules which have an objective (q. v.) and general character, so that the beauty of a work of art may be a proper subject of discussion. Taste is the faculty of judgment operating in a certain sphere. It must be formed by practice, whereby it differs essentially from the sense of the beautiful. This

* Blumenbach, in his Comp. Anatomy, Engl. by Coulson (London, 1827, ch. xviii), says: "I have seen an adult, and, in other respects, well formed man, who was born without a tongue. He could distinguish, nevertheless, very easily, the tastes of solutions of salt, sugar and aloes, rubbed on his palate, and would express the taste of each by writing."

is natural, whilst taste is the fruit of observation and reflection.

TATE, NAHUM, an English poet, was born in Dublin about the year 1652, and, after receiving a classical education at Trinity college, went to London, where he obtained the patronage of the earl of Dorset. On the death of Shadwell, the interest of his friends procured him the situation of poet laureate to William III. This post he held through that and the succeeding reign; and he even lived long enough to write the first birth-day ode on George I. He died in the Mint, whither he had retired from his creditors, in 1715. He was the author of Brutus; of Alba, a tragedy; Duke and no Duke, a farce; and some other dramatic pieces; but it is by his metrical version of the Psalms of David, executed in conjunction with doctor Nicholas Brady, and commonly affixed to the liturgy of the church of England, that his name is now principally known. Several elegies and other occasional pieces also proceeded from his pen.

TATIANISTS. See *Gnostics.*

TATIUS, ACHILLES, a Christian bishop of the third century, was born at Alexandria in Egypt. Prior to his becoming a proselyte from paganism, he was the author of one of the earliest Greek romances now extant, entitled the Amours of Clitophon and Leucippe, of which there is a translation by Cruceius. Part of a commentary on the *De Sphæra* of Aratus, ascribed to him, has come down to posterity, and has been translated by Petavius.

Tatius is also the name of an ancient king of the Sabines, who made peace with the Romans, and shared his kingdom with Romulus, but was assassinated six years afterwards, at the instigation of his colleague.

TATTOOING; a name borrowed from the South sea islands, where it denotes the practice of staining the skin by puncturing it with a sharp instrument covered with colouring matter, or inserting the colour in incisions made in the skin, and thus forming a variety of figures. We find similar practices among other barbarous tribes, and, to a certain extent, among soldiers, sailors, &c. Degrees of rank among savages are often designated by the greater or less surface of tattooed skin: sometimes the whole body, the face not excepted, are found tattooed. This is the case among the people of New Zealand.

TAUENZIEN VON WITTENBERG, FREDERIC BOGISLAV EMANUEL, count of, Prussian general of infantry, a distinguished soldier, was born in 1760. His father was the celebrated defender of Breslau. Tauenzien took part in the unfortunate campaign of 1806. In 1813, he co-operated in the victories at Gross-Beeren and Dennewitz. December 26, he took the fortress of Torgau; January 13, 1814, Wittenberg (on account of which he was called *Tauenzien von Wittenberg*); and, May 24, 1814, Magdeburg. He died, in 1824, in Berlin.

TAUGHT, or TAUT; the state of being extended or stretched out, usually applied in opposition to *slack*.

TAULER, JOHN, a celebrated German divine, born in 1294, or later, at Strasburg or Cologne, entered, when very young, the order of the Dominicans. His life was pure. His sermons, written in Latin and delivered in German, produced a great effect. He did much to improve the German didactic style. The earliest editions of his sermons are of 1498 and 1580. His early sermons are more metaphysical: the later ones simple and popular. Versions of them have often been published in modern German. He died in 1361. Arndt wrote his life in 1689.

TAUNT; a marine epithet, signifying *high* or *tall*. It is particularly applied to the masts, when they are of an extraordinary length, as *square* is applied to long yards.

TAUNTON; a town of England, in Somersetshire, 140 miles west of London. It consists of four principal streets, which are wide and well built, and contains two parish churches. The woolen manufacture has flourished in this town almost ever since its first introduction into England by the emigrants from Flanders, the first manufacture being established here about the year 1336. Of late years it has decayed. A silk manufacture was introduced here in 1780, and now employs a great part of the inhabitants. Taunton is an ancient borough by prescription, and has returned members to parliament from the year 1294. Population in 1841, 12,066.

TAURIA. See *Taurida.*

TAURIDA; a government of Russia, comprising the Crimean peninsula (Chersonesus Taurica), the island of Taman, and the districts and steppes inhabited by the Nogay and Budshiak Tartars. The province of the Cossacks of the Black sea is also connected with it in matters of government; population, 346,000. These countries were anciently inhabited by Scythians and Greek colonists, and, since the time of Herodotus (B. C. 450), have been conquered and devastated by more than seventy different nations. Towards the end of the fifteenth century, they were conquered by the Turks, who drove out the Venetians and the Genoese colonies there. The Crimea had its own khan, who was, however, dependent on the sultan, and was obliged to be confirmed by him in his dignity. In 1774, the Turks were forced by Russia to acknowledge its independence, and, in 1783, it was annexed to Russia. The imperial title was graced with the addition of czar of the Taurian Chersonese, and Potemkin, who had been active in effecting the subjugation of the Tartars, received the title of *the Taurian.* The principal towns in Taurida are Simpheropol, or Akmetchat, the capital, Kinburn, at the mouth of the Dnieper, Perekop, or Orcapi, a fortress on the isthmus which connects the Crimea with the continent; Feodosia (see *Caffa*), Sebastopol and Eupatoria are important for the commerce of the Black sea. Most of the inhabitants are Tartars, who profess the Mohammedan religion, and are engaged in trade, manufactures, agriculture, and the raising of cattle. There are also many Russian, Greek, Armenian, German, &c., colonists, who are encouraged by the government to settle here. The part of Taurida between the isthmus and the Dnieper consists of great plains, some of which are infertile and uncultivated. The northern part of the Crimea is destitute of water and wood, and has a poor and saline soil. The southern part is mountainous, but one of the most fertile and delightful countries in the world. All sorts of fruits and grain, wine, silk, wax and tobacco are among the productions.—See Clarke's *Travels in Russia, Tartary and Turkey,* and Castelnau's *Essai sur l Histoire ancienne et moderne de la Nouvelle Russie* (Paris, 1820).

TAURIS; capital of the province of Aderbidjan, in Western Persia, situated in an extensive plain without trees, on the small river Spintsha; lat. 38° 20′ N.; lon. 46° 31′ E. It contains 300

caravansaries, 250 dshamis and mosques, and 150,000 inhabitants. It is celebrated throughout Asia as a commercial place, and also has important manufactures. The shagreen is made here, with which almost all Persia is supplied, every one except the peasants wearing boots and shoes of it. Tauris contains some magnificent ruins. It has suffered repeatedly from earthquakes, and from hostile violence. It was the residence of Abbas Mirza, crown-prince of Persia, until 1828, when it was occupied by the Russians. See *Persia*.

TAURUS, in astronomy. See *Constellation*, and *Ecliptic*.

TAURUS; a celebrated chain of mountains in the eastern part of Asiatic Turkey, whose greatest height is in the vicinity of the sources of the Euphrates, whence it extends in several ridges over the greatest part of Western Asia. One ridge, the Ala Dag, runs through Natolia, and terminates in the Chelidonian promontory over against Rhodes. Another branch extends into Syria, and there forms the Libanus and Anti-Libanus. To the north, the Taurus, which is connected with the system of mountains in central Asia by its branches, approaches the Caucasus, and to the east unites with snowy Kiare and mount Zagros.

TAUTOLOGY (from the Greek ταυτο, the same, and λογος, speech); the repetition of the same sense in different words or phrases. See *Pleonasm*.

TAVERNIER, Jean Baptiste, Baron d'Aubonne (a title derived from an estate near Geneva, which his success in mercantile pursuits enabled him to purchase), was the son of a Dutch merchant settled at Paris, who traded largely in charts and maps, the perusal of which first inspired his son with a propensity for travelling. He was born at Paris about 1605, and, before his twenty-first year, had already visited a considerable portion of Europe. He subsequently travelled through Turkey, Persia, and other Eastern countries, six times by different routes, trading as a diamond merchant, at the same time that he indulged his thirst for making himself acquainted with the manners and customs of remote nations. Of these his journeys he gave an account, with the assistance of a literary friend, whose services the defects of his own education made necessary to arrange the mass of his observations. In 1668, having realized a large fortune, and obtained a patent of nobility from the French king, he retired to his estate in the Genevese territories, with the view of passing the remainder of his life in tranquillity. The misconduct of a nephew, by injuring his pecuniary resources, altered his determination, and induced him once more to set out for Russia for the purpose of recruiting his shattered finances. He succeeded in reaching Moscow, the ancient capital of that vast empire, but died there soon after his arrival, in the summer of 1689. His Travels, of which there is an English translation, have gone through several editions in the original French.

TAXES, TAXATION, denotes that portion of their property which the government of a state exacts, for the supply of the public necessities, from its subjects, or other persons residing in the country, and partaking of its advantages. Hence they form a part of the state revenues. Another part is formed by the revenues from the domains, and from the royal prerogatives, so far as the last afford only official gains, and are not used at the same time as means to exact or to raise taxes. (See *Domains*, and *Royalties*.) In most states, particularly in those of ancient times, the public expenditures were supplied from the revenues of domains and royalties, which were considered, the former as the property, the latter as privileges, of the sovereigns. As the expenses of the state continually increased, or the rulers, from bad economy, found the abovementioned sources of revenue insufficient, they began to demand contributions from the members of the community, and imposed upon them taxes or imposts. They usually, however, met with great difficulties, since the nobles would not suffer themselves to be taxed, under pretext of forming a state within themselves, and maintained, that such contributions could be raised only with their consent. What could be obtained from them voluntarily, was very little. They, however, acknowledged the necessity of increasing the revenue of the state; but the sovereigns were afraid to constrain them to contribute, and inclined to grant them exemption from taxes, if they would only consent that the rest of the nation, which did not belong to their privileged order, should be subjected to imposts. The nobles, fearing that if no other source of revenue were left open to the sovereign, the burden of taxes would finally fall on themselves, willingly allowed him the right of taxing the rest of the nation, which, from want of union and power, was obliged to yield. Thus the taxes, for a long time, were laid almost every where on the commons only, the higher and more powerful orders, the clergy and nobility, being exempt. Enlightened governments, however, early perceived that, in order to render taxes a permanent source of revenue, means must be left to the subjects, of gaining, every year, so much as to be able to subsist, and to have a sufficient sum remaining to pay the taxes. Hence they were induced to refrain from exhausting their property. But a long time elapsed before the principles of equitable taxation were well understood. It was not till a late period, since government has become an object of profound reflection, and a more perfect system of political economy has arisen, that a theory of taxation has been formed, which can be used as a solid basis of revenue. According to this theory, taxes are the portions of the property of individuals, which each has to contribute to the public treasury, to defray the public expenses. From this definition it follows, 1. that no one should be exempted from taxes, who possesses property or income, and is protected in his person and estate, and that, in consequence, absolute freedom from taxes in any individual, so situated, is unjust towards those members of the community who are charged with them; 2. that the taxes ought to be assessed according to the net income of each individual; 3. that the taxes must never be suffered to injure the sources of income; 4. that the ratio of taxes to income ought to be as small as possible, in order that the revenue of the nation, as well as of the individual, may be allowed to increase. The greatest difficulty in effecting a just distribution of taxes, is to find the clear income of every individual. In the mode of taxation formerly practised, this difficulty was but little considered. Financiers were satisfied with laying taxes where they observed property or income, without caring much whether they were taken from the gross or net income, from the capital, or from the interest and profits. The rudest mode was to assess the taxes according to the number of heads. On the supposition that every one receives enough to pay something, they demanded from every head such a sum as, it was

presumed, even the poorest could afford: the rich and the poor paid the same amount; and, therefore, the greatest inequality prevailed. Real property was early taken as a standard in distributing the taxes, as cultivated land, in civilised countries, appeared to be the safest and most substantial property. As this afforded to its proprietors or cultivators a certain income, the annual produce of the lands of those who were declared subject to taxation was estimated, and, after this ratio, the tax was distributed on real property. Thus arose the land tax, in which, however, the gross and net produce of the lands were seldom accurately distinguished; and where it was done, little dependence was to be put upon the estimate itself, and still less on the maintenance of this principle through the changes of income. As the land tax was insufficient to furnish the necessary revenue, other means were sought for, and the closest attention was paid, particularly as the circulation of money increased in civil society, to all those quarters where money appeared. Wherever money changed hands, as in sales, exchanges, inheritances, taxes were laid. Whoever desired to obtain any favour from the public officers, was obliged to purchase it with money. When property was acquired, something must be relinquished. Hence the long series of taxes on acquisition and industry. As the income of the members of the community did not yield so much as the state required, the attention of governments was directed to expenditures; and people were made to pay, wherever their expenses could be estimated. Thus taxes on consumption of every description were established. When taxes began to be treated scientifically, which was not till a long time after the different kinds had been invented and introduced, attempts were made to bring the whole mass of the existing taxes under a general system.

All taxes may be arranged under the following classes: taxes on the *possession*, on the *acquisition*, or on the *enjoyment of property*. In order to judge whether they are rightly distributed, it must first be considered, whether they can be paid regularly and continually from the net income or not. There may be a possession which brings no gain at all, as a library, a collection of pictures, &c. If an annual tax is laid upon such property, it would sooner or later consume the property, if it were to be paid from it, and consequently, would contradict the principles above laid down, that property should be taxed only so far as it affords a regular income. In a like way, acquisitions can be taxed, according to the principles of political economy, only when they are a permanent source of gain. If, therefore, any one acquires an estate or a capital by purchase, exchange, &c., and taxes are laid upon such an acquisition, the tax is taken from the capital, that is, from the means destined to produce profit. As far as this happens, or is in danger of happening, the system of taxation is defective. If, in fine, a tax is laid on enjoyment, or the value of things enjoyed, this can be justified only so far as he who purchases or enjoys such things can afford the expense, from an income which furnishes more than enough for his subsistence, and the source of which is not necessarily diminished by the tax. If we seek therefore, for the principle of the distribution of taxes, which ought to serve, at the same time, as a rule for judging of the propriety of the distribution, this can be no other than the *net income* of the persons, or the *net produce* of the property. Net income or net profit is that part of income or profit which remains after the portion necessary for the maintenance of the person, or the continuance of the property which produced the income or the profit, has been subtracted. An income and profit are produced either, 1. from land; 2. from capital; 3. from labour. All taxes will be just and useful only so far as they are a part of the net produce from these sources, and are imposed and distributed after this principle. But as it is difficult, and, in many cases, impossible, in practice, to ascertain the net revenue of every one, the politician must take different ways to find the just proportion. The first way is direct—to determine, from the statement of the parties concerned, or from official estimation, the net income of the persons, or the net produce of the land, and to assess the taxes according to the result. This kind of taxes is called *direct*. But as this mode leaves a large portion of net incomes doubtful, their amount is sought for in an indirect way. It is supposed, that he who receives more than the amount at which he has rated his income, will consume and enjoy more than this sum will warrant, and, in particular, that he will enjoy certain articles, which the man of smaller income consumes not at all, or not in equal quantity. If now, the expense for articles for consumption is taxed, an additional sum can be generally drawn from all those who pay already a direct tax on income, not sufficient, however, to cover the expenses of the state. This sum they can pay from their net income, if their affairs are properly arranged. In this way, something more is obtained from the net income of those who have concealed a part, than they would have contributed if they had been taxed merely according to their own statement. These taxes are termed *indirect*, as they are calculated, like the others, on the net income, but only in an indirect way. The art of reaching this net income by taxes on consumption, or other indirect taxes, still remains very imperfect. Its perfection is, however, necessary, if the system of taxation is to be established according to just principles. Another signification is usually attached to the division of taxes into direct and indirect. The mode in which they are raised is made the principle of denomination. By direct taxes are understood such as are laid immediately on the consumers; by indirect taxes, such as are assessed on others in advance, who are left to remunerate themselves from the rest of the community. But this principle does not afford a logically correct division: for the same tax can be raised at one time directly, at another indirectly. Thus all taxes of consumption may be raised as well from those who consume the articles, as from the tradesmen who deal in them. In like manner, many articles of luxury are taxed directly. Nevertheless, the taxes remain indirect, because the net income only is taxed according to the extravagance of individuals. Taxes imposed on goods at the time of their importation, are denominated *customs*, *duties*, or *imposts*. Adam Smith mentions one objection to this mode of raising revenue, as the importing merchant must enhance the price of his goods, not only by the amount of the duty advanced by him, but also for interest, profit, and guarantee of that amount, so that the consumer must, in fact, pay more than the tax. This objection is avoided by an excise tax, which is levied on the goods in the hands of the person who uses them, or at the time of their coming into his hands. An annual excise is sometimes levied upon articles of a durable nature,

such as carriages, watches &c., and the principle upon which this is apportioned, is to graduate it according to the supposed expenditure of the persons paying the tax, assuming that this will, as a general rule, be in some near proportion to their income. In respect to imported articles, the excise is either a substitute for customs or an addition to them. Considered as a substitute, the excise avoids the objection pointed out by Adam Smith; but then it is an expensive tax to collect, and it necessarily gives rise to an irksome inquiry into the private concerns and habits of people, so that, as far as imported goods are the subject of taxation, the customs are the most convenient, and, on the whole, the most productive tax: and this mode of taxing is almost universally adopted. It cannot be made a question, among a free people, to whom the right of taxation belongs. In this country, the principle has long been acknowledged, that taxes are a voluntary donation from the people to the government. (See Chatham's speeches on the complaints of the American colonies.) On the continent, where in the course of time, nearly all national representation has been lost, the physical power of the government is the sufficient argument, as in so many other instances, by which all discussion on the right of taxation is made useless. The theory of taxes has been but very lately illustrated and perfected. Adam Smith laid the first foundation of a complete theory. Before him prevailed the physiocratical system (see the article), which, however, has no solid foundations.—See the works of Adam Smith, and Say, *On Political Economy;* also, Sir William Meredith's *Historical Remarks on the Taxation of Free-States* (London, 1788, 4to.); Andrew Hamilton's *Inquiry into the Principles of Taxation*, Edinburgh, second edition, 1793, 4to.); Cassaux's *Considerations of the Effect of Impost in the various Modes of Taxation* (Paris, 1794, 8vo.); Frend's *Principles of Taxation* (1799, 8vo.); Monthion's *Influence of the Different Species of Taxation on the Morality, the Activity, and the Industry of Nations* (Paris, 1808, 8vo.); Mirabeau's *Théorie de l'Impôt;* Ricardo's *Principles of Political Economy and Taxation* (1819, 8vo.).

Exemption from Taxes. The privilege of exemption from taxes is granted to some orders of society, to individuals, or to particular kinds of property. The reasons for which it is usually allowed are, 1. the identity of the person exempted with the state; 2. to reward services rendered to the state; 3. as a means of paying debts due from the state; 4. the incompatibility of the public burdens with the office or character of the individual exempted; 5. because an equivalent is received in some other way; 6. poverty; 7. ancient privileges. As to the first reason, it is applicable only to the person of the sovereign; for it would be absurd to load the sovereign with taxes, whilst the taxes are only established in order to afford the sovereign the means of promoting the public welfare. It follows, then, that the revenues of the state must be free from taxes, or that the state itself, considered as a person, must be free from every tax. But whether the individual, likewise, who is invested with the sovereignty, should be entirely exempt from taxes, is a very different question; for in the revenue of such an individual, there are always two things to be distinguished, namely, *a*. that which is employed by him in the exercise of his public functions, and, *b*. that which serves to defray his private expenses; for it cannot be contended that all which the sovereign expends is devoted to the accomplishment of public objects. In addition to his public capacity, he stands in the condition of a private person, who has his individual wishes and wants to gratify. Now, if the revenue of the ruler is so large as not only to supply that expenditure which is required for maintaining the dignity of the reigning family, but also to suffice for the private gratification of the ruler, the latter part is undoubtedly to be considered like the net income of a private person. In this point of view, there is no sufficient reason why the income of the prince should be free from taxes. It appears rather, for several reasons, advisable to subject it to taxation, like other private property; 1. because, in this way, the prince feels, proportionally, the burden of the tax, in his private capacity, being obliged, like every other man, to restrict his personal expenditure; 2. because the participation of the prince in the public burdens, affords an encouraging example to his subjects, and serves to check the claim of exemption in any other class of society. In those states where the sovereignty is vested in a numerous body, the distinction between that which belongs to the members of the sovereign body, in their public and in their private capacity, is yet more evident. The members of a council who share in the sovereignty, or of the sovereign senate itself, can be as little entitled to exemption from taxes as the members of a sovereign assembly of the nation in a democracy; and the right of a prince to freedom from taxes on that portion of his income which is devoted to his private gratification, is no better founded. If the state would reward an individual for public services by exempting him from taxes, this can reasonably be done only by a personal exemption for his lifetime. To declare his estates free from taxes, is to make him a donation of a sum equal to the tax from which his estates are exempted. But to make this exemption perpetual, would be to make a grant of an indefinite value, and must be regarded as an instance of blind extravagance. In general, this species of reward is one of the most objectionable; for the reward of public services should be drawn from the public revenue, to which all classes contribute in equal proportion. But the remission of a certain kind of taxes usually imposes new burdens on some particular class of subjects. Another objection to this kind of reward is, that it makes exemption from taxes appear an honour, when it is for the interest of the state that a citizen should consider himself the more important the more he contributes to the support of the public burdens. Nearly the same reasons, in particular the last, may be urged against the use of this exemption as a means of paying the salaries of public officers. The privilege too often operates unequally in the case of different officers, one deriving from it a much greater advantage than another. Taxes paid in money are incompatible with no rank in society and no kind of occupation. Other public burdens, personal service, maintenance of soldiers, &c., may, indeed, be inconsistent with one or the other. On that account, it would be better that such burdens should be borne by individuals who are paid at a fixed rate for undertaking them. That the poor pay no taxes, is the natural consequence of a good system of taxation, which charges only the net income. It follows, from what has been said, that a personal right to exemption from taxes cannot be properly granted, and should be abolished where it exists; sufficient

indemnification being provided for those who suffer by the measure. These exemptions had their origin in a time of limited views. As to the exemption from taxes of particular kinds of property, the most remarkable is that which is granted to certain landed estates. This privilege is usually justified by the following reasons: 1. that one estate has undertaken to pay the tax of another. In this way the nobility have often endeavoured to defend the exemption of their estates, by pretending that their ancestors had ceded part of their lands to the peasants, on condition that the latter, in addition to some labour on the lord's estate, should pay the taxes of the same, from the produce of their farms. Such a contract might have been legally made, and might stand good, if it had been concluded for a fixed proportion of taxes, and the agreement could be clearly proved; but no compact can be acknowledged as binding, by which one side undertakes to relieve the other from the burden of all future taxes, since no one can know what their amount may become, and whether the land granted would be a proper equivalent; for, in every contract, the nature of the obligation should be definite. But in addition to the fact, that such contracts are mere fictions, the state should allow them no validity, because they give to taxes the appearance of an ignominious burden—an idea which no government should favour. 2. Governments have sometimes allowed individuals, and even whole nations, to redeem themselves from a certain tax, for a gross sum; as, for instance, in England, in the case of the land tax. Such contracts must be kept; but no individual, still less a whole class, or nation, can purchase an entire exemption from taxes, because the amount of future taxes cannot be estimated, and, consequently, their value cannot be settled. This would be to sell the very means of the state's existence. To sell an improper tax, in order to establish a better, as was done with the land tax in England, may be advisable, and certain objects may thus, for a time, be exempted from taxes; but this is no reason for releasing the income which they afford, for all future times, from taxes. 3. Finally, the privilege of exemption never can be considered as absolutely irrevocable, but is subject to be judged on the general principle of utility, like all other positive laws and institutions; and if found inapplicable, injurious, and oppressive to other classes of citizens, such laws must be amended or abolished. As the state ought never to persist in old errors at the expense of its citizens, so, on the other hand, those who are to lose the privilege of exemption from taxes should be indemnified for it according to equitable principles.

TAY, a river of Scotland, which rises in the west part of Perthshire, passes through Loch Tay, and runs into the German sea, forming a large bay at its mouth, called the *Frith of Tay*. It is navigable for vessels of five hundred tons to Newburgh, in Fife, and for vessels of considerable size as far as Perth. The salmon fishery on the Tay is extensive.

TAYLOR, Jane; an amiable and accomplished female writer, was born Sept. 23, 1783, in London. Her father was a highly respectable artist. While quite young, she gave evident indications of poetic talent. Mr Taylor became, in 1792, pastor of a dissenting congregation at Colchester, whither he carried his daughters, and taught them his own art of engraving. In the intervals between these pursuits, Miss Taylor committed the effusions of her genius to writing, and contributed to the Minor's Pocket Book, a small publication, in which her first work, the Beggar Boy, appeared in 1804. From this period, until 1813, she continued to publish occasionally miscellaneous pieces in verse, of which the principal are Original Poems for Infant Minds (in two volumes); Rhymes for the Nursery (in one); and some verses in the Associate Minstrels. A prose composition of higher pretension, which appeared in 1815, under the name of Display, met with much success. Her last and principal work consists of Essays in Rhyme on Morals and Manners, didactic poems, written with much elegance and feeling. This amiable and intellectual female died of a pulmonary complaint, in April, 1823.

TAYLOR, Jeremy, an eminent divine and prelate of the Irish church, was born in the year 1613, at Cambridge, where his father was a barber. He was educated at Perse's free school in his native place, and entered, in 1626, a sizar in Caius college, where he continued until he had graduated master of arts. Entering into orders, he occasionally lectured for a friend at St Paul's cathedral, where he attracted the attention of archbishop Laud, who procured him a fellowship of All Souls college, Oxford, and, in 1640, obtained for him the rectory of Uppingham. In 1642, he was created doctor of divinity at Oxford, at which time he was chaplain in ordinary to Charles I., whom he attended in some of his campaigns, and aided by several writings in defence of the church of England. After the parliament proved victorious, his living being sequestrated, he retired into Wales, where he was kindly received by the earl of Carbery, under whose protection he was allowed to exercise his ministry, and keep a school. In this obscure situation he wrote those copious and fervent discourses, whose fertility of composition, eloquence of expression, and comprehensiveness of thought, have rendered him one of the first writers in the English language. The death of three sons within a short period, rendered a change of place necessary for the restoration of his tranquillity, and he removed to London, and officiated, not without danger, to private congregations of royalists. At length he accepted an invitation from lord Conway to reside at his seat in Ireland, where he remained until the restoration, when he was elevated to the Irish see of Down and Connor, with the administration of that of Dromore. He was also made a privy counsellor for Ireland, and chosen vice-chancellor of the university of Dublin. He conducted himself, on his advancement, with all the attention to his duties, public and private, which had ever distinguished him in humble situations. Piety, humility, and charity were his leading characteristics; and, on his death, at Lisburne, August 13, 1667, he left but very moderate fortunes to his three daughters. Taylor possessed the advantages of a comely person and a melodious voice, which were further set off by the most urbane manners and agreeable conversation. His works have been printed in four, and also in six volumes folio, a great part of which consists in sermons and devotional pieces. There are likewise several treatises, one of the most remarkable of which is entitled, A Discourse on the Liberty of Prophesying (Preaching), (4to., 164⁻), which pleads eloquently and strenuously for liberty of conscience. Of the other writings of this prelate, the most generally known are his Golden Grove, or Manual of daily Prayers; his treatises

on Holy Living and Dying; and his *Ductor Dubitantium*, or Rule of Conscience. Of these the two former are peculiarly admired for fervour of devotional feeling, beauty of imagery, and illustrative and copious impressiveness of eloquence. A new edition of his works, with a life, by the late bishop Heber, was published in 1822 (15 volumes).

TAYLOR, JOHN, usually called the *water poet*, from his being a waterman, was born in Gloucester, about 1580. He was taken young to London, and apprenticed to a waterman. He was at the taking of Cadiz, under the earl of Essex, in 1596, and afterwards visited Germany and Scotland. At home he was many years collector for the lieutenant of the Tower of London, of his fees of the wines from all the ships which brought them up the Thames. When the civil wars broke out, he retired to Oxford, where he kept a common victualling house, and wrote pasquinades upon the Roundheads. He afterwards kept a public house at Westminster. He died in 1654, aged seventy-four. His works are published under the title of "All the Works of John Taylor, the Water Poet, being Sixty and Three in Number, collected into One Volume by the Author, with sundry new Additions, corrected, revised, and newly imprinted" (1630, folio). These pieces are not destitute of natural humour, and of the jingling wit which prevailed so much during the reign of James I.

TAYLOR, JOHN, LL.D., a distinguished scholar and critic, the son of a barber of Shrewsbury, received the rudiments of education at the grammar-school of his native town, and was entered of St John's college, Cambridge, of which he became a fellow in 1730. In 1732, he was appointed librarian of the university, which office he soon after quitted for that of registrar. He published an edition of Lysias in 1739, and in 1742 became a member of doctors' commons. Two years afterwards he was made chancellor of Lincoln; and in 1751, entering into orders, was presented to the living of Lawford, in Essex. He published, in 1755, Elements of Civil Law (4to., reprinted in 1769). He died in 1766, after having just completed an edition of Demosthenes, in two vols., 8vo. Besides the works already mentioned, he was author of an explanation of the *Marmor Sandvicense*, and an edition of Two Orations of Demosthenes and Lycurgus.

TAYLOR, THOMAS, well known by the title of the *Platonist*, was born in London, of obscure parents, in 1758, and, at the age of nine years, was placed at St Paul's school, it being intended to educate him as a dissenting minister. Disgusted, however, with the manner in which the dead languages are taught, he prevailed on his father to relinquish this plan. He was then only twelve years old; yet he became deeply enamoured of a Miss Morton, who afterwards gave him her hand. While at home, Ward's Young Mathematician's Guide inspired him with a love of mathematics, and, though his father was adverse to the study, the youth soon contrived to become a proficient in his favourite science. This he accomplished by sacrificing to it a part of the hours of rest; and that he might procure a light without being discovered, he concealed a tinder-box under his pillow. When he was fifteen, he was placed under an uncle, at Sheerness, who was an officer of the dock-yard—a situation irksome in its nature, and rendered more so by the tyranny of his uncle. After enduring it for three years, he became pupil to a dissenting preacher, with the view of entering into the church. At this period he also renewed his acquaintance with Miss Morton, to whom he was secretly married. Their secret was, however, betrayed, and they were thrown upon the world, with scarcely sufficient resources to prevent them from starving. At length Mr Taylor obtained employment as usher to a school at Paddington, which, as it kept him absent from his wife, he exchanged for that of a clerk in a banking-house, in the city. Still his pecuniary means were so limited, that in the course of the day he could not obtain a proper quantity of food, and he often fell senseless on the floor when he reached his home. At length, his circumstances were somewhat amended. His studies were still continued with unabated ardour, and, as the banking-house absorbed the whole of his days, he was obliged to devote to them several hours of the night. Having made himself master of the works of Aristotle, he passed on to those of Plato, and the commentators on Plato's philosophical writings. After he had been nearly six years in the banking-house, the failure of his health, and the nature of his occupation, determined him to procure some more eligible mode of living. An attempt to construct a perpetual lamp made him advantageously known to several eminent persons, who enabled him to emancipate himself from the drudgery of the banking-house. The munificence of a private individual, Mr William Meredith, now put it in his power to publish a translation of the works of Plato, and the Platonic commentators. Mr Taylor also laboured for the booksellers; but the remuneration which he received from them was inadequate to his toil. For his translation of Pausanias he was paid only sixty pounds! If we contemplate the numerous obstacles which have opposed his progress, it is impossible not to admire the steady perseverance with which he has pursued his course; and it is little to the credit of England, that a man of such powers of mind, and such extensive learning, should so long have been left to struggle through the world with no other patronage than that of a few private individuals. Among his translations from the Greek are Plotinus on the Beautiful (12mo.); Proclus on Euclid, and Elements of Theology; Five Books of Plotinus; Pausanias's Description of Greece, with Notes (3 vols., 8vo., 1794); Aristotle's Metaphysics, with Notes; the Dissertations of Maximus Tyrius (2 vols., 12mo.); the Works of Plato (5 vols., 4to., 1804); the Works of Aristotle, with Elucidations from the best Greek Commentators (9 vols., 4to.); the Six Books of Proclus on the Theology of Plato, to which a Seventh Book is added by the translator; Jamblichus's Life of Pythagoras, or Pythagoric Life, accompanied by Fragments of the Ethical Writings of certain Pythagoreans, and a new Collection of Pythagoric Sentences; the Commentaries of Proclus on the Timæus; Jamblichus on the Mysteries, &c. (8vo.). Among his original works are a Dissertation on the Eleusinian and Bacchic Mysteries; a Complete Collection of all the existing Chaldæan Oracles; the Elements of the true Arithmetic of Infinites; Miscellanies in Prose and Verse, with a great number of treatises accompanying his translations, and of articles in the Classical Journal.

TCHAD; a lake in the interior of Africa, in the western part of Nigritia (q. v.), discovered by major Denham, in 1822. (See *Clapperton.*) It

lies between the kingdoms of Bornou and Kanem, in lat. 12° N., lon. 17° E. As it has not been entirely explored, its north-eastern limits are unknown, and its extent is uncertain. It receives two large rivers, the Yeou and the Shary, from the south-west.

TCHAI (in Turkish and Persian, *river*); found in many geographical names. In Chinese geographical names, *Tchaï* signifies fortified place. *Taï*, *Pao*, *Ooei*, and other words, signify the same.

TCHANG (Chinese for *middle*); in many geographical names, as *Tchang-Kone* (Central Kingdom), the name which the Chinese give to their empire.

TCHERNY; a Sclavonic word, signifying *black*, and sometimes *tributary*. Tcherny appears in many geographical names, as *Tchernikov*, *Tchernovitz*.

TCHING; Chinese for *town* and *wall*, as *Sin-Tching* (New Town).

TCHUDSKO LAKE. See *Peipus*.

TEA (*thea*). The tea plant so strongly resembles the *camellia* in its botanical characters, that it has lately been referred to that genus. The flowers and leaves are, however, much smaller. The shrub attains the height of five or six feet, and is branching and evergreen. The leaves are alternate, oval-oblong, serrated, about an inch and a half in length, of a dark, glossy-green colour, and firm texture. The flowers are solitary or in pairs, disposed in the axils of the leaves; the corolla white, and composed of six petals. It is a native of China and Japan, and has been cultivated, and in common use in those countries, from the most remote antiquity. Tea was hardly known in Europe before the middle of the seventeenth century, but now has become an article of such commercial importance in that portion of the globe, as to employ more that fifty thousand tons of shipping in the transportation of it from Canton. Still so vast is the home consumption, that it is alleged, that were Europeans to abandon the commerce altogether, the price would not be much diminished in China. It appears to be cultivated in all parts of China, even in the vicinity of Pekin, which is in the same latitude as Philadelphia, and has a very similar climate. It succeeds best in south exposures and in the neighbourhood of running water. As the seeds are very apt to spoil, and scarcely one in five will germinate, it is usual to plant several in the same hole, at the depth of four or five inches. The plants require little further care than that of removing the weeds, till the third year, when the leaves may be gathered. In seven years, the plants have attained the height of six feet; but, as they bear few leaves, they are trimmed down, which produces a great number of new leaves. The leaves are plucked off, one by one, with many precautions; and only from four to fifteen pounds are collected in a day. In a district in Japan, where the tea plant is cultivated with peculiar care, the first gathering takes place at the end of the winter, when the leaves are young and tender, and are only a few days old: these, on account of their scarcity and dearness, are reserved for the wealthy, and called *imperial tea*. The second gathering is at the beginning of spring, when some leaves have attained their full size, and others are only expanding: all are gathered promiscuously, and afterwards sorted: the youngest especially are separated with great care, and often sold for the imperial. The third and last gathering takes place towards the middle of summer: the leaves are now fully expanded, of inferior quality, and are reserved for the common people. In China the leaves are probably collected in the same manner.

There are two varieties of the tea plant—*T. viridis*, with broader leaves, and *T. bohea*—by some writers considered distinct species. Formerly, it was thought that green tea was gathered exclusively from *T. viridis*; but this is now doubtful: though it is certain there is what is called the *green tea district*, and the *black tea district*; and the varieties of the one differ from those of the other district. Doctor Abel was told, by competent persons, that either of the two plants will afford the black or green tea of the shops, but that the *T. viridis* is preferred for making green tea. The names given, in commerce, to the different sorts of tea, are unknown to the Chinese, the imperial excepted, and are supposed to have been applied by the merchants at Canton. The tea leaves, being gathered, are cured in houses which contain from five to ten or twenty small furnaces, about three feet high, each having at the top a large, flat, iron pan. There is also a long, low table, covered with mats, on which the leaves are laid, and rolled by workmen, who sit round it. The iron pan being heated to a certain degree by a little fire made in the furnace underneath, a few pounds of the fresh gathered leaves are put upon the pan: the fresh and juicy leaves crack when they touch the pan; and it is the business of the operator to shift them as quickly as possible with his bare hands, till they become too hot to be easily endured. At this instant, he takes off the leaves with a kind of shovel resembling a fan, and pours them on the mats: other operators, now taking small quantities at a time, roll them in the palm of their hands in one direction, while a third set are fanning them, that they may cool the more speedily, and retain their curl the longer. This process is repeated two or three times, or oftener, before the tea is put into the stores, in order that all the moisture may be thoroughly dissipated and their curl more completely preserved. On every repetition, the pan is less heated, and the operation performed more closely and cautiously. The tea is then separated into the different kinds, and deposited in the store for domestic use or exportation. The different sorts of black and green arise not merely from soil, situation, or the age of the leaf; but after winnowing the tea, the leaves are taken up in succession as they fall; those nearest the machine, being the heaviest, are the *gunpowder tea*; the lightest, the worst, is chiefly used by the lower classes. That which is brought down to Canton then undergoes a second roasting, winnowing, packing, &c.; and many hundred women are employed for these purposes. As a more select sort of tea, the flowers of the *camellia sasanqua* appear to be collected. The leaves, indeed, of this plant are often used, and sometimes those of the other species of *camellia*, though that practice is rather to be considered in the light of adulteration. Several other plants appeared to be used as substitutes for tea, as a species of moss, different sorts of ferns, &c.; and in Japan the leaves of the *olea fragrans* are used to give it a high flavour. The seeds of the tea plant, as well as of the camellias, and especially of the *C. oleifera*, are crushed for their oil, which is in very general use in the domestic economy of China.

The black teas, usually imported by Europeans and Americans, are, beginning with the lowest qualities, *bohea*, *congo*, *campo*, *souchong*, *pouchong*, *pekoe*; the green teas are *twankay*, *hyson skin*, *young*

hyson, *hyson*, *imperial*, and *gunpowder*. The best tea grown in China is cultivated in the province of Kiang-nan, that beautiful province of which Nankin is the capital, and which produces an abundance of every necessary and luxury; but the greatest part of the common black teas exported to Europe comes from Fokien, where formerly European traders were permitted to resort, until the disorders supposed to arise from the intercourse with foreigners induced the government to restrict all communication to a single port. The Russians, however, who carry on the overland trade in tea, derive their supplies from another province. The superiority of the tea brought into the European market by the Russians does not depend on its not having been exposed to a sea-voyage (commonly supposed in England to be injurious to the flavour of the herb), but entirely on the greater fitness or excellence of the soil, &c., in the districts from which the Russians alone are permitted to draw their teas.

The effects of tea on the human system are those of a very mild narcotic, and, like those of any other narcotic taken in small quantities, exhilarating. The green varieties of the plant possess this quality in a much higher degree than the black, and a strong infusion of the former will, in most constitutions, produce considerable excitement and wakefulness. Of all narcotics, however, tea is the least pernicious, if indeed it be so in any degree. It acts, likewise, as a diuretic and a diaphoretic, and assists digestion.

Most of the attempts to cultivate the tea plant in foreign countries have met with little success. Within the last few years, however, considerable efforts have been made, by the Dutch government of Java, to produce tea in that island, with the assistance of Chinese cultivators, with some prospect of success; and the experiment has been made to propagate the tea shrub in Brazil, also with the aid of Chinese labourers.

It has been said that the use of tea among the Chinese is not of ancient date, from the character representing tea not being found in any ancient Chinese work. If this be true, it is but negative evidence, and it would require vast research and a close acquaintance with Chinese literature to prove that it is true. We have, however, positive evidence of its being used as early as the eighth and ninth centuries. A tax on tea is mentioned in the "Annals of the Dynasty of Tang;" and in the Journal of an Arabian merchant who traded with the Chinese at that early period, mention is made of the infusion of a herb named *sah*, much drunk by the inhabitants; this herb is evidently tea, and its name *sah* is as near an approximation to the Chinese name *chah*, as the Arabic alphabet is capable of expressing.

It may be interesting to trace the gradual increase in the use of tea with us,—from the time when it was first tasted as a curiosity to the present period. The first time we find it mentioned in this country is in an act of parliament passed in 1660, by which we find it charged with a duty of 1*s.* 6*d.* per gallon when drunk in public-houses. In the following year Pepys speaks of it in his Diary in the following terms:—"September 25. I sent for a cup of tea (a Chinese drink), of which I had never drank before." In 1664 a present of two pounds two ounces of tea was made by the East India Company to Charles II.,—probably all that could be procured in London. The price was then about two guineas per pound; and the tea appears to have been procured from the continent, as the first importation by the Company was in 1669, when two canisters were received by them containing 150 lbs. It appears, however, to have been hardly considered as an article of commerce, the first order for tea being sent to Madras. The singular terms of this order will show how recent was the introduction of the herb, and the estimation in which it was held. "In regard tea is grown to be a commodity here, and we have occasion to make presents thereof to our great friends at court, we would have you yearly send us five or six canisters of the very best and freshest; that which colours the water in which it is infused most of a greenish complexion is best esteemed."

In the year 1678 nearly 5000 lbs. were imported; this quantity, which would now be sold at one large shop in London, appears to have overstocked the country, for we find only 410 lbs. imported altogether in the six following years, but after this time the demand for tea slowly increased: our ancestors gradually acquired a preference for the social and exhilarating beverage over the heady ale which accompanied their former repasts, and about the end of the century nearly 20,000 lbs. of tea were brought every year to England. In twenty years from this time the annual importation reached above a million pounds, being an increase of fifty-fold in twenty years.

From this time the consumption of tea, almost without fluctuation, increased to its present enormous amount.

The following table exhibits the quantities of tea imported into the United Kingdom during each of the twelve years ending with 1844; specifying the quantities re-exported and retained for home use; with the duty paid.

Years.	Total Imports to the U. Kingdom.	Re-exported from the U. Kingdom.	Retained for Home Consumption.	Amount of Duty Paid thereon.
	lbs.	lbs.	lbs.	£
1833.	32,057,833	284,460	31,8.9,620	3,444,102
1834.	32,643,980	1,181,005	34,969,651	3,589,261
1835.	44,260,550	2,158,029	36,474,004	3,832,427
1836.	49,307,701	4,969,863	49,142,236	4,574,535
1837.	36,973,981	4,716,948	30,625,206	3,223,840
1838.	40,413,714	3,577,877	34,351,693	3,962,036
1839.	32,158,606	3,318,912	35,127,787	3,688,848
1840.	36,021,893	3,393,394	32,252,628	3,472,864
1841.	30,787,796	4,490,368	36,675,667	3,973,628
1842.	40,742,128	5,710,127	37,3.5,911	4,088,967
1843.	46,612,737	4,564,141	41,2.3,393	4,477,642
1844.	53,147,078	4,828,985	41,3.3,770	4,524,193

Russia and Holland are the only countries, on the continent of Europe, in which the consumption of tea is considerable. In 1841, the imports into Russia amounted to 6,247,440 pounds, almost entirely of the black sorts. It is carried over land from Kiachta to Tomsk, and thence, partly by land and partly by the rivers, to Novgorod. The consumption in Holland amounts to about 3,000,000 pounds a year. In France, tea is not generally used, and the consumption is estimated not to exceed 350,000 pounds. The importations into Hamburg vary from 1,500,000 to 2,000,000 pounds, the greater part of which is forwarded to the interior of Germany. The imports into Venice and Trieste do not exceed seven hundred weight. The consumption of the United States fluctuates between 15,000,000 and 16,000,000 pounds per annum. The duty on tea there, was once much higher than at present, and in some years produced £650,000 per annum; since it has been lowered, the consumption of tea has largely and advantageously increased. Green tea is used by the people of that country in a much larger quantity than black tea.

TEAK-WOOD (*tectona grandis*); one of the largest trees known, and one of the most interesting, from the properties of the wood. It is referred to the natural family *verbenaceæ*. The young branches are quadrangular and jointed; the leaves opposite, obovate and downy beneath, somewhat declining, on young trees from one to two feet long, and eight to sixteen inches in breadth. The flowers are small, white and fragrant, disposed in widely spreading terminal panicles. The calyx is tomentose, and the corolla hardly longer than the calyx. The fruit is a one-celled drupe. This tree abounds in the extensive forests of Java, Ceylon, Malabar, Coromandel, &c., but especially in the empires of Birmah and Pegu, from which countries Calcutta and Madras draw all their supplies of ship timber. The wood is light and easily worked, and, at the same time, strong and durable. It is considered superior to all others for ship building, and is, besides, extensively used in the East in the construction of houses and temples. This tree has been introduced into the British possessions in India, and is now planted, with a view to timber, in the mountainous parts of Bengal. Its cultivation has also been recommended in the West Indies; and some circumstances seem to encourage the idea that it will succeed beyond the tropics. The leaves furnish a purple dye, which is employed for colouring cottons and silks.

TEAL. This name is given to some small species of duck, resembling, in their habits and anatomical characters, the domestic species. Teal frequent the fresh waters of the interior, living on aquatic plants and seeds, and rarely visit the seashore. The flesh is dry and difficult of digestion, but, notwithstanding, is in great request.

TEAR, AND LACHRYMAL ORGANS. The limpid fluid secreted by the lachrymal glands, and flowing on the surface of the eyes, is a little heavier than water, and contains much pure soda, also muriate, carbonate and phosphate of soda, and phosphate of lime. The organs which secrete this liquid are the lachrymal glands, one of which is situated in the external angle of each orbit, and emits six or seven excretory ducts, which open on the internal surface of the upper eyelid, and pour forth the tears. The tears have mixed with them an arterious, roscid vapour, which exhales from the internal surface of the eyelids, and external of the *tunica conjunctiva*, into the eye. Perhaps the aqueous humour also transudes through the pores of the cornea on the surface of the eye. A certain part of this aqueous fluid is dissipated in the air; but the greatest part, after having performed its office, is propelled by the orbicular muscle, which so closely compresses the eyelid to the ball of the eye as to leave no space between, except at the internal angle, where the tears are collected. From this collection the tears are propelled through the lachrymal canals into the lachrymal sac, and flow into the cavity of the nostrils, where they are partly thrown out, partly swallowed. If the passage of the tears from the eyes to the nose is disturbed, or prevented (e. g. by a stoppage of the lachrymal duct), they flow down the cheeks, and also collect in the lachrymal sac, extend it, are here changed in their quality, and cause an inflammation, which generally brings on ulceration, and, if not attended to, even affects the bones. This is the disease known by the name of *lachrymal fistula*. To cure it, an operation is required, by which a new duct is formed for the tears to enter the nose. The tears have no smell, but a saltish taste, as people who weep perceive. They are of a transparent colour, and aqueous consistence. The quantity, in its natural state, is just sufficient to moisten the surface of the eye and eyelids; but from sorrow, or any kind of stimulus applied to the surface of the eye, so great is the quantity of tears secreted, that the *puncta lachrymalia* are unable to absorb them. Thus the greatest part runs down from the internal angle of the eyelids, in the form of great and copious drops, upon the cheeks. A great quantity also descends through the lachrymal passage into the nostrils; hence those who cry have an increased discharge from the nose.—The use of the tears is to prevent the pellucid cornea from drying and becoming opaque, or the eye from concreting with the eyelids. They prevent that pain which would otherwise arise from the friction of the eyelids against the bulb of the eye, from continually winking. They wash and clean away the dust of the atmosphere, or any thing acrid that has fallen into the eye. Weeping relieves the head of congestions.

TEASEL (*dipsacus*). This plant bears a general resemblance to the thistle, and might very readily be mistaken for a compound flower; but each floret is provided with its calyx, and the four stamens are not united. The corolla is tubular, and divided into four lobes at the summit; the florets are disposed in large, oval, conic receptacles, and are separated by long, projecting scales or chaffs.—The cultivated teasel (*D. fullonum*) has a herbaceous, upright, prickly stem; the leaves are connate, oval-lanceolate, and likewise prickly beneath, on the principal nervures. The florets are blue, and expand successively by zones. It has been considered a variety of the wild teasel (*D. sylvestris*), a common plant in many parts of Europe; but it differs in having the scales or chaffs more rigid, recurved, and forming a little hook at the extremity. This conformation is peculiarly suitable for raising the nap upon woollen cloths; and for this purpose the heads are fixed round the circumference of a large, broad wheel, which is made to turn round, and the cloth is held against them, or they are set into flat boards like cards. This plant is, in consequence, cultivated for manufacturing purposes, and has become an article of considerable importance. The seeds are sown in March, in well prepared, strong, rich land, broadcast, and at the rate of one peck to the acre. They are hoed, like turnips, to a foot distance; and the second year, in August, the heads are fit to cut. They are sold by the bundle of twenty-five in each, and the ordinary produce is 160 of such bundles to the acre.

TECHNICAL (from τεχνη, art) signifies, in general, that which belongs peculiarly to art, or to any branch of it in particular. A *technical* term is an expression peculiar to an art or profession. In the fine arts, the *technical* is contradistinguished to the *æsthetical*, comprising every thing relating to the material execution of works of art.

TECHNOLOGY (from τεχνη, art, and λογος, word, science) is the science which treats of the arts, particularly the mechanical. Technology may be divided into two kinds, a higher and lower, of which the latter treats of the various arts themselves, and their principles, their origin, history, improvement, &c.; the former, of the connexion of the arts and trades with the political condition of a nation, and the important influence which they have exercised ever since the mechanical occupa-

tions have come to honour; i. e. since the growth of free cities in the middle ages.

TECUMSEH, a celebrated Indian chief, was born on the banks of the Scioto river, near Chilicothe, Ohio. His father was a Shawanee warrior of distinction, who was killed at the battle of Kenawa, while Tecumseh was still a child. His mother is variously stated to have been a Shawanee, a Creek, and a Cherokee. In his youth, Tecumseh was remarkable for temperance and integrity; but he did not at first display the valour which afterwards distinguished him. He first fought in an engagement with the Kentucky troops, on the banks of the Mud river, in the heat of which he fled from the field. But he soon retrieved his reputation, and, at the age of twenty-five, was regarded as one of the boldest of the Indian warriors. His enmity against the whites was constant and bitter. In all the terrible incursions of the savages, by which the first settlers of Kentucky were harassed, he was conspicuous; but he rarely appropriated to his own use any of the booty thus obtained; the love of glory, and the desire of sating his vengeance on the whites, being his predominant passions. At length, in conjunction with his brother, the famous prophet Elskatawa, he succeeded in effecting, to a considerable extent, a union of the savages, and produced so strong a fermentation among them as to render it necessary for the government of the United States to take decisive measures. Accordingly, general Harrison, the governor of Ohio, commenced offensive operations, and, November 7, 1811, defeated the forces under the command of the prophet, in the battle of Tippecanoe. At the time of the action, Tecumseh was absent in the south, whither he had gone for the purpose of prosecuting his plans of union. Soon after his return, in 1812, he joined the British, then at war with the United States, and received the rank of brigadier-general in the royal army. He was extremely useful to his allies in raising and retaining the Indian forces. During the first months of the war, he was principally occupied in recruiting; but he was also present at the two sieges of fort Meigs, and, May 5, 1812, commanded the co-operating savage force on the south-east side of the river. His career, however, was soon cut short. In the decisive battle of the Moravian towns, he led the right wing of the allied army; and whilst all were flying around him, he continued to press on with a chosen band of followers, until he fell; by whose hand has never been satisfactorily ascertained. Tecumseh was a remarkable man, fitted for attaining greatness both in peace and war. His eloquence was vivid and powerful. He was sagacious in contriving and accomplishing his objects, and, by his address, obtained an unlimited influence over his savage brethren. Throughout life he was exemplary in his habits of temperance, and adherence to truth. He was disinterested, generous, hospitable, and humane. He married at a mature age, in consequence of the persuasions of his friends, and left one child. In person, he was about five feet ten inches high, with handsome features, a symmetrical and powerful frame, and an air of dignity and defiance.

TE DEUM LAUDAMUS, or, still more abbreviated, TE DEUM (Thee, God, we praise), is the beginning of the hymn or song of thanksgiving usually ascribed to St Augustine and St Ambrose. It is sung on particular occasions, as on the news of victories and on high festival days, in Catholic and also in many Protestant churches. Among the modern composers of this hymn are Hasse, Naumann, Haydn, Danzi, and Schicht.

TEETH (*dens*, a tooth: quasi *edens*, from *edo*, to eat); small bones fixed in the *alveoli* of the upper and under jaw. In early infancy, nature designs us for the softest aliment, so that the gums alone are then sufficient for the purpose of mastication; but, as we advance in life, and require a different food, she provides us with teeth. These are the hardest and whitest of our bones, and, at full maturity, we usually find thirty-two in both jaws, viz. sixteen above, and as many below. Their number varies, indeed, in different subjects; but it is seldom seen to exceed thirty-two, and it will very rarely be found to be less than twenty-eight. Each tooth may be divided into two parts, viz. its body, or that part which appears above the gums, and its fang, or root, which is fixed into the socket. The boundary between these two, close to the edge of the gum, where there is usually a small circular depression, is called the *neck* of the tooth. Every tooth is composed of its cortex, or enamel, and its internal bony substances. The enamel, or, as it is sometimes called, the vitreous part of the tooth, is a very hard and compact substance, of a white colour, and peculiar to the teeth. It is found only upon the body of the tooth, covering the outside of the bony or internal substance. When broken, it appears fibrous or striated, and all the *striæ* are directed from the circumference to the centre of the tooth. The bony part of a tooth resembles other bones in its structure, but is much harder than the most compact part of bones in general. It composes the inner part of the body, and the whole of the root of the tooth. Each tooth has an inner cavity, supplied with blood-vessels and nerves, which pass through the small hole in the root. In old people this hole sometimes closes, and the tooth becomes then insensible. The teeth are invested with periosteum from their fangs to a little beyond their bony sockets, where it is attached to the gums. This membrane seems to be common to the tooth which it encloses, and to the sockets which it lines. The three classes into which the teeth are commonly divided, are incisors, canine, and molars, or grinders. The incisors are the four teeth in the fore part of each jaw; they derive their name from their use in dividing and cutting the food in the manner of a wedge, and have each of them two surfaces, which meet in a sharp edge. The canine or *cuspidati* (eye-teeth) are the longest of all the teeth, deriving their name from their resemblance to a dog's tusk. There is one of these teeth on each side of the incisors, so that there are two in each jaw. Mr Hunter remarks, that we may trace in them a similarity in shape, situation, and use, from the most imperfect carnivorous animal—which we believe to be the human species—to the lion, which is the most perfectly carnivorous. The molars, or grinders, of which there are ten in each jaw, are so called, because, from their size and figure, they are calculated for grinding the food. The canine and incisors have only one fang; but the three last grinders in the under jaw have constantly two fangs, and the same teeth in the upper jaw, three fangs. Sometimes these fangs are divided into two points near their base. The grinders likewise differ from each other in appearance. The last grinder is shorter and smaller than the rest, and from its coming through the gums later than the

rest, and sometimes not appearing till late in life, is called *wisdom-tooth*. The variation in the number of teeth usually depends on these wisdom-teeth.

The danger to which children are exposed during the time of dentition, arises from the pressure of the teeth in the gum, so as to irritate it, and excite pain and inflammation. The effect of this irritation is, that the gum wastes, and becomes gradually thinner at this part, till, at length, the tooth protrudes. In such cases, therefore, we may, with great propriety, assist nature by cutting the gum. These teeth are twenty in number, and are called *temporary* or *milk* teeth, because they are all shed between the age of seven and fourteen, and are supplied by others of a firmer texture, with large fangs, which remain till they become affected by disease, or fall out in old age, and are therefore called the *permanent*, or *adult* teeth. Besides these twenty teeth, which succeed the temporary ones, there are twelve others to be added to make up the number thirty-two. These twelve are three grinders on each side in both jaws; and in order to make room for this addition, we find the jaws grow as the teeth grow, so that they appear as completely filled with twenty teeth, as they are afterwards with thirty-two. Hence, in children, the face is flatter and rounder than in adults. The *dentes sapientiæ*, or wisdom-teeth, do not pass through the gum till between the age of twenty and thirty. They have, in some instances, been cut at the age of forty, fifty, sixty, and even eighty years; and sometimes do not appear at all. Sometimes, likewise, a third set of teeth appears, about the age of sixty or seventy.

The teeth are subject to a variety of accidents. Sometimes the gums become so affected as to occasion them to fall out; and the teeth themselves are frequently rendered carious by causes which have not hitherto been satisfactorily explained. The disease usually begins on that side of the tooth which is not exposed to pressure, and gradually advances till an opening is made into the cavity: as soon as the cavity is exposed, the tooth becomes liable to considerable pain, from the air coming into contact with the nerve. The enamel of the teeth, as we have already said, is very hard, but liable to be cracked by the pressure of very hard substances, or by exposure to great heat or cold, and, more peculiarly, by sudden changes from one to the other. The bony substance below, being thus exposed, begins to decay; the nerve and blood-vessels are at length laid bare, and tooth-ache ensues. Rheumatism, gout, and venereal disorders exert a very prejudicial influence on the teeth. To preserve the teeth, we must guard against too hot or too cold drinks; violent changes of temperature; biting of very hard substances, as in cracking nuts, also biting off threads, and untying knots with the teeth, as the former injures the enamel, the latter tends to loosen the teeth in their sockets. Acids, of all sorts, particularly the stronger ones, injure the enamel. Therefore all tooth-washes which contain them are eventually prejudicial to the teeth, although the immediate effect is to clean and whiten them. Rough-pointed substances also injure the enamel, so that we should avoid the use of metallic tooth-picks, and tooth-powder made of pumice stone, coral, cream of tartar, &c. People who eat much meat and little bread, or have a bad digestion, or smoke tobacco, find that a deposit of earthy particles collects around the teeth, and forms tartar, particularly about the parts which are least exposed to the action of the food—the lower and inner parts, near the gums. The gums gradually separate from the teeth; the consequence is, that these decay, and the breath is rendered offensive. To avoid these effects, the teeth should be daily cleaned with tepid water and a hard brush. A proper powder should also be occasionally applied to them. Where tartar has been formed, it should be removed by the dentist, and its return carefully guarded against. Decay can often be checked by the removal of the parts which have turned black, and filling the cavity with gold, so that the teeth may be preserved for many years or for life. Every one should have his teeth examined at intervals of a few months, to detect incipient decay.

Artificial teeth are often inserted to remedy, as far as possible, the loss of the natural ones. These were formerly taken from the corpses of healthy men (though this point of healthiness was often far too little attended to); they are now, more generally, prepared from the teeth of the walrus, or sea-cow, from ivory, from porcelain, &c. Artificial teeth are either secured in the stumps of natural ones, by means of a gold or silver support, or, where such stumps do not exist, they are fastened to neighbouring teeth by gold or silk thread. The porcelain teeth have an advantage over the other kinds, which lose their colour, and acquire a disagreeable smell in the course of time. Their hardness may perhaps, however, make them injurious to the contiguous natural teeth. Besides the accidental means by which the teeth are affected, old age seldom fails to bring with it sure and natural causes for their removal. The *alveoli* fill up, and the teeth consequently, fall out. The gums then no longer meet in the fore part of the mouth, the chin projects forwards, and, the face being rendered much shorter, the whole physiognomy appears considerably altered.

The great variety in the structure of the human teeth, fits us for a variety of food, and, when compared with the teeth given to other animals, may, in some measure, enable us to explain the nature of the aliment for which man is intended by nature. Thus in ruminating animals, we find incisors only in the lower jaw, for cutting the grass, and molars for grinding it; in graminivorous animals, we see molars alone: and in carnivorous animals, canine teeth for catching at their prey, and incisors and molars for cutting and dividing it. But as man is not designed to catch and kill his prey with his teeth, we observe that our canine are shaped differently from the fangs of beasts of prey, in whom we find them either longer than the rest of the teeth, or curved. The incisors, likewise, are sharper in those animals than in man. Nor are the molars in the human subject similar to the molars of carnivorous animals; they are flatter in man than in these animals; and in the latter, we likewise find them sharper at the edges, more calculated to cut and tear the food, and, by their greater strength, capable of breaking the bones of animals. From these circumstances, therefore, we may consider man as partaking of the nature of these different classes; as approaching more to the carnivorous than to the herbivorous tribe of animals; but upon the whole, formed for a mixed aliment, and fitted equally to live upon flesh and upon vegetables. Those philosophers, therefore, who would confine a man wholly to vegetable food, do not seem to have studied nature. As the molars are the last teeth that are

formed, so they are usually the first that fall out. This would seem to prove that we require the same kind of aliment in old age as in infancy. Besides the use of the teeth in mastication, they likewise serve a secondary purpose, by assisting in the articulation of the voice. Albin, Hunter, Blake, Fox, and many others, have written on the teeth. See, also, A. Serres, *Essai sur l Anatomie et la Physiologie des Dents, ou Nouvelle Théorie de la Dentition* (Paris, 1817). For zoologists, Cuvier's *Des Dents des Mammiferes* (Paris, 1825) is of much interest.

TEFLIS, or TIFLIS; a city in Asia, capital of Georgia; lat. 41° 43′ N.; lon. 62° 40′ E.; population, about 15,000. It was founded in 1063, and is situated on the banks of the Kur, at the extremity of a defile formed by two ranges of mountains. The streets are narrow, filthy, and dusty. Since the conquest of Georgia by the Russians, in 1801, Teflis has been the residence of their governor and commander-in-chief. The city contains a large caravanhary, an hospital, an arsenal, and a Catholic church, a number of Armenian and Greek churches, several of them fine buildings. The houses are built of brick, mingled with stones and mud, with doors and windows exceedingly small. Many of the dwellings are mere mud huts. Teflis has been long celebrated for its baths, which are situated at one extremity of the bazar. They are ten in number, and are the daily resort of both sexes, as places of luxury and amusement.

TEGERNSEE; a village, castle, and royal lordship (63 square miles, with 3200 inhabitants), 33 miles distant from Münich, on the lake of Tegern. It is a very romantic spot, surrounded by high mountains, and often visited by the royal family. A remarkable illumination took place on the mountains, in the reign of Maximilian I., when the names of some of his princely guests were presented by night, in characters of fire, on the sides of the heights. The fires were kept up by immense piles of wood, arranged by geometrical calculation, and were so large that half an hour was required to walk from the bottom to the top of a single letter. Near Tegernsee, fine marble is found. Naphtha is also collected here.

TEHERAN, or TEHRAUN; a city of Persia, in Irak Agemi; lat. 35° 40′ N.; lon. 50° 52′ E.; population, in the winter, about 60,000. During the two last reigns, it has been the residence of the sovereign. Its situation is low and unhealthy. On the south are the ruins of the immense and ancient city of Rai, and on the north and east, the lofty mountain ranges of Elburz and Demavend. It is four miles in circuit, surrounded by a strong wall, built of bricks baked in the sun, flanked by numerous towers, with a broad dry ditch, with a glacis between it and the wall. It has six gates, seven mosques, three colleges, and numerous baths and caravansaries. The houses are built of unburnt brick, and the city has a mud-like appearance. It contains no edifice of importance except the *ark*, which combines the character of a citadel with a royal palace, and has considerable strength. During the summer months, it is very unhealthy; and in that season the king pitches his tents in the plains of Sultania, or Unjan, and most of the inhabitants follow the royal camp; so that Teheran cannot then contain more than 10,000 persons.

TEHUANTEPEC; a seaport of Mexico, in the state of Oaxaca, on the Pacific ocean, at the mouth of the Chimalapa: lat. 16° 16′ N.; lon. 94° 58′ W. It is situated on a large gulf. The port is impeded by a dangerous shoal. The isthmus of Tehuantepec, which separates the Pacific ocean from the gulf of Mexico, is 125 miles across. Examinations made in 1830, for the purpose of ascertaining the practicability of cutting a navigable canal across the isthmus, gave unfavourable results.

TEIGNMOUTH, John Shore, lord, a native of Teignmouth, in Devonshire, born in 1751, was sent early to India, as a writer in the service of the East India company, where he rose to the chair, in Bengal. He was intimate with Mr Hastings, and, under his government, filled several important offices. In 1793, he succeeded to be governor of Bengal, but only remained in that situation till his successor arrived from England. On the death of his friend Sir W. Jones, he was elected president of the Asiatic society, in which capacity he delivered a eulogy on his predecessor, which was printed in the Transactions of the society, as are several others of Mr Shore's papers. In 1793, he was made a baronet, and, some time after his return, in 1797, he was created a peer of Ireland, by the title of baron Teignmouth. He published Memoirs of the Life, Writings, and Correspondence of Sir W. Jones (4to., 1801), and the Works of Sir W. Jones (1807, 5 vols., 4to., and afterwards in 10 vols., 8vo.) He died in Feb. 1834.

TEKELI, or TEOKEOLY, Emmerich, count of, a Hungarian noble, celebrated for his efforts to deliver his country from the dominion of Austria, was the son of Stephen, count Tököly, a noble Lutheran, who, after the execution of several Hungarians for a conspiracy against Austria, placed himself at the head of the malcontents. General Heister was sent against him, and besieged him in his castle. The count died during the siege, but had taken such steps as enabled his son, then fifteen years of age, to escape. Emmerich fled to Transylvania, where his courage and good conduct gained him the favour of the prince, who gave him the command of a body of troops despatched to aid the Hungarian malcontents. The Hungarians chose him, in 1678, commander-in-chief, and Tököly, determined to allow himself no rest until he had freed his country from the German yoke, broke into Upper Hungary, at the head of a continually increasing body of forces, captured several fortresses and the mining towns, devastated Moravia, and, assisted by France and the Porte, penetrated into Upper Austria. The emperor consented to redress several grievances at the diet of Edenburg (1681): but Tököly persisted in his opposition, and put himself under the protection of the sultan Mohammed IV., by whom he was declared king of Hungary. A war between the emperor and the Porte was the consequence, in which the Turks advanced (1683) as far as Vienna, but were totally defeated before that city. The grand-vizier wished to lay the whole blame of the defeat upon Tököly; but the latter hastened to Adrianople, and vindicated his conduct so completely to the sultan, that the grand-vizier was strangled, and Tököly received assurances of support. The count continued the war, but without success, lost several decisive battles, and was therefore arrested by the Turks. Fortune, however, once more smiled upon him, and he was designated by the Porte to be prince of Transylvania. He penetrated into that country, routed the imperial general Heusler, and was elected prince by the Transylvanians; but Louis, margrave of Baden, compelled him to retire. Thus alternately exposed to the caprices of fortune and of the P

once more carried in chains to Adrianople, and soon after named prince of Widdin. He returned to Turkey after the peace of Carlowitz (1699), and ended his unquiet life near Nicomedia, in Asia Minor, in 1705. Tököly was a man of lofty courage, of great sagacity and foresight, and of an imperturbable presence of mind.

TELAMON. See *Argonauts*.

TELEGRAPH (from τηλε, at a distance, and γραφω, to write); the name given to a piece of mechanism for the rapid communication of intelligence by signals. (See *Signals*, and *Chappe*.) Dr Hooke's telegraph (described in the Philosophical Transactions for the year 1684) is the first on record, in modern times, applicable to universal purposes. It consisted in exposing, in succession, from behind a screen, certain figures in the day time, or an arrangement of torches by night, representing all the letters of the alphabet. See Plate LXXXIX, fig. 1, in which the screen is shown by *a*, and the character by *b*. In 1784, Richard Lovel Edgeworth proposed a telegraph, consisting of several posts, having at the top of each a movable cone or triangle, so that by their various positions, they might express certain numbers or letters. (See Plate LXXXIX, fig. 2.) This contrivance, though simple and easy, was, we believe, never reduced to practice. Chappe's telegraph (see fig. 3.) consists of an upright post, on the top of which is suspended, by a pivot, a transverse beam, each extremity of which supports a movable arm. By adjusting this beam, and its arms in different positions, various combinations are produced, capable of expressing words and sentences, an explanation of which is afforded by a key. Lord George Murray's telegraph was adopted by the admiralty in 1795, and continued in use for 20 years. It is represented at fig. 5. and consists of six shutters of a square or octagonal form, which turn on pivots within the compartments of a double frame. Colonel Macdonald, the most voluminous writer on telegraphs, proposed, in 1808, the machine shown in fig. 6. which is an extension of the shutter system. In 1816, Sir Home Popham proposed a telegraph or a construction of the same nature with that of Colonel Pasley, (published in his Polygrammatic Telegraph, 1807,) being nothing more than two movable arms on separate pivots on the same mast. (See fig. 4.) The universal telegraph, invented by colonel Pasley in 1822, has two arms, each of which can exhibit seven positions, with an indicator or mark on one side of the post, for the purpose of distinguishing the positions more accurately. This machine is capable of indicating only twenty-eight different combinations, which are, however, found to be sufficient for telegraphic communication, whether by the alphabetical method, or in reference to a telegraphic dictionary of words and sentences. Figs. 7 and 8 represent the different positions in which the Universal Telegraph may be displayed; the latter with lanterns attached for night signals. Several telegraphic dictionaries have been composed. A series of telegraphs are placed at intervals, and information is thus communicated with great rapidity. Twenty-seven telegraphs convey information from Paris to Calais in three minutes; twenty-two from Paris to Lisle in two minutes; forty-six from Strasburg to Paris in six and a half minutes, and eighty from Paris to Brest in ten minutes. At the time of the French expedition to Algiers, nocturnal telegraphs were erected, with lanterns of powerful magnifying glasses, and strong reflectors, and lighted with gas. A portable telegraph, which may be used by night and by day, has recently been invented in France, and has received the name of *Aërographe*. Of late years, however, all such imperfect and expensive means of communication as the preceding have been superseded, in Britain and the United States more especially, by the *electric* or *galvanic* telegraph. (See Railways (*a*.) in *Supplement*.)

TELEMACHUS; a son of Ulysses and Penelope. He was still in the cradle when his father went, with the rest of the Greeks, to the Trojan war. At the end of this celebrated war, Telemachus, anxious to see his father, went to seek him; and, as the place of his residence, and the cause of his long absence, were then unknown, he visited the court of Menelaus and Nestor to obtain information. He afterwards returned to Ithaca, where the suitors of his mother Penelope had conspired to murder him; but he avoided their snares, and, by means of Minerva, he discovered his father, who had arrived in the island two days before him, and was then in the house of Eumæus. With this faithful servant and Ulysses, Telemachus concerted how to deliver his mother from the importunities of her suitors; and it was effected with great success. After the death of his father, Telemachus went to the island of Ææa, where he married Circe, or, according to some, Cassiphone, the daughter of Circe, by whom he had a son called Latinus. He some time after had the misfortune to kill his mother-in-law Circe, and fled to Italy, where he founded Clusium. Telemachus was accompanied in his visit to Nestor and Menelaus by the goddess of wisdom, under the form of Mentor. It is said that when a child, Telemachus fell into the sea, and that a dolphin brought him safe to shore, after he had remained some time under water. From this circumstance Ulysses had the figure of a dolphin engraved on the seal which he wore on his ring. See *Emblem*.

TELEMANN, Gio. Philip; one of the greatest and most voluminous musical composers, who flourished in Germany during the former portion of the last century. He was born at Hildesheim, in 1681. In 1740, his overtures, on the model of those of Lulli, amounted to six hundred. The list of his printed works, which appeared in Walther's Musical Lexicon in 1732, extended to twenty-nine; and fifteen more are specified in Gerber's Continuation of Walther; but double the number of those printed were long circulated in manuscript from the music shops of Leipsic and Hamburg. His later compositions are said to be pleasing, graceful and refined. Telemann, who lived to a great age, drew up a well-written account of his own life, in the earlier part of which he was the fellow-student and intimate acquaintance of Handel. He died in 1767, at Hamburg.

TELEOLOGY (from τελος, the end, aim, and λογος, science); the doctrine of final causes. It treats of the wise and benevolent ends shown in the structure of individual creatures, and in their connexion, and in the connexion and consequences of events, from which it deduces the existence and character of the Creator. Delightful as it is to trace the proofs of wisdom and benevolence in the creation around us, we should be careful not to narrow the purposes of God to our own notions, not to be illiberal towards those who differ from us, nor to conceive that the earth was made solely for the use of man—a very confined, but too common opinion.

TELESCOPE (from τηλε, at a distance, and

σκοπέω, to see); an optical instrument, employed for viewing distant objects, by increasing the apparent angle under which they are seen without its assistance, whence the effect on the mind of an increase in size, or, as commonly termed, a *magnified representation*. (See *Optics*.) The telescope is perhaps one of the most important inventions of science, as it unfolds to our view the wonders of the heavens, and enables us to obtain the data for astronomical and nautical purposes. As the use of the instrument depends upon the proportionate distance of the glasses, and this distance requires to be changed to suit the nearness or remoteness of the object, and the vision of the observer, the tube of the telescope is so contrived as to admit of being lengthened and shortened, according to circumstances. The invention of the telescope is ascribed to different persons, among whom are John Baptista Porta, Jansen of Middleburg, and Galilei. The time of its first construction is considered to have been about 1590; but, in 1608 and 1609, we find these instruments for sale at very high prices by Dutch opticians; and in the latter year, Galilei constructed one without having seen those of the Dutch, by fitting a plano-convex and a plano-concave lens in a tube of lead. The simplest construction of the telescope consists merely of two convex lenses, so combined as to increase the apparent angle under which the object is seen. The lenses are so placed that the distance between them may be equal to the sum of their focal distances. The lens nearest the eye is called the *eye-glass*, and that at the other extremity of the tube the *object-glass*. Objects seen through this telescope are inverted, and on that account it is inapplicable to land observation; but at sea it is occasionally used at night and in hazy weather, when there is little light, and is, therefore, sometimes called the *night telescope*. The *astronomical telescope* is constructed in this manner, as the inversion of the object is immaterial in celestial observations. The common *day telescope*, or *spy-glass*, is an instrument of the same sort, with the addition of two, or even three or four other glasses, for the purpose of presenting the object in an erect position, increasing the field of vision, and diminishing the aberration caused by the dissipation of the rays. But the aberration and chromatic error of telescopes were not completely obviated until the invention of the *reflecting* and *achromatic telescopes*, which, when accurately constructed, present the object to the vision free from all distortion or chromatic dispersion. The *reflecting telescope* was invented by father Mersenne, a Frenchman, in the middle of the seventeenth century. Concave mirrors have the property of uniting the rays of light which proceed from any object, so as to form an image of that object at a certain point before the mirror. (See *Mirrors*.) If the distance of the object is so great, that the rays proceeding from it strike upon the mirror parallel to each other (which is the case with the heavenly bodies), the distance of the image is equal to half the radius of the sphere, of which the mirror is an arch, and the point where it is formed is called the *focus* of the mirror. (See *Burning Mirror*.) This property of the concave mirror has caused it to be used in the observation of the heavenly bodies; and the instrument constructed with such a mirror, is called a *reflecting telescope*. The simplest constructions of this kind were those in which the image, formed in the focus of the mirror, was used directly, and a convex eye-glass was employed to magnify the angle under which it was seen; and this, in fact, still continues to be the principle on which reflecting telescopes are constructed. But as this construction is attended with some difficulties in practice, Newton, and, since him, Cassegrain, Gregory, Hadley, Short, and the Herschels, have introduced some modifications in it. Newton, by means of a second reflection from a plane mirror, inclined at a certain angle, threw the image of the object into such a position in the tube of the telescope, that it could be easily examined from the side of the tube, through a plano-convex eye-glass, in whose focus it was situated. In the *Gregorian telescope* there is a large mirror with a small hole in its centre; opposite to this is placed a second small mirror in the axis of the larger one, and at a distance from it a little more than the sum of their focal distances. By means of this construction the image formed by this double reflection is viewed through one or more eye-glasses, fixed in the direction of the opening, and, therefore, the observer is stationed in a line with the object; while, in the *Newtonian telescope*, he is at right angles to it. The *Cassegrainian* is constructed in the same way as the Gregorian, with the exception of having a small convex instead of a concave speculum. Herschel gave the mirror such a position that its focus should fall directly under the edge of the upper aperture, so that the observer, in viewing the image, should not intercept the light: this he called a *front-view telescope*. It is plain that the size of the mirror, and, consequently, its focal distance, have an effect upon the magnitude of the image; and modern astronomers have, therefore, employed some instruments of this kind of great bulk. Herschel's gigantic telescope, erected at Slough, near Windsor, was completed August 28, 1789: and on the same day the sixth satellite of Saturn was discovered. The diameter of the polished surface of the speculum was forty-eight inches, and its focal distance forty feet. It weighed 2118 pounds. But this instrument of other days was small, compared with that of Lord Rosse, lately completed in our own. The latter, finished in Oct., 1844, has a speculum of six clear feet, weighing nearly four tons, placed in a tube having a focal length of 53 feet. The gigantic tube is established between two lofty piers or walls of castellated architecture, about sixty feet high; one of which carries an iron semi-circle, against which the tube bears when in the meridian. The celestial object is followed in right ascension by drawing the telescope from the plane through a range of fourteen feet, with a long screw, moved either by hand or by a clock. The hour angle will, in such cases, be obtained by another circle and level. The united mass of the instrument weighs about twelve tons, and the arrangements for counterpoising it are most ingeniously contrived. To give an idea of the effective magnitude of such an instrument, we may advert to the fact, that Newton's first telescope had a speculum of one inch diameter; his second of 2·37. Now Lord Rosse's speculum has a diameter of 6 feet = 5184 square inches of area; whereas Newton's larger speculum had but 5·6. His lordship lately announced his intention of making another instrument, inclosing two specula, of 8½ feet and 10 feet diameters; forming a combined superficies of 24,400 feet! The discoveries made with the existing instrument have been great; those that remain to be effected with that in contemplation will, no doubt, be correspondingly greater.

We now return to the *refracting* telescope. The most important improvement in this instrument consists in the formation of the object-glasses free from the errors of chromatic and spherical aberration, whence they have been denominated *achromatic* (*a*, without; χρωμα, colour) *telescopes*, or, more properly, *aplanatic* (*a*, without; πλανη, error) *telescopes*. These are now made in such perfection, that they have, in some degree, superseded the reflecting telescopes; and the optical institute at Benedictbeuern provides observatories with such excellent dioptrical instruments, that the catoptric are little used. Dollond first made achromatic telescopes; Ramsden, Reichenbach, &c., have made the best. They are formed by employing a double object-glass, composed of two lenses of different refractive powers, which will mutually correct each other, and thus give a pencil of white light entirely colourless. Triple object-glasses are also used: one of the largest ever constructed was erected at the observatory of Dorpat, in 1824, and was made by Fraunhofer. The diameter of the object-glass has a clear aperture of nine and six tenths inches, and a focal distance of fifteen feet; but he afterwards constructed another, with a diameter of twelve Paris inches, and a focus of eighteen feet. Mr Tully has also made one in England, of which the aperture of the object-glass is six eight-tenth inches, and the focal length twelve feet. It is now in possession of doctor Pearson See *Astronomical Transactions*, vol. ii.

TELESCOPE CARP. See *Gold-Fish*.

TELL, William, a peasant of Bürgeln, near Altorf, celebrated for his resistance to the tyranny of the Austrian governor Gessler or Gässler. Switzerland consisted of a great number of secular and ecclesiastical districts, belonging partly to the hereditary dominions of the house of Hapsburg, and partly to the German empire. Albert I., emperor of Germany, a grasping prince, eager to make territorial acquisitions, wished to unite the Forest Towns with his hereditary estates, and proposed to them to renounce their connexion with the empire, and to submit themselves to him as duke of Austria. They rejected his offers, and were in consequence so ill treated and oppressed by the imperial governors, that, in 1307, Uri, Schweitz, and Unterwalden formed a league, under the influence of three brave men, Walter Fürst (Tell's father-in-law), Arnold of Melchthal, and Werner Stauffacher. Tell was also one of this league. Gessler now pushed his insolence so far as to require the Swiss to uncover their heads before his hat (as an emblem of the Austrian sovereignty), and condemned Tell, who refused to comply with this mandate, to shoot an apple from the head of his own son. Tell was successful in his attempt, but confessed that a second arrow, which he bore about his person, was intended, in case he had failed, for the punishment of the tyrant, and was therefore retained prisoner. While he was crossing the lake of the Four Cantons, or lake of Lucerne, in the same boat with Gessler, a violent storm threatened the destruction of the skiff. Tell, as the most vigorous and skilful helmsman, was set free; and he conducted the boat successfully to the shore, but seized the opportunity to spring upon a rock, pushing off the barque. He had fortunately taken his bow with him; and when the governor finally escaped the storm, and reached the shore, Tell shot him dead, on the road to Küssnacht. The death of Gessler was a signal for a general rising, and a most obstinate war between the Swiss and Austria, which was not brought to a close until 1499. (See *Switzerland*.) Tell was present at the battle of Morgarten (q. v.), and is supposed to have lost his life in an inundation in 1350. Such is the story of William Tell, which, attested by chapels, by the designation of the rock on which he leaped, by paintings and other circumstances, has been called in doubt by many, but is sanctioned by John von Müller. Saxo Grammaticus relates a similar story of a Danish king, Harold, and a certain Tholko; but the tradition might have been transmitted from Germany to the north by means of the Hanse towns.—See Hagen's *Northern Heroic Romances*, in German (Breslau, 1814). There is one circumstance which may be considered sufficient to attest the truth of the main points of Tell's history. After the expulsion of the governors, and the demolition of their castles, it became customary among the Swiss to make pilgrimages to the place where Tell had leaped ashore; and in 1388, thirty years after his death, the canton of Uri erected a chapel (called *Tell's chapel*) on the rock upon which he had sprung, and caused a eulogy to be pronounced every year in memory of him. In the same year the spot was visited by 114 persons, who had been acquainted with Tell. All the old chronicles agree on this point; and Schiller, in his tragedy of William Tell, has accurately copied the accounts of Tschudi and Müller.—See Balthasar and Haller's *Defence of William Tell* (1772, new edition, 1824), and Hisely's *Dissertatio de Gul. Tellio* (Gröningen, 1824).

TELLIER, François Michel le. See *Louvois*.

TELLIER, Michel le, a distinguished Jesuit, was born in 1643, near Père, in Lower Normandy. He studied in the Jesuits' college at Caen, and entered the society at the age of eighteen. In 1709, he was chosen confessor to Louis XIV. He was a bitter enemy of the Jansenists; and his first act was the demolition of the celebrated house of the Port Royal. He then forced upon the nation the bull Unigenitus. (q. v.) His violence was the cause of much of the odium which the Jesuits soon after experienced, and paved the way for the abolition of their society. On the death of Louis, he was exiled, first to Amiens, and afterwards to La Flèche, where he died, in 1719.

TELLURISM. See *Magnetism, Animal*.

TELLURIUM; the name of a metal discovered in 1782, and named by Klaproth from the earth in 1798. We shall first describe its ores. There are four:—1. *Native tellurium*. It is of a tin-white colour, passing into lead-gray, with a shining, metallic lustre. It occurs in minute hexagonal crystals, possessed of regular cleavages; but their direction, owing to the minuteness of the crystals, has not been detected. It occurs also in crystalline grains, either aggregated, solitary, or disseminated. It yields to the knife, and is brittle; specific gravity 5·7—6·1. Exposed to the blow-pipe, it melts before ignition, and, on increasing the heat, it burns with a greenish flame, and is almost entirely volatilized in a dense white vapour, with a pungent, acrid odour, like that of horse-radish. It consists of tellurium 92·55, iron 7 2, gold 0·25. It has been found chiefly in Facebay, in Transylvania. —2. *Graphic tellurium*, or *graphic gold*. It is of a steel-gray colour, generally splendent, but sometimes slightly tarnished externally. It occurs crystallized in the form of a right rhombic prism of 107° 44′. The crystals are commonly so arranged as to give to the whole row the appearance of a

line of Persepolitan characters; specific gravity 5·7. Before the blow-pipe, on charcoal, it fuses into a dark-gray metallic globule, which finally is brilliant and malleable. It consists of tellurium 60, gold 30, and silver 10. It has been found only at Offenbanya, in Transylvania, in veins in porphyry.—3. *Yellow tellurium.* It is of a silver-white, passing into yellow and gray of different shades. It occurs in very small but well defined crystals, of which the primary form is a right rhombic prism of 105° 30′. It possesses a bright metallic lustre. It is soft, and somewhat sectile; specific gravity 10·6. It consists of tellurium 44·75, gold 26·75, lead 19·5, silver 8·5, sulphur 0·5. It has been found only at Nagyag, in Transylvania.—4. *Black tellurium.* It is of a colour between iron-black and dark lead gray. It is found crystallized in small tabular crystals, of which the primary form appears to be a right square prism. It yields to the knife with ease, and in thin laminæ is flexible; specific gravity 8·9. It consists of

Tellurium,	32·2
Lead,	54
Gold,	9
Silver,	0·5
Copper,	1·3
Sulphur,	3

It has been found only at Nagyag, in Transylvania. The pure metal has the following properties:—It has a silver-white colour, and a good degree of brilliancy. Its texture is laminated like antimony; specific gravity 6·115. It is very brittle, and may be easily reduced to powder. It melts when raised to a temperature higher than the fusing point of lead. If the heat be increased a little, it boils and evaporates, and attaches itself in brilliant drops to the upper part of the retort in which the experiment is made. It is, therefore, next to mercury and arsenic, the most volatile of all the metals. When cooled slowly, it crystallizes. Tellurium combines with only one proportion of oxygen, and forms a compound possessing acid properties. But, as it also possesses alkaline properties, it is called *oxide of tellurium.* It is formed when tellurium is burnt in a crucible, or before the blowpipe: the white smoke evolved is the substance in question. It is also obtained by dissolving the metal in nitro-muriatic acid, and diluting the solution with a great quantity of water. A white powder falls, which is the oxide. It is easily melted by heat into a straw-coloured mass of a radiated texture. It is composed of metal 100, and of oxygen 24·8. Tellurium burns spontaneously when brought into contact with chlorine gas. The *chloride of tellurium* is white and semi-transparent. When heated, it rises in vapour, and crystallizes. Iodine combines very readily with tellurium, when the two substances are brought into contact. Tellurium has the property of combining with hydrogen, and of forming a gaseous substance, to which the name of *tellureted hydrogen* is applied. It is formed by mixing together oxide of tellurium, potash, and charcoal, and exposing the mixture to the action of a red heat. It is transparent and colourless, and possesses a strong smell, resembling sulphureted hydrogen. It burns with a bluish flame, and oxide of tellurium is deposited. It is soluble in water, and gives that liquid a claret colour. Tellurium appears to enter into combination with carbon. The compound is a black powder. It may be combined with sulphur by fusion.

TEMESWAR; formerly capital of the Bannat of Temeswar, which now forms a part of the kingdom of Hungary, now capital of the county of the same name in the circle beyond the Theiss, in Upper Hungary. It is situated on the river Bega, in a marshy and unhealthy district, is a royal free city, the residence of the imperial commander of the Bannat military district, and the see of a Greek bishop. Since 1718, when the Turks ceded the whole of the Bannat by the peace of Passarowitz, the town has been much improved in appearance, and extended; and the fortifications have also been strengthened, so that it is now one of the most important fortresses of the Austrian empire. It contains 11,000 inhabitants, chiefly Germans and Servians, or Rascians, who are engaged in manufactures, and carry on a brisk trade.

TEMPE, Vale of; a beautiful and celebrated valley of Thessaly, on the Peneus, not far from its mouth, having mount Olympus on the north, and mount Ossa on the south. It is about five miles long, and of unequal breadth. It was much celebrated by the ancient poets; but modern travellers were long perplexed to find in so rugged and terrific a spot as the defile of Tempe, where it is crossed by the great road, the object of their unqualified panegyric. The fact is, that the vale of Tempe is distinct from the gorge or defile, being situated a little to the south-west. "The scenery of this beautiful valley," says a traveller, "fully gratified our expectations. In some places it is sylvan, calm and harmonious, and the sound of the water of the Peneus accords with the grace of the surrounding landscape; in others, it is savage, terrific and abrupt; and the river roars with violence, darkened by the frowns of stupendous precipices." The woods which once appear to have adorned this celebrated region, have been much diminished in the service of the neighbouring cotton works; but the mountains on each side are truly sublime. In the centre of this romantic seclusion stands Ambelakia, a town inhabited by Greeks, with some Germans, who have established considerable cotton manufactures.

TEMPELHOFF, George Frederic von; a German officer, and writer on military tactics, born in 1737. After having studied at Frankfort on the Oder, and at Halle, he entered into a Prussian regiment of infantry as a corporal, and, in that capacity, served in Bohemia, in 1757. He afterwards entered into the artillery, and distinguished himself at the battles of Hochkirchen, Kunnersdorf, Torgau, &c., and at the sieges of Breslau, Olmütz, Dresden, and Schweidnitz. At the close of the second campaign, he was made a lieutenant; and, after the peace of 1763, he continued his studies at Berlin, and published some mathematical works, and also the Prussian Bombardier (1781, 8vo.), in which he reduced the doctrine of projectiles to scientific principles. He afterwards published the Elements of Military Tactics, developing the manœuvres and warlike operations of Frederic II. In 1790, he was promoted to a colonelcy; and, in the beginning of the revolutionary war with France, he had the command of all the Prussian artillery, and, in 1795, became chief of the third regiment of that corps. He died at Berlin, July 13, 1807. Tempelhoff published some important works besides those mentioned above, of which the best known is his History of the Seven Years' War in Germany, between the King of Prussia and the Empress Queen, &c., (1782—1801, 6 vols., 4to.), of which an English translation was made by general Lloyd.

TEMPERAMENTS: those individual peculiarities of organization, by which the manner of act-

ing, feeling and thinking of each person is permanently affected. The differences of sex, race, nation, family, and individual organization, operate upon the character of every individual from the moment of his birth; and the last mentioned is by no means the least important. The ancients distinguished four temperaments—the choleric or bilious, the phlegmatic, the melancholic, and the sanguineous, which derived their names from the supposed excess of one or other of the principal fluids of the human body—bile (χολη), phlegm, black bile (μελαινα, black, and χολη), and blood (*sanguis*). Modern writers have added the athletic temperament and the nervous temperament. The bilious or choleric temperament is accompanied with great susceptibility of feeling, quickness of perception, and vigour of action, and therefore indicates an elevated state of the organization: rapidity and strength, a lively imagination, violent passions, quickness of decision, combined with perseverance and inflexibility of purpose, with a tendency to ambition, pride, and anger, but also to magnanimity and generosity of sentiment, characterize the bilious man. These moral characteristics are combined with a form more remarkable for firmness than grace, a dark or sallow complexion, sparkling eyes, and great muscular force. "These men," says an ingenious writer (Am. Quarterly Rev. for March, 1829), "are urged by a constant restlessness to action; a habitual sentiment of disquietude allows them no peace but in the tumult of business; the hours of crowded life are the only ones they value; they are to be found wherever hardiness of resolution, prompt decision, and permanence of enterprise, are required." The phlegmatic, lymphatic, or cold-blooded temperament is the reverse of that last described: with little propensity to action, and little sensibility; no great bodily strength or dexterity; rather a heavy look; the feelings calm; the understanding clear in a certain range, but never soaring into new regions, or penetrating deeply beneath the mysteries of the universe; and a disposition to repose or to moderate exertion,—the phlegmatic man is free from excesses, and his virtues and vices are stamped with mediocrity. The sanguineous temperament indicates a lively susceptibility, with little proneness to action; promptness, without perseverance; a ready fancy; little depth of feeling, or thought; changeable, but not violent feelings and passions; and a tendency to voluptuousness, levity, fickleness of purpose, and fondness of admiration. The sanguineous are distinguished for beauty and grace, and the whole organization is characterized by the vigour and facility of its functions: they are the witty, the elegant, the gay, the ornaments of society. The melancholic temperament is characterized by little susceptibility, but great energy of action, reserve, firmness of purpose, perseverance, deep reflection, constancy of feeling, and an inclination to gloominess, to ascetic practices, and to misanthropy. The athletic temperament possesses, in some degree, the qualities of the sanguineous; but it is distinguished by superior strength and size of body, indicating the excess of the muscular force over the sensitive. The athletic man has less playfulness of mind, less activity of spirit, little elevation of purpose or fixedness of character; he is good natured, but if excited, ferocious. The nervous temperament admits of the most various modifications; it is characterized by the predominance of the sensitive part of the system, and the powerful action of the nerves. The mind is active and volatile, though not from fickleness, but from the rapidity of its associations, the quickness of its resolutions, and the readiness of its combinations. The temperaments are rarely found unmixed, as we have described them; but one or the other is usually predominant. Each has its advantages and pleasures, attended with some corresponding drawback. See Kant's *Anthropology*, or Schulze's *Anthropology*, both in German.

TEMPERANCE SOCIETIES. The remarkable success of these institutions in counteracting a vice of great seductiveness, and of the most ruinous tendency, demands for their history and present condition a somewhat extended notice. The mental excitement produced by the reception of certain vegetable substances into the system is, in its first stage, so agreeable, that we cannot be surprised at finding some of them in use as far back, and as extensively, as our accounts of private manners reach. The fermented juice of fruits, as of the apple and grape, the intoxicating property of which latter is mentioned by Moses (Gen. ix. 21), probably was the most ancient, and is now the most common vehicle of the stimulating principle. The later Asiatics have found it in preparations from the poppy and the wild hemp, and the North American Indians in tobacco. The ancient Germans, according to Tacitus's account (*De Mor. Germ.*, xxiii.), obtained an intoxicating drink from wheat and barley; but the art of brewing, as at present practised, appears not to have been known in England before the end of the fifteenth century. Distillation, which furnishes far the most powerful agents of this kind, was invented by the alchemists in the course of their experiments in search of the elixir of life. The first known distinct mention of it (*Encyclopédie Méthodique*, articles *Arts et Metiers*, *Distillateur*, *Liquoriste*), occurs in the thirteenth century. Arnaud de Villeneuve, a chemist and physician, who died about the year 1300, writes: "Who would believe that one can draw from wine, by chemical process, that which has not the colour of wine, nor the ordinary effects of wine? This water of wine is called by some the *water of life* (*eau de vie*, brandy); and it well deserves the name, since it is truly a water of immortality. Already its virtues begin to be known. It prolongs one's life; it dissipates superfluous and vicious humours; it revives the heart, and perpetuates youth." Towards the end of the sixteenth century, the use of distilled spirits was introduced into England. Camden mentions them as having been adopted, in 1581, into the diet of the English soldiers in their campaigns in the Netherlands.

Compared with the population, the quantity of intoxicating liquors consumed now is much less than it was a hundred years ago; and the number of places for the sale of such liquors has equally decreased. On referring to the evidence taken before the Select Committee for Inquiry into Drunkenness, we find our impressions on these points substantiated by the statements of those witnesses who appear to possess the largest amount of practical knowledge on the subject. We avail ourselves of the speech of lord Cholmondeley, as given in the 'Parliamentary History,' vol. xii. p. 1213, to furnish a short account of the various liquor acts previously to 1743, with reference to the legislative measures taken with a view of placing a check on the evil of drunkenness.

Lord Cholmondeley, after dwelling on the inefficacy of direct legislation on the subject, and

affirming that spirits would certainly be obtained from abroad, if the manufacture were prohibited at home, proceeds to state that the consumption of French brandy was very large during the reign of Charles II., and excited some discontent, it being thought that the nation lost by not distilling at home. Charles granted to a company the privilege of distilling brandy from wine and malt. After the revolution of 1688, when French commerce was prohibited, any one was left free to set up a distillery, provided ten days' notice was given to the excise. This measure much increased the consumption of home-made spirits; and the farmers in particular were sensibly benefited by it. The act, which was at first made for five years, was continued for one year longer, and then expired. In an act passed the very next year, 8th and 9th of William III., a clause was inserted, by which any person might, on giving ten days' notice to the commissioners of excise, carry on the business of a distiller.

The trade being thus free, many persons of London and Westminster entered upon it with zeal; and it was prosecuted with success, although strong efforts were made by the vintner's company to retain it in their own hands. In the mutiny act, passed the first year of George I., the houses of distillers, who did not allow of tippling in their houses, were expressly excepted from being burdened with the quartering of soldiers. At a still later period, the legislature continued to indicate their desire of encouraging the British distillery. In the 12th of George I. it was enacted that, if any merchant-importer should refuse to pay the duties for wines, as being damaged, corrupt, or unmerchantable, which, by a former act, were in that case to be staved and destroyed, the commissioners of the customs might cause such wines to be put into warehouses, and publicly sold in order to be distilled into brandy, or made into vinegar.

Under these repeated favours and encouragements the British distillery flourished, and increased to a great degree; so that the home manufacture not only greatly lessened the importation of foreign spirits, but great quantities were exported yearly to Africa and other places. In the mean time an evil imperceptibly arose from what in all other trades is an advantage: our distillers became so expert in their business, and sold their manufactures so cheap, that our poor began to drink it extravagantly, and to commit frequent debauches in it, to the destruction of their health, their morals, and their industry. This evil became at last so great that it gave a violent turn to the temper of the legislature; and nothing could satisfy it but a total prohibition of all compound spirits, which were the most palatable, and, consequently, most used, as well as abused, by our poor. This occasioned the law of the 2nd of George II., by which a duty of 5s. per gallon, over and above all other duties, was laid on all compound spirits; and every retailer of such spirits was obliged to have a licence, and to pay £20 yearly for the same. This was really a total prohibition of any man's retailing such spirits in an open and fair manner; but many continued to do it privately, and the law was evaded by making and retailing a simple sort of spirit, in derision called "Parliament Brandy," so that the debauching in spirituous liquors continued as general among the poor as ever. The law was therefore ineffectual: the farmers complained, and the legislature again took another violent turn. In the sixth year of George II.'s reign the preceding act was repealed, "without making any regulation for preventing the excessive use of such liquors." This, says lord Cholmondeley, of course produced a very bad effect; the poor being restored to their liberty of getting drunk as usual, like men set free from a gaol, they made a most extravagant use of that liberty; and this revived in the legislature a temper more violent than ever against the use of any sort of spirituous liquors. An act was passed in the ninth year of George II., by which the retailing of spirituous liquors of any kind was in effect absolutely prohibited. "The impossibility of executing this law," said lord Cholmondeley, "was foretold, both within doors and without; but so furious was our zeal, that no heed was given to such prophecies. What was the consequence? No man could—no man would—observe the law; and it gave such a turn to the spirit of the people, that no man could with safety venture to become an informer. Even the very commencement of the law exposed us to the danger of a rebellion; an insurrection of the populace was threatened—nay, the government had information of its being actually designed, and very wisely ordered the troops to be ordered out and paraded in the several places where the mob was likely to assemble, which, perhaps, prevented a great deal of bloodshed; and the law began to be executed without any forcible opposition. As there were multitudes of offenders, there was presently a multitude of informations; but as soon as any man was known to be an informer, he was assaulted and pelted by the mob wherever they could meet with him. A noble peer was obliged to open his gates to one of these unfortunate creatures, in order to protect him from the mob, who were in full cry, and would probably have torn him in pieces if they could have laid hold of him, for they had before actually murdered one of these informers."

It appeared also that even magistrates endangered their safety by the exhibition of zeal in the execution of this law; and between intimidation and the expenses of prosecuting, it became a dead letter: the people, according to the statements of the noble speaker, became more than ever addicted to the excessive use of ardent spirits.

In the evidence of Mr Place, it is shown that within the period embraced in the preceding statement, that is, in the year 1736, a report was made at Hicks's Hall by eight justices, who were appointed to make inquiry into the subject, that within Westminster, Holborn, the Tower, and Finsbury divisions, exclusive of London and Southwark, there were 7044 houses and shops in which spirituous liquors were sold. They believed this short of the true number, and computed that there were not less than 20,000 such houses within the bills of mortality. It was considered, at the same time, as a low estimate, that there were 20,000 other such shops in England alone. At a period about ten years subsequent, a report, probably more authentic, made by the magistrates to a committee of parliament, states positively that there were 12,000 gin-sellers in the metropolis, exclusive of the city and Southwark; and the bishop of Salisbury, in his speech, says that there were 7044 licensed for spirits, and 3007 alehouses; and that boards were put up inscribed with "You may here get drunk for one penny; dead drunk for twopence; and have clean straw for nothing." The report last adduced confirms the preceding statement, that there were 20,000 houses and shops for drinking within the bills of mortality. On authority

least equally certain, the population returns for 1831, we find that the number of public-houses and gin-shops within the largest extent of the metropolis, did not exceed 5000,—an amazing difference, which allowing for the greater extent of these establishments in the present time, would hardly allow us to imagine that the people are more addicted to intemperance now than they were a hundred years since.

It appeared, from the investigations of a committee of the house of commons, that, in 1742, 19,000,000 gallons of spirits were made from malt, and 800,000 gallons from foreign materials, in England and Wales. It does not appear that any of this quantity was exported. Now we find that the British and Foreign spirits retained in this country for home consumption, in 1833, amounted to no more than 26,7;0,000 gallons; whereas, if to the account for 1742, we add about 3,000,000 gallons of foreign spirits, and consider that the population has doubled since that period, not less than 46,000,000 gallons would be required if the people were not more temperate in 1833 than in 1742. The low price at which gin could be obtained at the earlier period was, doubtless, a principal cause of its extensive use. The prices of gin were thus stated by lord Carteret: gallon, 2*s.* to 2*s.* 8*d.*; quart, 6*d.* to 8*d.*; and so down to a farthing's worth.

The state of the population of London at the present time, with regard to open drunkenness, is by no means satisfactory, although, compared with the numbers of the inhabitants, it cannot be called very large. In 1831, there were taken up in the metropolis, in a state of drunkenness, and brought before the magistrates, 5420 males and 2146 females: in 1832, 4893 males and 2041 females; and in 1833, 7535 males and 3858 females. The number discharged, when sober, by the Superintendents of Police was, for the same years, as follows:—1831, 14,328 males, 9,459 females; in 1832, 15,411 males and 10,291 females; in 1833, 10,733 males and 7,754 females. The total numbers taken up in a state of intoxication were, therefore, for 1831, 31,353; 1832, 32,636; and for 1833, 29,880. This is a formidable statement, but the amount is not so frightful when it is analysed. It is 81 per day, which in a population of 1,776,500 souls, a twenty-fifth part of whom are soldiers, sailors, and wayfarers, is one in about 22,000. It might be supposed, from the great publicity of gin-shops, that they are everywhere increasing. This is not the case. By an Act of Parliament, passed a few years since, security was given to the traders in liquors to carry on their business without interruption, as long as they adhered to certain regulations. They have been therefore enabled to attract the passengers by displays of finery which did not formerly exist.

The evil of intemperance is too obvious and dreadful not to be the subject of much anxious observation; but endeavours to restrain it had hitherto taken no more effective shape than that of individual influence applied to individual cases. The idea of concentrating public sentiment upon it, in some form, to produce more important results, seems to have been first developed, if not conceived, by some members of an ecclesiastical body, called the General Association of Massachusetts Proper, North America. At a meeting of this association, in 1811, a committee was appointed to draught the constitution of a society whose object should be "To check the progress of intemperance, viewed by the association as an alarming and growing evil." Such a society was formed, consisting of about 120 members, in different parts of the state. It held its first meeting in 1813. The first attempt of the society was naturally to collect facts towards a precise exhibition of the nature and magnitude of the existing evil, with the view of drawing public attention to it, and of directing endeavours for its removal. The reports presented, from year to year, embraced statements and calculations which were found to make out a case of the most appalling nature, such as to amaze even those whose solicitude on the subject had been greatest. In the year 1810, the federal returns showed 25,499,382 gallons of spirits of different kinds to have been distilled in the United States, which quantity, to ascertain the consumption (no account, of course, being made of what may have escaped the knowledge of the custom-house and the marshals), was to be increased by 8,000,000 of gallons imported, and diminished by 133,823 exported. The amount thus ascertained, namely, 33,365,559 gallons, was distributed among a population of 7,239,903 (white and black), returned in the census of the same year. This gives an average of more than four gallons and a half for the year to every man, woman and child in the United States. The society continued to collect and present, from year to year, statistical statements of this kind; and the curiosity and alarm excited by them led to similar observations in different quarters, the most considerable of which we shall presently mention. Some further particulars of the deplorable state of things, as successively brought to light, or made probable, we will here set down, premising that, so far from the earliest rough statements and calculations appearing, on further investigation, to have been exaggerated, it was rather found that the authors of these had shrunk with incredulity from the conclusions which their reasonings seemed to authorize, and the facts continually grow more alarming as they were more exactly ascertained. In 1814, it was suggested, in a circular of the Massachusetts society, that not less than 6000 citizens of the United States might die annually victims of intemperance. In 1830, from much more full data, the number was estimated at above 37,000. Facts were thought to justify the inference, in this latter year, that 72,000,000 gallons of distilled spirits were consumed in the country (not far from six gallons, on an average, or a half a gill a day to each individual), and that the number of confirmed drunkards (apart from those in some stage of progress towards the fixed habit) fell not much short of 400,000. From computations founded on facts collected in particular districts, there appeared reason to believe that intemperance was responsible for three quarters or four fifths of the crimes committed in the country, for at least three quarters of the pauperism existing, and for fully one third of the mental derangement. According to a calculation of less satisfactory character, but not destitute of probability, the annual waste for distilled spirits, reckoning the cost to the consumer (at two thirds of a dollar the gallon), the loss of the labour of drunkards and prisoners, and the direct cost of their crimes and pauperism, amounted to a sum which, vested in an annuity for twenty years, at six per cent., simple interest, would purchase all the lands, houses and slaves in the United States. The Massachusetts society persevered to invite the public attention to the subject of intemperance in

reports, and, with one or two exceptions, in addresses from distinguished individuals of its number at the annual meeting, continuing, till the year 1826, the most conspicuous agent in the enterprise of reformation, while, a year after its formation, a similar state institution, with numerous branches, was organized in Connecticut, measures of like character were set on foot in Vermont, and an indirect influence from itself was also exerted within its own proposed limits by auxiliary societies, which, according to the report of 1818, had multiplied at that time to the number of more than forty. At the same time, as was to be expected, individuals, by writing and by personal influence, were doing an important part in the same work. Early in the year 1826, a new impulse was given to the movement by the formation, in Boston, on a more extensive plan, of the American Society for the Promotion of Temperance. The Massachusetts society had now accomplished, perhaps, the most useful part of all to which it was competent. It had succeeded in fixing attention to its object in a part of the country where effective combination for further operations might be the most easily organized. By the facts which, with much labour, it had collected and promulgated, both in its own documents and in publications of the most material importance, which it had called out from private hands, it had both furnished guidance to further efforts of the same kind, and demonstrated their necessity; and, by the controlling influence of the names which stood for vouchers of the wisdom of its design, it had abashed the derision, and shaken the incredulity with which its first annunciation had been met. The Massachusetts society had been in great part conducted by individuals belonging to a class of religionists, the Unitarians, whose influence, as such, was not great beyond a limited circle in New England, and who did not sufficiently command the sympathy of other denominations to be able to produce a combination of Christian action. At the time above mentioned, the enterprise was energetically taken up by other hands, in all respects highly competent to advance it, and, in that to which allusion has just been made, possessing altogether superior advantages. Perceiving the power which, in the use of means within their control, might be brought, under existing circumstances, to act upon the public mind, some judicious and philanthropic individuals, of the different denominations accustomed to exert a joint influence for general objects, held a meeting, at which they passed resolutions expressing their sense of the expediency of making, on the part of the Christian public, more systematic and vigorous efforts to suppress intemperance, and appointed a committee to devise means to that end. At an adjourned meeting, the constitution of a new society was adopted, and fifteen individuals elected to compose it, with such associates as might be thenceforward chosen by themselves. The first annual report announced the formation of 30, and the second of 220, auxiliary associations, five of which latter were state institutions. The number of auxiliary associations was increased, in 1829, to more than 1000, no state in the Union now being without one, and eleven of them bearing the names of their states respectively. The report also announces it to have come to the knowledge of the society, that more than 700 habitual drunkards had been reformed by its influence, and that fifty distilleries had been closed. A decline in the sales of distilled spirits is represented to have generally taken place, varying, in different parts reported, from one quarter to nine tenths of the whole amount; and 400 dealers in them were known to have renounced the traffic for reasons of conscience. The next report was presented in the month of May, 1831. More than 2200 societies, embracing 170,000 members, were now in correspondence with the parent society, and, from less certain data, it was inferred that the whole number of societies existing was not less than 3000, and that of their members 300,000. More than 1000 distilleries had been stopped—a tenth part, as was believed, of all which had been in operation. From extracts contained in the Journal of Humanity, a newspaper published under the society's direction since 1829, it appears that, from the sources of information accessible to its government, they gather that there are now 4000 auxiliary associations in the United States, numbering 600,000 members; "that more than 4000 merchants have ceased to traffic in ardent spirits; and that more than 4000 drunkards have ceased to use intoxicating drinks. There is also reason to believe," the report proceeds, "that more than 20,000 persons are now sober, who, had it not been for the temperance reformation, would, before now, have been sots; and that 20,000 families are now in ease and comfort, without a drunkard in them, or one who is becoming a drunkard, who would otherwise have been in poverty, or cursed with a drunken inmate; and that 50,000 children are released from the blasting influence of drunken parents; and 100,000 more from that parental influence which tended to make them drunkards." "More than 1,000,000 of persons in the United States," says another publication of the society, "now abstain from the use of ardent spirits."

The means by which the society has produced these results, apart from the contemporaneous labours, in writing, and by more personal endeavours, of a great number of individuals, connected and not connected with it, have been the calling of attention to the subject, and the diffusing of information upon it, by the circulation of tracts and the addresses of travelling agents, and then collecting such as have been influenced by the representations made, into auxiliary associations, embracing a larger or more limited neighbourhood, thus making such individuals distinctly responsible for personal, and, as opportunity should permit, more public co-operation with its objects Such associations have included females and children, it being thought of the highest importance thus to secure the influence of the former class, and the forming habits of the latter. The basis on which these associations have been formed, at least from an early period, has been that of an engagement, on the part of each member, to abstain from the use of distilled spirits, except for medicinal purposes, and to forbear to provide them for the entertainment of friends or the supply of dependants. The principle of the necessity of abstinence from the use of distilled spirits, in order to the prevention extensively of their fatal abuse —a principle to which the researches on the subject from the first had more and more directly tended, and which had, for instance, been distinctly argued in the address before the Massachusetts Society for the Suppression of Intemperance, at their meeting in the spring of 1826—was first, as far as appears, made the matter of an article of mutual agreement by an association formed at Andover in September of that year. At the second annual

meeting of the American temperance society in 1829, a resolution was adopted, declaring it to be the duty of every professor of religion to exert his influence towards abolishing the use of ardent spirits; and the form of a constitution for auxiliary societies, appended to the report of that year, includes provision for a mutual pledge similar to that of the Andover association.

The reformation, of which the example was thus set, found its way, in good time, to Europe. In the latter part of 1829 or 1830, the first temperance society in the old world was formed at New Ross, in Ireland, and, before the close of this latter year, there were societies in Ireland and Scotland, numbering more than 14,000 members. Applications were also made from Switzerland and Sweden for the society's publications, with a view to make them the basis of similar movements in those countries. In June, 1831, a general society was formed in London under the name of the British and Foreign Temperance Society. The success of the English societies has not been so great as in the United States—perhaps because the evil to be arrested was not so general. The number of members belonging to Temperance Societies in England and Wales, according to the "British and Foreign Temperance Herald," in February 1835, was 106,945. The Society is making considerable exertions to increase this number; and, from a document in the same publication, we perceive that 2326 adhered to the temperance plan in the month of January. In Lancashire there were 29,198 members; Yorkshire 12,045; Cornwall 10,575; Middlesex 7,158; Gloucestershire 4,170; Somersetshire 3,628; Durham 3,308; Cumberland 3,047; Devonshire 2,359. Cheshire 2,341; Warwickshire 2,050: Surrey 2,039. None of the remaining twenty-eight counties contained 2000 members; Wales possessed only 1864. In Scotland, the number of persons belonging to Temperance Societies amounted, in 1830, to 25,478, and in 1832, to 52,017. In the more recent reports which we have seen, the number of members is not stated, and a somewhat gloomy view is given of the prosperity of the cause. Of late years, societies have started on the principle of total abstinence, not from ardent spirits only, but from all wines and fermented liquors. The members of this extreme class, adopting a slang phrase, call themselves, absurdly enough, *Tee-totallers*. Of their numbers we have no account, but we suspect their principle interferes too violently with the habits and appetites of the people ever to become permanently popular.

TEMPERATURE; a definite degree of sensible heat, as measured by the thermometer. Thus we say a *high temperature*, and a *low temperature*, to denote a manifest intensity of heat or cold. According to Biot, *temperatures* are the different energies of caloric in different circumstances. Different parts of the earth's surface are exposed, as is well known, to different degrees of heat, depending upon the latitude and local circumstances. In Egypt it never freezes, and in some parts of Siberia it never thaws. In the former country, the average state of the thermometer is about 72°. The following table exhibits a general view of the variation of heat resulting from difference of latitude:—

Latitude.	Places.	M. Temperature.
66° 30′	Wadso, Lapland	30°
59 56	St Petersburg	40
48 51	Paris	54
41 54	Rome	61
30 03	Cairo	73
20 00	Orean	79
00 00	Ocean	81

The annual variation of heat is inconsiderable between the tropics, and becomes greater and greater as we approach the poles. This arises from the combination of two causes, namely, the greater or less directness of the sun's rays, and the duration of their action, or the length of time from sunrise to sunset. These two causes act together in the same place; that is, the rays of the sun are most direct always when the days are longest, or at the solstice. But while (the season being the same) the rays become more and more oblique, and consequently more feeble as we increase our latitude, the days become longer, and the latter very nearly makes up for the deficiency of the former, so that the greatest heat in all latitudes is nearly the same. On the other hand, the two causes of cold conspire. At the same time that the rays of the sun fall more obliquely, as we increase our latitude, the days become shorter and shorter at the cold season; and accordingly the different parallels are exposed to very unequal degrees of cold: while tropical regions exhibit a variation of only a few degrees, the highest habitable latitudes undergo a change amounting to 140°. Both heat and cold continue to increase long after the causes producing them have passed their maximum state. Thus the greatest cold is ordinarily about the last of January, and the greatest heat about the last of July. The sun is generally considered the only original source of heat. Its rays are sent to the earth just as the rays of a common fire are thrown upon a body placed before it; and, after being heated to a certain point, the quantity lost by radiation equals the quantity received, and the mean temperature remains the same, subject only to certain fluctuations depending upon the season and other temporary and local causes. According to this view of the subject, the heat that belongs to the interior of the earth has found its way there from the surface, and is derived from the same general source, the sun; and in support of this position is urged the well-known fact, that, below eighty or one hundred feet, the constant temperature, with only a few exceptions, is found to be the mean of that at the surface in all parts of the earth. But how are we to explain the remarkable cases in which the heat has been found to increase, instead of decreasing, as we descend? We are told that in the instance of mines, so often quoted to prove an independent central fire, the extraordinary heat, apparently increasing as we descend, may be satisfactorily accounted for in a simpler way:—1. It may be partly received from the persons employed in working the mines. 2. The lights that are required in these dark regions afford another source of heat. 3. But the chief cause is supposed to be the condensation of the air, which is well known to produce a high degree of heat. The condensation, moreover, becoming greater and greater according to the depth, the heat ought, on this account, to increase as we descend; and as a constant supply of fresh air from above is required to maintain the lights, as well as for the purposes of respiration, at the rate of about a gallon a minute for each common-sized light and for each workman, it is not surprising that the temperature of deep mines should be found to exceed that of the surface in the same latitude. This explanation of the phenomenon seems to derive confirmation from the circumstance that the high temperature observed is said to belong only to those mines that are actually worked, and that it ceases when they are

abandoned.* If we except these cases, and that of volcanoes and hot springs, the temperature of the interior of the earth seems to be the mean of that at the surface; and hence it is inferred that it is derived from the same source. The diurnal variation of heat, so considerable at the surface, is not to be perceived at the depth of a few feet, although here there is a gradual change that becomes sensible at intervals of a month. At the depth of thirty or forty feet, the fluctuation is still less, and takes place more slowly. Yet at this distance from the surface there is a small annual variation; and the time of midsummer, or greatest heat, is ordinarily about the last of October, and that of midwinter, or greatest cold, is about the last of April. These times, however, are liable to vary a month or more, according as the power of the earth to conduct heat is increased by unusual moisture or diminished by dryness. But at the depth of eighty or a hundred feet, the most sensible thermometer will hardly exhibit any change throughout the year. So, on the other hand, if we ascend above the earth's surface, we approach more and more to a region of uniform temperature, but of a temperature much below the former. The tops of very high mountains are well known to be covered with perpetual snow, even in the tropical climates. The same, or rather a still greater degree of cold, is found to prevail at the same height, when we make the ascent by means of a balloon. The tops of high mountains are cold, therefore, because they are in a cold region, and constantly swept by currents of cold air. But what makes the air cold at this height? It is comparatively cold, partly because it is removed far from the surface of the earth, where the heat is developed, but principally because it is rarefied, and the heat it contains is diffused over a larger space. Take a portion of air near the surface of the earth, and at the temperature of 79° of Fahrenheit, for instance, and remove it to the height of about two and a half miles, and it will expand, on account of the diminished pressure, to double the bulk, and the temperature will be reduced about 50°. It will accordingly be below the freezing point of water. This height varies in different latitudes and at different seasons. It increases as we approach the equator, and diminishes as we go towards the poles. It is higher also, at any given place, in summer than in winter. It is, moreover, higher when the surface of the ground below is elevated, like the table land of Mexico. At a mean the cold increases at the rate of about 1° for every 300 feet of elevation. In addition to the above, it ought to be mentioned that the tops of mountains part with the heat they receive from the sun more readily on account of the radiation taking place more freely in a rarer medium, and where there are few objects to send the rays back again.

The question has been much discussed, whether the winters in the temperate latitudes have become milder or not. There is abundant evidence, it seems to us, in favour of the alleged change. Rivers which used to be frozen over so as to support armies, and which were expected to be covered in the winter season with a natural bridge of ice, as a common occurrence, now very rarely afford such facilities to travellers. The directions for making hay and stabling cattle, left us by the Roman writers on husbandry, are of little use in modern Italy, where, for the most part, there is no suspension of vegetation, and where the cattle graze in the fields all winter. The associations with the fireside, annually referred to as familiar to every one, can be little understood now in a country where there is ordinarily no provision for warming the houses, and no occasion for artificial heat as a means of comfort. The ancient custom of suspending warlike operations during the season of winter, even in the more southern parts of Europe, has been little known in campaigns of recent date; not because the soldier of our times is inured to greater hardships, but because there is little or no suffering from this cause. In the northern parts of America, also, the lapse of two centuries has produced a sensible melioration. When New England was first settled, the winter set in regularly at a particular time, continued about three months without interruption, and broke up regularly, in the manner it now does in some parts of Canada and Russia. The quantity of snow is evidently diminished, the cold season is more fluctuating, and the transition from autumn to winter, and from winter to spring, less sudden and complete. The period of sleighing is so much reduced and so precarious as to be of little importance compared with what it was. The Hudson is now open about a month later than it used to be. We are not, however, to conclude that so great a melioration has taken place as might at first be inferred from this fact. The change, whatever it be, seems to belong to the autumn and early part of winter. The spring, we are inclined to believe, is even more cold and backward than it used to be. The supposed mitigation of winter has usually been ascribed to the extirpation of forests, and the consequent exposure of the ground to the more direct and full influence of the solar rays; and there can be little doubt that a country does actually become warmer by being cleared and cultivated. The favourable change experienced in the New England and the Middle States may, it is thought, be referred to this circumstance. But the alteration that is observed in the similar latitudes of Europe can hardly be accounted for in this way. It is doubtful whether Italy is more clear of woods, or better cultivated, now than it was in the Augustan age. No part of the world, it is believed, has been cultivated longer or better than some parts of China; and yet that country is exposed to a degree of cold much greater than is experienced in the corresponding latitudes of Europe.

The science of astronomy makes us acquainted with phenomena that have a bearing upon this subject. The figure of the earth's orbit round the sun is such that we are sometimes nearer to this great source of heat by 3,000,000 of miles, or one thirtieth of the whole distance, than at others. Now it so happens that we have been drawing nearer and nearer to the sun, every winter, for several thousand years. We now actually reach the point of nearest approach about the first of January, and depart farthest from the sun about the first of July. Whatever benefit, therefore, is derived from a diminution of the sun's distance, goes to diminish the severity of winter; and this cause has been operating for a long period, and with a power gradually but slowly increasing. It has, at length arrived at its maximum, and is beginning to decline. In a little more than ten thousand years, this state of things will be reversed, and the earth will be at the greatest distance from the sun in the

* See Edinburgh Review, No. cli, p. 70, &c.

middle of winter, and at the least distance in the middle of summer. We are speaking, it will be observed, with reference to the northern hemisphere of the earth. The condition alluded to, to take place after the lapse of ten thousand years, is already fulfilled with regard to the southern portions of our globe, since their winter happens at the time of our summer. How far the excessive cold which is known to prevail about cape Horn and other high southern latitudes may be imputed to this, we are not able to say. There is no doubt that the ice has accumulated to a much greater degree and extended much farther about the south pole than about the north. Commodore Byron, who was on the coast of Patagonia December 15, answering to the middle of June with us, compares the climate to that of the middle of winter in England. Sir Joseph Banks landed at Terra del Fuego, in lat. 50°, January 17, about the middle of summer in that hemisphere; and he relates that two of his attendants died in one night from the cold, and the whole party was in great danger of perishing. This was in a lower latitude by nearly 2° than that of London. Captain Cook, in his voyage towards the south pole, expressed his surprise that an island of no greater extent than seventy leagues in circumference, between the latitudes of 54° and 55°, and situated like the northern parts of Ireland, should, in the very height of summer, be covered many fathoms deep with frozen snow. The study of the stars has made us acquainted with another fact connected with the variable temperature of winter. The oblique position of the earth's axis with respect to the path round the sun, or what is technically called the *obliquity of the ecliptic*, is the well known cause of the seasons. Now this very obliquity, which makes the difference as to temperature between summer and winter, has been growing less and less for the last 2000 years, and has actually diminished about one eightieth part, and must have been attended with a corresponding reduction of the extremes of heat and cold. It still remains for us to inquire how it happens that the extremes of heat and cold in America are so much more intense than they are in Europe under the same parallels. The thermometer, in New England, falls to zero about as often as it falls to the freezing point in the same latitude on this side of the Atlantic. The extreme heat of summer also is greater by 8° or 10°. This remarkable difference in the two countries, as to climate, evidently arises from their being situated on different sides of the ocean, taken in connexion with the prevalence of westerly winds. With America a west wind is a land wind, and consequently a cold wind in winter and a warm wind in summer. The reverse happens on this side of the Atlantic. Here, the same westerly current of air, coming from the water, is a mild wind in winter, and a cool, refreshing breeze in summer. The ocean is not subject to so great extremes of heat and cold as the same extent of continent. When the sun's rays fall upon the solid land, they penetrate to only a small depth, and the heat is much more accumulated at the surface. So, also, during the long, cold nights of the New Continent, this thin stratum of heated earth is more rapidly cooled down than the immense mass of the ocean through which the heat is diffused to a far greater depth. At a sufficient distance from land, the temperature of the sea, in the temperate latitudes, is seldom below 45° or above 70°; that is, the ocean is exposed to an annual change of only 25° or 30°, while the continent, in the same latitude, is subject to a variation of 100° or more.

TEMPESTA, OR CAVALIER TEMPESTA, the surname of Peter Molyn (called also Petro Mulier or de Mulieribus), a celebrated Dutch painter of marine pieces, was born at Harlem, in 1637, and acquired great celebrity at Rome. His delineations of storms at sea are forcible and true, and have been much more admired than his landscapes. Little is known of the circumstances of his life. He died in prison at Milan, in 1701, where he was confined on suspicion of having murdered his wife. He must not be confounded with *Antonio Tempesta*, a Florentine painter and engraver, born 1556, and died 1630, whose best productions are battle pieces and hunts.

TEMPLARS; a celebrated order of knights, which, like the order of St John and the Teutonic order, had its origin in the crusades. Hugh de Pajens, Godfrey de St Uldemar, and seven other knights, established it in 1119, for the protection of the pilgrims on the roads in Palestine. Subsequently, its object became the defence of the Christian faith, and of the holy sepulchre against the Saracens. The knights took the vows of chastity, of obedience, and of poverty, like regular canons, and lived at first on the charity of the Christian lords in Palestine. King Baldwin II. of Jerusalem gave them an abode in this city, on the east of the site of the Jewish temple; hence they received the name of *Templars*. Pope Honorius II. confirmed the order in 1127, at the counsel of Troyes, and imposed on them rules drawn from those of the Benedictine monks, to which were added the precepts of St Bernard de Clairvaux, who warmly recommended this order. The fame of their exploits procured them not only numerous members, but also rich donations in houses, lands, and money. The different classes of this order were, knights, squires, and servitors, to whom were added, in 1172, some spiritual members, who officiated as priests, chaplains, and clerks. All wore a badge of the order—a girdle of linen thread to denote their vows of chastity; the clerical members had white, the servitors gray or black gowns; the knights wore besides their armour, simple white cloaks, adorned with octangular blood-red crosses, to signify that they were to shed their blood in the service of the church. From the class of the knights, who were required to be of approved nobility, and who were the actual lords of the possessions of the order, the officers were chosen by the assembled chapters, viz. marshals and bannerets, as leaders in war; drapiers, as inspectors over their wardrobe; priors, as superiors of single preceptories or priories; abbots, commanders, and grand priors, as rulers over provinces (similar to the provincials of the monastic order); and the grand master as chief of the whole order. The latter had the rank of a prince, and considered himself equal to the sovereigns of Europe; since the order, like the Jesuits in later time, by virtue of the papal charters, acknowledged the pope alone as its protector, being independent of any other ecclesiastical or secular jurisdiction, and free even from the effects of interdicts, governing itself, and administering its estates according to its own pleasure, the occupants and vassals of which had to pay them tithes. Uniting the privileges of a religious order with great military power, and always prepared for service by sea and land, it could use its possessions to more advantage than other corpora-

tions, and also make conquests on its own account; in addition to which it received rich donations and bequests from the superstition of the age. The principal part of the possessions of the order were in France: most of the knights were also French, and the grand master was usually of that nation. In 1244, the order possessed 9000 considerable bailiwicks, commanderies, priories and preceptories, independent of the jurisdiction of the sovereigns of the countries in which they were situated. Its members were devoted to the order with body and soul, and their entrance into it severed all their other ties. No one had any private property. The order supported all. The arrogance objected to them by bishops and princes is easily accounted for by their power and wealth, as is also the luxury in which they eventually indulged. The crusaders complained that the order allowed its worldly interests to prevent it from affording a cordial support to the holy wars; and the emperor Frederic II. accused them of treason, of favouring the Saracens, and of friendly connexions with these enemies of Christianity. Though accounts differ on this point, it is certain that, during the gradual decline of the Christian kingdom of Jerusalem, the Templars endeavoured to secure their own possessions in that country by means of treaties with the Saracens. Nevertheless they were obliged, in 1291, with the last defenders of that kingdom, to leave the Holy Land entirely; and they transferred their chief seat, which had been in Jerusalem, to the island of Cyprus. There the grand master resided, with a select body of officers, knights and brethren, who exercised themselves in warfare by sea against the Saracens. James Bernard Molay, of Burgundy, the last successor of the first grand master, Hugh, endeavoured in vain to reform the degenerate spirit of the order. Most of the knights cared more for their worldly possessions than for the holy sepulchre. The aspirations of many of them for political influence, particularly in France; the mystery which hung over the internal administration of the order, and which linked together the initiated; but especially its power and wealth,—drew upon it the suspicions and the jealousy of princes. Rumours were spread respecting ambitious plans for the overthrow of all the thrones of Europe, and for the establishment of a republic of the nobility; also respecting opinions at variance with the Catholic faith being fostered in the bosom of the order. In the quarrels between Philip the Fair and pope Boniface VIII., the order took part against the king. In consequence of this, Clement V., Philip's friend, under the pretext of consultations for a new crusade, and for a union of the knights Templars with the knights of St John, summoned in 1306, the grand master Molay, with sixty knights, to France. After their arrival, these and all the other knights present were suddenly arrested, October 13, 1307, by the king's soldiers. Philip seized upon the estates of the order, removed his court into the temple (the residence of the grand master in Paris), and ordered the trial of the knights to be commenced without delay, by his confessor, William of Paris, inquisitor, and archbishop of Sens. He endeavoured to justify this arbitrary procedure by the horrible crimes and heresies of which the order had been accused. Historical records represent the accusers as some expelled Templars, who calumniated the order at the instigation of its enemies. The charge of apostacy from the Catholic faith could not be substantiated. The other allegations, such as that they worshipped the devil, practised sorcery, adored an idol called *Baphomet*, contemned the sacrament, neglected confession, and practised unnatural vices, were, according to the general opinion of historians down to the present day, malicious misrepresentations or absurd calumnies. A gold box of relics, which the Templars used to kiss, according to the custom of Catholics, was what gave origin to the story of the Baphomet; and because, in an age previous to the general reception of the doctrine of transubstantiation, they practised the ancient manner of celebrating the mass (viz. without the elevation of the host), this was called contempt of the sacrament: their confessing exclusively to their own clerical members was the ground of the charge, that they received absolution from their temporal superiors; and the friendship by which they were united, gave rise to the imputation of unnatural practices. In those times of general persecution against heretics, every one, whose ruin was resolved upon, and who could not be attacked in any other way, was accused of heresy. Accordingly, Philip being determined, before any inquisition had taken place, to destroy the order, for whose wealth he thirsted, the inquisitors employed, who were entirely devoted to him, and, for the greater part, Dominicans, enemies of the order, used this means to excite the public opinion against them. By means of the most horrid tortures, confessions of crimes which had never been committed were extorted from the prisoners. Overcome by long captivity and torment, many Templars confessed whatever their inquisitors wished, since a persevering denial of the crimes with which they were charged was punished with death. Clement V. at first opposed this arbitrary treatment of an order which was amenable only to the church; but Philip soon prevailed on him to join in its suppression. Two cardinals were sent to take part in the examinations at Paris, and other clergymen were united to the courts of inquisition in the provinces, in order to impart a more legal appearance to the procedure. Though little was, in fact, proved against the Templars, the archbishop of Sens, dared, in 1310, to burn alive fifty-four knights, who had denied every crime of which they were accused. In other dioceses of France, these victims of tyranny and avarice were treated in a similar way. The other princes of Europe were also exhorted by the pope to persecute the Templars. Charles of Sicily and Provence imitated the example of Philip, and shared the booty with the pope. In England, Spain, Portugal, Italy, and Germany, the Templars were arrested, but almost universally acquitted. The inquisitions at Salamanca and at Mentz (1310) also resulted in the justification of the order. Nevertheless, the pope, at the council of Vienne, in Dauphiny, solemnly abolished the order by a bull of March 2, 1312, not in the legal way, but by papal authority (*per provisionis potius quam condemnationis viam*). The members of the order, according to this bull, were to be punished with mildness, when they confessed the crimes imputed to them; but those who persevered in denying them were to be condemned to death. Among the latter were the grand master Molay, and Guido, the grand prior of Normandy, who were burnt alive at Paris, March 13, 1314, after they had cited, according to tradition, Philip and Clement to appear before the judgment-seat of God within a year. The pope, in fact, died April 19, in the same year, and the king Novembe- 29. The

estates of the order were conferred, by the council of Vienne, upon the knights of St John, and its treasures in money and precious stones were assigned for a new crusade. But in France, the greatest part fell to the crown, and the pope kept considerable sums for himself. In Spain and Portugal, some new military orders were founded, and endowed with the estates of the Templars. In other countries, the knights of St John acquired the rich inheritance of their rivals. The Templars maintained themselves longest in Germany, where they were treated with justice and mildness. At Störlitz, some were found as late as 1319. The members who were discharged from their vows, entered the order of St John. The original documents of the process against the Templars of France, published in 1792, by Moldenhawer, prove the infamous and arbitrary conduct of the French courts in this case. Von Hammer, in the *Fundgruben des Orients, Mysterium Baphometi revelatum*, has lately revived the accusation of apostasy, idolatry, and unnatural vices, against the knights Templars, representing them as Gnostics and Ophites; but Raynouard (*Journal des Savans*, March, 1819) has shown how unfounded is this accusation, and has proved that by Baphomet, nothing but Mohammed is to be understood. Compare also Raynouard's *Monum. histor. relatifs à la Condemnation des Chevaliers du Temple* (Paris, 1813). Silvestre de Sacy has proved likewise (*Magaz. encyclop.*, 1806, vol. vi.), that Baphomet signifies nothing but Mohammed. According to Wilh. Ferd. Wilcke's *Geschichte des Tempelherrnordens aus den Quellen*—History of the Order of the Templars, drawn from the Sources (Leipsic, 1826, seq., 2 vols.)—the spirit of the order had degenerated into a Mohammedan Gnosticism, which led to its ruin. Wilcke asserts the guilt of the order. It continued in Portugal under the name of the *order of Christ*. In Paris arose the society of the New Templars. Bishop Münter has published the statutes of the order from a manuscript in old French.

TEMPLE (Latin, *templum*), in architecture; an edifice destined for the performance of public worship. Various etymologies have been suggested for the Latin word *templum*. Some derive it from the Greek τεμενος, the meaning of which was a sacred enclosure or temple (from τεμνω, I cut off, or separate), a temple being a place abstracted and set apart from other uses; others from the old Latin verb *templari* (to contemplate). The ancient augurs undoubtedly applied the name *templa* to those parts of the heavens which were marked out for observation of the flights of birds. Temples were originally, all open; and hence, indeed, most likely, came their name. These structures are among the most ancient monuments. They were the first built, and the most noticeable of public edifices. As soon as a nation had acquired any degree of civilization, they consecrated particular spots to the worship of their deities. In the earliest instances, they contented themselves with erecting altars of earth or ashes in the open air, and sometimes resorted, for the purposes of worship, to the depths of solitary woods. At length they acquired the practice of building cells or chapels, within the enclosure of which they placed the images of their divinities, and assembled to offer up their supplications, thanksgivings and sacrifices. These were chiefly formed like their own dwellings. The Troglodites adored their gods in grottoes; the people who lived in cabins erected temples like cabins in shape. Clemens Alexandrinus and Eusebius refer the origin of temples to sepulchres; and this notion has been latterly illustrated and confirmed, from a variety of testimonies, by Mr Farmer, in his Treatise on the Worship of Human Spirits, p. 373, &c. Herodotus and Strabo contend that the Egyptians were the first who erected temples to the gods; and the one first erected in Greece is attributed, by Apollonius, to Deucalion. (*Argonaut.* lib. iii.) The temple of Castor was built upon the tomb of that hero. At the time when the Greeks surpassed all other people in the arts introduced among them from Phœnicia, Syria and Egypt, they devoted much time, care and expense to the building of temples. No country has surpassed, or perhaps equalled them, in this respect: the Romans alone successfully rivalled them, and they took the Greek structures for models. In every city of Greece, as well as in its environs, and in the open country, was a considerable number of sacred temples. The ruins of this description, now existing, greatly exceed those of any other kind of building, owing to the fact that the best materials and the utmost attention were uniformly employed upon the Grecian and Roman temples. The particular divinity who was held to preside in chief over each several town, had always the most elegant and costly temple therein especially dedicated to him or her. The temples constructed in the provinces chiefly appertained to the gods of the country, or to those common to the several communities. In the immediate vicinity of these edifices, the people held, at fixed seasons, assemblies for the purpose of sacrificing to the gods: they also celebrated their festivals on the same spot, and deliberated respecting the affairs of the entire nation. The most ancient Grecian temples were not of great extent; some of them were very small. The *cella* was barely large enough to contain the statue of the presiding deity of the temple, and, occasionally, an altar in addition. Even in succeeding ages, this observation holds good in a great degree. Their object, in fact, did not render extent necessary; since the priests alone entered the *cella*, and the people assembled without the walls. Exceptions, indeed, were made, in the examples of those dedicated to the tutelary divinities of towns, of those of the supreme gods, and of those appropriated to the common use of various communities. This increased extent was chiefly displayed in the porticoes surrounding the *cella*. According to Vitruvius, the situations of the temples were regulated chiefly by the nature and characteristics of the various divinities. Thus the temples of Jupiter, Juno and Minerva, who were considered, by the inhabitants of many cities, as their protecting deities, were erected on spots sufficiently elevated to enable them to overlook the whole *town*, or, at least, the principal part of it. Minerva, the tutelary deity of Athens, had her seat on the Acropolis. The temples of Mercury were, *ordinarily*, in the forum. Those of Apollo and Bacchus were beside the theatres. The temple of Hercules was commonly near the gymnasium, the amphitheatre, or circus. Those of Mars, of Venus and of Vulcan were generally without the walls of the city, but near the gates. The temples of Esculapius were uniformly in the neighbourhood of the towns, on some elevated and desirable spot, where the pure air might be inhaled by the invalids who came to invoke the aid of the god of health. In the cities

the houses of the inhabitants clustered round the temples.

The form most generally given to temples was that of a long square; sometimes, however, they were circular. Those of the former shape commonly had a depth or length double their breadth, and their *cellæ* had ordinarily, at the exterior, porticoes which sometimes adorned only the façade of the anterior, sometimes that also of the posterior, and was occasionally carried round all four sides. Over the entablature of the columns, at both the fronts, was a pediment. The principal façades of the temples were always ornamented with an even number of columns, while the sides had generally an uneven number. The circular form was by no means common. Those temples were generally covered with a cupola, the height of which about equalled the semi-diameter of the entire edifice. The most celebrated instance of the circular temple is the pantheon of Rome. It has some peculiarities not common to its class. (See *Pantheon.*) Several of the very ancient Etruscan temples have an oblong shape, or one approaching to a perfect square. In several of the ancient buildings of this character were stair-cases, by means of which people mounted to the roof. These were constructed within the walls, by the side of the entrance fronting the *cella*, and, that they might occupy less space, were made winding. The Egyptian temples had a species of openings or windows. The statue of the divinity to whom the structure was dedicated was, as may be supposed, the most venerated object of the temple, and the most prominent ornament of the *cella*. It was, in almost every instance, executed by a distinguished artist, even when destined only for a small building. In the earliest instances, these statues were of *terra cotta*, and were commonly painted red; others were of wood. In succeeding times, as the fine arts advanced, iron and bronze were occasionally substituted, but still more frequently marble. (See *Sculpture*, and *Statue.*) The primitive bronze statues were not cast in one single jet, but in separate pieces, afterwards joined together. Besides the statue of the presiding deity, there were generally others, either in the *cella* or *pronaos*, or both, some of which had a special relation to the principal figure, whilst others served merely for ornament. The altar, on which the sacrifices were offered, was placed before the statue of the divinity, a little less elevated than it, and turned towards the east. (See *Altar.*) Sometimes single cells contained altars raised to sundry deities. To the sacred architecture of the Greeks, as exhibited in their various temples, we are indebted for the purest and best canons of architecture that the world has ever seen. The Egyptian temples were remarkable for the number and disposition of the columns, contained in several enclosures within the walls. The little *cella* appeared like a kind of stable, or lodging, for the sacred animal to whom, as it may be, the building was consecrated. This was never entered but by the priests. The porticoes were magnificent in size, proportions, and often in style. Obelisks and colossal statues were ordinarily placed before the entrance. These were sometimes preceded by alleys of sphinxes, or of lions, of immense size. Near the gates two masses of a pyramidal form were erected: these were often covered with hieroglyphic *bassi-rilievi*. A corbel, scooped out in the shape of a gorge, was the only substitute for the entablature, whether to the gate itself, or to the two lofty masses adjoining. No pediment or shape of roof interfered with the horizontal line of the platform above, with which the temples were covered, and on which it is probable that the priests passed the nights in making astronomical observations. (See *Architecture*, also *Denderah*, *Hieroglyphics*, *Elephantine*, and *Thebes.*) The Indian temples, or pagodas, are sometimes of immense size. See *Pagoda*, *Elora*, and *Salsette*; also the article *Architecture*. For Christian temples and churches, see *Architecture*, *Cathedral*, and *Masonry*.

The first Hebrew temple was built by Solomon on mount Moriah, in Jerusalem, with the help of a Phœnician architect. It was an oblong stone building, sixty cubits in length, twenty in width, and thirty in height. On three sides were corridors, rising above each other to the height of three stories, and containing rooms, in which were preserved the holy utensils and treasures. The fourth or front side was open, and was ornamented with a portico, ten cubits in width, supported by two brazen pillars, Jachin and Boaz (stability and strength). The interior was divided into the most holy place, or oracle, twenty cubits long, which contained the ark of the convenant, and was separated, by a curtain or veil, from the sanctuary, or holy place, in which were the golden candlesticks, the table of the shew-bread, and the altar of incense. The walls of both apartments, and the roof and ceiling of the most holy place, were overlaid with wood work, skilfully carved. None but the high priest was permitted to enter the latter, and only the priests, devoted to the temple service, the former. The temple was surrounded by an inner court, which contained the altar of burnt-offering, the brazen sea and lavers, and such instruments and utensils as were used in the sacrifices, which, as well as the prayers, were offered here. Colonnades, with brazen gates, separated this court of the priests from the outer court, which was likewise surrounded by a wall. See Hirt's *Tempel Solomonis* (Berlin, 1809). This temple was destroyed by the Assyrians, and, after the return from the Babylonish captivity (see *Hebrews*), a second temple, of the same form, but much inferior in splendour, was erected. Herod the Great rebuilt it of a larger size, surrounding it with four courts, rising above each other like terraces. The lower court was 500 cubits square, on three sides surrounded by a double, and on the fourth by a triple row of columns, and was called the *court of the Gentiles*, because individuals of all nations were admitted into it indiscriminately. A high wall separated the court of the women, 135 cubits square, in which the Jewish females assembled to perform their devotions, from the court of the Gentiles. From the court of the women fifteen steps led to the court of the temple, which was enclosed by a colonnade, and divided by trellis-work into the court of the Jewish men and the court of the priests. In the middle of this enclosure stood the temple of white marble, richly gilt, 100 cubits long and wide, and sixty cubits high, with a porch 100 cubits wide, and three galleries like the first temple, which it resembled in the interior, except that the most holy was empty, and the height of Herod's temple was double the height of Solomon's. Rooms, appropriated for different purposes, filled the upper story above the roof of the inner temple. The fame of this magnificent temple, which was destroyed by the Romans, and its religious significance with Jews and Christians, still render it more interesting to us than any other building of

antiquity. To the Jew, it is even now a subject of sorrow and regret: to the architect, a key to the history of the old Oriental architecture; to the free-mason, the most important symbol of his ritual.

TEMPLE, Sir William, an eminent statesman, the son of Sir John Temple, was born in London, in 1628. At the age of seventeen, he was entered of Emanuel college, Cambridge, under the tuition of Cudworth, and, in his twenty fifth year, commenced his travels, and passed six years in France, Holland, Flanders, and Germany. He returned in 1654, and, not choosing to accept any office under Cromwell, occupied himself in the study of history and philosophy. On the restoration, he was chosen a member of the Irish convention, when he acted with great independence; and, in 1661, he was returned representative for the county of Carlow. The following year, he was nominated one of the commissioners from the Irish parliament to the king, and removed to London. Declining all employment out of the line of diplomacy, he was disregarded until the breaking out of the Dutch war, when he was employed in a secret mission to the bishop of Munster. This he executed so much to the satisfaction of the ministers, that, in the following year, he was appointed resident at Brussels, and received the patent of a baronetcy. In conjunction with De Witt, he concluded the treaty between England, Holland, and Sweden (February, 1668), with a view to oblige France to restore her conquests in the Netherlands. He also attended, as ambassador extraordinary, and mediator, when peace was concluded between France and Spain, at Aix-la-Chapelle, and, subsequently residing at the Hague as ambassador, cultivated a close intimacy with De Witt, and became familiar with the prince of Orange, afterwards William III., then only in his eighteenth year. A change of politics at home led to the recall of Temple, in 1669, who, refusing to assist in the intended breach with Holland, retired from public business to Sheen, and employed himself in writing his Observations on the United Provinces, and part of his Miscellanies. In 1674, Sir William Temple was again ambassador to the states-general, in order to negotiate a general pacification. Previously to its termination in the treaty of Nimeguen (in 1678), he was instrumental in promoting the marriage of the prince of Orange with Mary, eldest daughter of the duke of York, which took place in 1677. In 1679, he was recalled from the Hague, and offered the post of secretary of state, which he declined. As a statesman, he was opposed to the exclusion of the duke of York. Disgusted by Charles's dissolution of the parliament in 1681, without the advice of his council, he declined the offer of being again returned for the university, and retired from public life altogether. In the reign of James II., he estranged himself entirely from politics; but when the revolution was concluded, he waited on the new monarch, to introduce his son, and was again requested to accept the office of secretary of state, which he once more declined. His son was afterwards appointed secretary at war, but, in a fit of melancholy, threw himself into the Thames, which only extorted from his father a maxim of the Stoic philosophy, that "a wise man might dispose of himself, and render life as short as he pleased." About this time, Sir William took Swift (q. v.) to live with him: he was likewise occasionally visited by king William. He died at Moor park, Surrey, in January, 1700, in his seventy-second year. Sir William Temple merits a high rank both as a statesman and a patriot. His Memoirs are important as regards the history of the times, as are likewise his Letters, published by Swift, after his death. All his works, which have been published collectively (in 2 vols., 4to., and 4 vols., 8vo., 1814), display a great acquaintance both with men and books, conveyed in a style negligent and incorrect, but agreeable, and much resembling that of easy and polite conversation.

TEMPLE, Lord. See *Junius*.

TEMPLE. See *Inns of Court*.

TEMPLE-BAR, between Fleet street and the Strand, London. This handsome gate is the only one of the city boundaries now remaining. It was built after the great fire, by Sir C. Wren, and is composed of Portland stone, of rustic work below, and of the Corinthian order. Over the gateway, on the east side, are statues of queen Elizabeth and James I.; and on the west side, of Charles I. and II. The heads of persons executed for high treason were formerly exhibited on this gate. Here, also, on particular occasions, the corporation of London receives the royal family, the herald's proclamations, or any distinguished visitors. When the sovereign comes in state, the lord mayor here delivers the sword of state, which is returned, and then he rides, bareheaded, immediately before.

TEMPLE, Palace of the (*palais du Temple*); an edifice in Paris, built in 1222, for a residence of the Templars, whence its name. On the suppression of the order (in 1312), it was given to the knights of Malta; and, after the destruction of the Bastile, the tower was converted into a prison of state. (See *Templars*.) Louis XVI. was confined here, with his family, previous to his execution. This tower was demolished early in the reign of Napoleon, and no part of the olden Temple of Paris now exists.

TEMPO (Italian for *time*) signifies, in music, the degree of quickness with which a musical piece is to be executed. This depends, of course, chiefly upon the character of the piece. Generally speaking, there are five principal degrees, designated by the following terms: *largo*, *adagio*, *andante*, *allegro* and *presto*; and the intermediate degrees are described by additions. But it may be better to divide the *tempo* into three chief movements—slow, moderate, and quick—which again have several gradations designated by the following Italian words: 1. in the slow movements—*largo*, *lento*, *grave*, *adagio*, *larghetto*; 2. in the moderate movement—*andante*, *andantino*, *moderato*, *tempo giusto*, *allegretto*, &c.; 3. in the quick movement—*allegro* (sometimes, also, *allabreve*), *vivace*, *presto*, *prestissimo*. If the degrees thus designated are to be modified still more, the following words are added to increase the rapidity—*assai*, *molto*, or *di molto più*; and to lessen it, the words *poco*, or *un poco*, *non tanto*, *non troppo meno*, &c.; for instance, *largo*, or *adagio assai*, or *di molto*, signifies very slow, as slow as possible; *allegro*, or *vivace assai*, or *molto*, is quicker than the mere *allegro* or *vivace*; *presto assai*, very quick; further, *adagio non troppo*, or *poco adagio*, is somewhat slower; *un poco allegro*, somewhat less quick; *vivace non tanto*, not too lively, &c. Often, the predominating time is interrupted, in some passages slackening (*rallentando*, *ritardando*), or quickening (*accelérando*, *stringendo*, *più stretto*), or it is left to the performer's pleasure (*a piacere*), in which case, those who accompany often have to guide themselves by the leading performer, which is called *col'a parte*. If a more distinct time or the former

time is to be resumed, the phrase *a tempo*, or *tempo primo*, is used. Several machines have been invented, by which the time of a piece or a passage can be accurately determined. (See *Time*.) The best measures of time, however, are taste, correct feeling, experience and judgment.

Tempo Rubato (Italian, *robbed time*), delayed time, signifies a species of expressive performance, particularly of slow pieces, in which something is taken from the duration of some notes of the principal voice, and the time, therefore, is not strictly observed; but in the general performance, and in the lower voices, the time is accurately observed. The *tempo rubato* accelerates some passages and retards others; but the unity of the whole does not suffer. The *tempo rubato* requires much practice and fine taste, and should not occur too frequently.

TEN JURISDICTIONS, League of the. See *Grisons*.

TENAILLE. See *Outworks*.

TENARUS; a town of the Peloponnesus, on the promontory of Tænarum (see *Matapan*), near which was a cavern which was considered as the entrance to the habitation of Pluto. Through this cavern Hercules dragged up Cerberus from the infernal regions, and Orpheus led his wife Eurydice back to earth. This fable gave rise to the practice of evoking spirits from the world of shades, and of restoring spectres to their resting places, by the performance of certain mystic ceremonies at the mouth of the cave. Hence the infernal regions are sometimes called *Tenarus*. There was a temple of Neptune on the promontory, which had the character of an asylum. The green marble of Tenarus (*verd antique*; see *Marble*) was much prized by the ancients; and the purple snail, which yielded the Lacedæmonian purple, the best produced in Europe, was found here.

TENCH (*cyprinus tinca*); a European fresh water fish, belonging to the carp family. It is distinguished by the diminutive size of the scales. The body is short and thick, the head large, and the lips thick; the length is generally less than a foot, but individuals are sometimes taken weighing five or six pounds. It is fond of still and muddy waters, and is taken both with net and line. The flesh is white, soft, insipid, and difficult of digestion.

TENDON. See *Muscle*.

TENEDOS; a small island near the coast of Asia, not far from the Dardanelles; lon. 26° E.; lat. 39° 53' N.; population, 7000, about two thirds Turks, and one third Greeks; square miles, thirty-five. The Greeks, when they feigned to abandon the siege of Troy, lay concealed behind this island. Tenedos is rocky, but fertile, and produces the finest wine in the Archipelago. Its position near the mouth of the Hellespont has always made it important. Vessels bound to Constantinople find shelter in its ports, or safe anchorage in the road, during contrary winds, and in foul weather. The principal town is of the same name, and has a population of about 5000, with a harbour and citadel. The harbour has been enclosed in a mole, of which no part now appears above water; but loose stones are piled on the foundations to break the waves.

TENERIFFE; one of the Canary islands. (q.v.) The chief town is Santa Cruz. As a natural object, it is chiefly remarkable for its summit, called the *Peak of Teneriffe*, of the sloping sides of which the island consists. Its commercial importance depends chiefly on its wine, of which from 10,000 to 15,000 pipes are annually exported: though inferior to Madeira, yet it is in considerable demand. Teneriffe also exports orchilla weed, rose wood, &c. The climate on the coast is hot; but at the elevation of 2000 feet, it is cool and agreeable. The cultivated parts are fertile, and produce orange, myrtle, cypress, date, and chestnut trees, vines, wheat, cocoa, coffee, sugar-cane, &c. The elevation of the Peak is about 12,250 feet. In ascending it, the first eminence is called *Monte Verde*: beyond this is the *Mountain of Pines*; after passing which, the traveller reaches a plain called, by the natives *Mouton de Trigo*, on which the Peak stands. It is a mountainous platform, rising more than 7000 feet above the level of the plain. The Piton, or sugar-loaf summit, is very steep, and can be ascended only on the east and south-east sides. At the elevation of 9786 feet is a platform of pumice stones, bordered by two currents of lava; beyond it the acclivity is very steep, the currents of lava being covered with masses of scoriæ. Towards the summit, nothing but pumice stone is to be seen. The crater is of an elliptical form, about 1200 feet in circuit, but has long since ceased to emit flames; and the summit may be considered as an extinguished volcano. From the sides of the mountain several violent eruptions have taken place within the present century. The view from the top of the Peak is peculiarly beautiful. With the steep and naked declivities of the mountain is contrasted the smiling aspect of the country beneath, with the towns and villages, the sails of vessels in the harbours, and beyond a vast extent of ocean studded with the archipelago of the Canary islands.

TENIERS, David; the name of two of the most celebrated artists of the Flemish school of painting, father and son, both natives of Antwerp, in which city the elder was born in 1582. Having studied under Rubens, he went to Rome, and remained there six years. On his return to his native country, he occupied himself principally in the delineation of fairs, shops, rustic sports, and drinking parties, which he exhibited with such truth, humour, and originality, that he may be considered the founder of a style of painting, which his son afterwards brought to perfection. His pictures are mostly small. The elder Teniers died in 1649.

His son, born in 1610, imitated the style and expression of his father, whom he much excelled in correctness and finish. He confined himself principally to the same subject of low humour in his original pieces. The wonderful exactness with which he copied the productions of others deceived even the best judges of the age, and acquired him the appellation of the *ape of painting*. Leopold, archduke of Austria, made him one of the gentlemen of his bed-chamber. He died in 1694. Another son, named Abraham, was also a good painter.

TENNESSEE, one of the United States of America, is bounded on the north by Kentucky and Virginia; on the east by North Carolina; on the south by Georgia, Alabama, and Mississippi; and on the west by Mississippi river; lat. 35° to 36° 36' N.; lon. 81° 26' to 90° 16' W. It was originally included in North Carolina, from which it was separated, and admitted into the Union in 1796. Population in 1840, 829,210 (183,059 slaves); square miles, 40,000. The state is divided into two distinct sections by the Cumberland mountains, called *East Tennessee* and *West Tennessee*. Mountains and hills occupy a great proportion of the state. In East Tennessee, the Alleghanies branch out into the Laurel and Cumberland ridges, and

many of their peaks are high. The valleys and the alluvions of the large and numerous rivers are very rich, and even the summits of some of the mountains have extensive *plateaux*, which are traversed by roads, are inhabited, and made to yield in abundance the productions of the Northern States. "There can be nothing," says Mr Flint, "of grand and imposing in scenery, nothing striking and picturesque in cascades and precipitous sides of mountains covered with woods, nothing romantic and delightful in deep and sheltered valleys, through which wind still and clear streams, which is not found in this state." There is more land in Tennessee that is unfit for cultivation, than in some of the neighbouring states: but as great a proportion of what is cultivated is of the first quality. In East Tennessee, the soil contains an uncommon quantity of dissolved lime and nitrate of lime, which renders it very fertile. The descending strata, in West Tennessee, are arranged in the following order:—first, loamy soil, or a mixture of clay and sand; second, yellow clay; third, a mixture of red sand and red clay; fourth, white sand. White, red, and gray marble, inexhaustible quarries of gypsum, burr millstones, rock crystals, lead, iron ore in abundance, are the minerals and fossils that are known. Salt springs are common, and nitrous earth is found in caves, sufficient to supply the whole country. These caves themselves are among the most remarkable curiosities in America. One of them was descended, not long since, 400 feet below the surface, and on the smooth limestone at the bottom was found a stream of pure water, sufficient to turn a mill. A cave on the Cumberland mountain has a perpendicular descent, the bottom of which has not yet been sounded. Some of these caves have been explored for ten or twelve miles. They have vaulted roofs of limestone, are frequently divided into spacious apartments, and abound with nitrous earth. They are so common that little attention is paid to them. Caves, in comparison with which the one so celebrated at Antiparos is but a slight excavation, are too common, in Tennessee, to be noticed. The climate of this state is generally delightful. In West Tennessee, great quantities of cotton are produced. In East Tennessee, the climate is well adapted to grazing, and produces all kinds of grain and fruit which grow in the more northern states. The outlets of commerce are the noble rivers Cumberland and Tennessee; and along these the boats carry cotton, indigo, corn, whisky, hogs, horses, cattle, flour, gunpowder, saltpetre, poultry, bacon, lard, butter, apples, pork, coarse linen, tobacco, and many other articles, which are principally designed for the market of New Orleans. The southern parts of the state, adjoining Alabama, will doubtless be connected by canals with the rivers of Alabama, and thus save a great extent of transportation. The principal rivers, the Cumberland and Tennessee, are described in separate articles. There are numerous others, which flow into these or into the Mississippi. Nashville and Knoxville are separately noticed. There are numerous villages, which contain from 600 to 1800 inhabitants. A good description of the curiosities of Tennessee would make a very interesting and useful volume. "On some spurs of the Cumberland mountains," says Mr Flint, "are marked, in solid limestone, the footsteps of men, horses and other animals, as fresh as if recently made, and as distinct as if impressed upon clay mortar." Similar tracks were found in a block of solid limestone, quarried on the margin of the Mississippi. Near the southern boundary of the state are three trees entirely petrified. One is a cypress, four feet in diameter; one a sycamore; and the third a hickory. Prodigious claws, teeth, and bones of animals are found near the salines. Some of these bones are perfect, and indicate an animal twenty feet high. A nest of eggs of the wild turkey have been dug up in a state of petrifaction. Walls of faced stone, and even walled wells, have been found in many places, which are undoubtedly the work of a remote generation. In this state, as well as in Missouri, are ancient burying grounds, where the skeletons seem all to have been pigmies. Even the graves in which the bodies are deposited are seldom more than two, or two and a half feet long; and the teeth show that these are skeletons of adults. Jugs, vases, idols of clay, logs and coal, are dug from great depths. Beautiful cascades, falling from 200 to 400 feet, are seen in many places. On some high and apparently inaccessible rocks, are numerous paintings, the work of remote ages. They consist of figures of the sun, moon, and various animals. Some of the delineations are good, and the colours are as fresh as if recently applied. The navigable streams pass, for many miles, through chasms of limestone, with perpendicular sides 300 or 400 feet high.

There are three institutions in Tennessee that are called colleges—at Nashville, Marysville, and Knoxville. Only the first is flourishing, and of great importance to the state. Academies and common schools are increasing, but education is not yet in an advanced state.

The first permanent settlements of whites were made in East Tennessee, in 1768 and 1769. The settlers came from Virginia and North Carolina. Most of the territory was then occupied by Cherokees, Choctaws, Chickasaws, and Shawnees; and for many years the settlers were greatly annoyed by them. The first permanent settlements in West Tennessee were made in 1779. Here also the Indians made a formidable resistance to the encroachments of the whites, and continued to annoy them for many years. Very few, except of the Chickasaws, remain in Tennessee; and their numbers have so diminished that they have ceased to be formidable. The people of Tennessee are a hardy, intelligent, and enterprising race, considering the unsettled state in which their civil interests were kept until the last twenty years. Though a few scattering settlements preceded that period, the building of fort Loudon, in East Tennessee (1757), commenced the real colonization of the country—a colonization made in blood. A war with the Cherokees broke out in 1759, and, in the ensuing year, fort Loudon was taken, and the garrison and inhabitants massacred. In 1761, colonel Grant forced the Indians to a peace, and settlers gradually entered Upper Tennessee. No real peace could be maintained with the savages; nor were the frontiers of Tennessee really safe until the close of the revolutionary war. West Tennessee began to be settled about the same period with East Tennessee; and the same causes of suffering and retardation operated on both settlements. The battle of King's mountain, October 7, 1780, gained, in great part, by the hardy riflemen of Tennessee and Kentucky, gave them security against the savages. Intestine violence, however, distracted the country for several years. Between 1784 and 1789, attempts were made to form East Tennessee into a separate state by the name of Frankland. In

1790, North Carolina ceded the whole of what is now Tennessee to the United States; and the same year, in May, it was made the territory south-west of the Ohio. The territorial government continued until June, 1795, when, the inhabitants of both Tennessees being found to amount to 77,262, a convention was called, which met at Knoxville, January 11, 1796, and, on February 9, reported a constitution for the new state, which, on June 1 of the same year, was formally received into the confederacy as an independent member.

TENNESSEE RIVER rises in the Alleghany mountains, traverses East Tennessee, crosses nearly the whole northern part of Alabama, then turns to the northward, and crosses Tennessee and Kentucky, and unites with the Ohio, thirteen miles below the mouth of the Cumberland, and fifty-seven above the mouth of the Ohio. Its length by its meanders is about 1200 miles, which is considerably greater than that of the Ohio from Pittsburg to the Mississippi, and about as great as that of the Ohio including either of its head branches. Many suppose that the Tennessee contributes as much water as the Ohio. The Tennessee is susceptible of navigation for at least 1000 miles, and has no considerable obstructions. Its head branches are Holston, Nolachucky, French Broad, Tellico, Richland, and Clinch. In its whole course, it is continually receiving rivers that have courses in the mountains. The principal of these are Powell's, Sequalchee, Elk, and Duck. The country through which it flows is remarkable for its fertility, and a great part of it is healthy.

TENNIS; a pastime, or game at ball, which seems to have been introduced into England in the beginning of the thirteenth century, by persons of rank, who erected courts, or oblong edifices, for the performance of it. The origin of the name is uncertain.—The celebrated *oath of the tennis court* (*jeu de paume*) was taken by the members of the national assembly in a tennis court at Versailles, May 20, 1789, (when the doors of the hall had been shut against them by the royal command), binding themselves never to separate until they had given a constitution to France.

TENOCHTITLAN. See *Mexico*.

TENOR (in Italian, *tenore*) is one of the four chief descriptions of the human voice. It is the more delicate of the two voices which belong to the riper age of the male singer, and its compass generally extends from *d*, in the small octave, to the single-marked *f* or *g*. For a solo tenor, a greater depth and height is requisite (from *c*, in the small octave, to *a* and *b*, in the descant octave); and the voice, at this height, is generally in *falsetto*. The qualities of the tenor render it suitable to the expression of tender and delicate sentiments. In the common song of four voices, the tenor forms the second middle voice, as it is deeper than the *alto*, but its compass must, notwithstanding, extend above the melody of the base; but in the song of four male voices, the tenor, as the first voice, leads the chief melody, and, as the second, the higher middle voice. The clef of this voice is the C clef. The tenor is more rare in Germany than the base, on which account it is particularly valued. The French call it *taille*, and esteem it particularly.

TENTER; a railing used in the cloth manufacture, to stretch out the pieces of cloth, stuff, &c., or only to make them even, and set them square. It is usually about four feet and a half high, and in length exceeds the longest piece of cloth. It consists of several long pieces of wood, placed so that the lower cross piece may be raised or lowered, as is found requisite, to be fixed at any height by means of pins. Along the cross pieces, both the upper and under one, are hooked nails, called *tenter-hooks*, from space to space. In England, it is made felony, without benefit of clergy, to steal cloth on the tenters in the night time, by 22 Car. II., c. 5; and having in possession any cloth stolen from the tenters, and not giving a good account of the manner of becoming possessed, is subjected to transportation by 15 Geo. II., c. 27.

TENTYRA, or TENTYRIS. See *Denderah*.

TENURES. As the system of tenures, under the feudal system, is of much interest, we shall give a considerable part of Blackstone's chapter on the ancient English tenures. Almost all the real property of England is, by the laws, supposed to be granted by, dependent upon, and holden of, some superior lord, by and in consideration of certain services to be rendered to the lord, by the tenant or possessor of this property. The thing holden is therefore styled a *tenement*, the possessors thereof *tenants*, and the manner of their possession a *tenure*. Thus all the land in the kingdom is supposed to be holden, mediately or immediately, of the king, who is styled the *lord paramount*, or above all. Such tenants as held under the king immediately, when they granted out portions of their lands to inferior persons, became also lords with respect to those inferior persons, as they were still tenants with respect to the king, and, thus partaking of a middle nature, were called *mesne*, or *middle, lords*. In this manner are all the lands of the kingdom holden, which are in the hands of subjects. All tenures being thus derived, or supposed to be derived, from the king, those that held immediately under him, in right of his crown and dignity, were called his tenants *in capite*, or in chief. There seem to have subsisted four principal species of lay tenures, to which all others may be reduced; the grand criteria of which were the natures of the several services or renders, that were due to the lords from their tenants. The services, in respect of their quality, were either free or base services; in respect of their quantity, and the time of exacting them, were either certain or uncertain. Free services were such as were not unbecoming the character of a soldier or a freeman to perform; as, to serve under his lord in the wars, to pay a sum of money, and the like. Base services were such as were fit only for peasants, or persons of a servile rank; as to plough the lord's land, to make his hedges, to carry out his dung, or other mean employments. The certain services, whether free or base, were such as were stinted in quantity, and could not be exceeded on any pretence; as to pay a stated annual rent, or to plough such a field for three days. The uncertain depended upon unknown contingencies; as to do military service in person, or pay an assessment in lieu of it, when called upon, or to wind a horn whenever the Scots invaded the realm, which are free services; or to do whatever the lord should command, which is a base or villein service. From the various combinations of these services have arisen the four kinds of lay tenure, which subsisted in England till the middle of the last century, and three of which subsist to this day. Where the service was free, but uncertain, as military service with homage, that tenure was called the *tenure in chivalry, per servitium militare*, or by knight-service. Secondly, where the service was

not only free, but also certain, as by fealty only, by rent and fealty, &c., that tenure was called *liberum socagium*, or free socage. These were the only free holdings or tenements; the others were villenous or servile: as, thirdly, where the service was base in its nature, and uncertain as to time and quantity, the tenure was *purum villenagium* (absolute or pure villenage). Lastly, where the service was base in its nature, but reduced to a certainty, this was still villenage, but distinguished from the other by the name of *privileged villenage* (*villenagium privilegiatum*); or it might be still called *socage*, from the certainty of its services, but degraded by their baseness into the inferior title of *villanum socagium* (villein-socage). The first, most universal, and esteemed the most honourable species of tenure, was that by knight service. To make a tenure by knight-service, a determinate quantity of land was necessary, which was called a *knight's fee* (*feodum militare*); the measure of which, in 3 Edw. I., was estimated at twelve ploughlands; and its value, though it varied with the times, in the reigns of Edward I. and Edward II., was stated at twenty pounds per annum. And he who held this proportion of land, or a whole fee, by knight-service, was bound to attend his lord to the wars for forty days in every year, if called upon. If he held only half a knight's fee, he was only bound to attend twenty days; and so in proportion. And there is reason to apprehend, that this service was the whole that the landholders meant to subject themselves to; the other fruits and consequences of this tenure being fraudulently superinduced, as the regular, though unforeseen, appendages of the feudal system. These fruits and consequences were aids, relief, primer seisin, wardship, marriage, fines for alienation, and escheat.

1. Aids were originally mere benevolences granted by the tenant to his lord, in times of difficulty and distress; but in process of time they grew to be considered as a matter of right. and not of discretion. These aids were principally three:—first, to ransom the lord's person, if taken prisoner—a necessary consequence of the feudal attachment and fidelity; insomuch that the neglect of doing it, whenever it was in the vassal's power, was, by the strict rigour of the feudal law, an absolute forfeiture of his estate. Secondly, to make the lord's eldest son a knight—a matter that was formerly attended with great ceremony, pomp, and expense. This aid could not be demanded till the heir was fifteen years old, or capable of bearing arms; the intention of it being to breed up the eldest son and heir apparent of the seigniory to deeds of arms and chivalry, for the better defence of the nation. Thirdly, to marry the lord's eldest daughter, by giving her a suitable portion. In this particular, the lord and vassal of the feudal law bore a great resemblance to the patron and client of the Roman republic, between whom, also, there subsisted a mutual fealty, or engagement of defence and protection; and there were three aids, which were usually raised by the client: viz. to marry the patron's daughter, to pay his debts, and to redeem his person from captivity. But, besides these ancient feudal aids, the tyranny of lords, by degrees, exacted more and more; as aids to pay the lord's debts (probably in imitation of the Romans), and aids to enable him to pay aids or reliefs to his superior lord. In the 25 Edw. I., the statute called *confirmatio chartarum* was enacted, which ordained that none but the ancient aids should be taken. But though the species of aids was thus restrained, yet the quantity of each aid remained arbitrary and uncertain. They were never completely ascertained and adjusted till the statute Westm. 1. 3 Edw. I., c. 36, which fixed the aids of inferior lords at twenty shillings, or the supposed twentieth part of the annual value of every knight's fee, for making the eldest son a knight, or marrying the eldest daughter; and the same was done with regard to the king's tenants *in capite*, by statute 25 Edw. III., c. 11. The other aid, for ransom of the lord's person, being not, in its nature, capable of any certainty, was, therefore, never ascertained.

2. Relief (*relevium*) was incident to every feudal tenure, by way of fine or composition with the lord for taking up the estate, which was lapsed or fallen in by the death of the last tenant. But, though reliefs had their original while feuds were only life-estates, yet they continued after feuds became hereditary, and were, therefore, looked upon, very justly, as one of the greatest grievances of tenure; especially when, at the first, they were merely arbitrary, and at the will of the lord; so that, if he pleased to demand an exorbitant relief, it was, in effect, to disinherit the heir. William the Conqueror ascertained the relief, by directing, in imitation of the Danish heriots, that a certain quantity of arms, and habiliments of war, should be paid by the earls, barons and vavasours respectively; and if the latter had no arms, they should pay a hundred shillings. Afterwards, the composition was universally accepted of one hundred shillings for every knight's fee; as we find it ever after established. But it must be remembered, that this relief was only then payable, if the heir, at the death of his ancestor, had attained his full age of one and twenty years.

3. Primer seisin was a feudal burden, only incident to the king's tenants *in capite*, and not to those who held of inferior or mesne lords. It was a right which the king had, when any of his tenants *in capite* died, seized of a knight's fee, to receive of the heir, provided he were of full age, one whole year's profits of the lands, if they were in immediate possession, and half a year's profits, if the lands were in reversion expectant on an estate for life. This seems to be little more than an additional relief, but grounded upon this feudal reason; that, by the ancient law of feuds, immediately upon the death of a vassal, the superior was entitled to enter and take seisin, or possession of the land, by way of protection against intruders, till the heir appeared to claim it, and receive investiture; during which interval the lord was entitled to take the profits; and, unless the heir claimed within a year and day, it was, by the strict law, a forfeiture. This practice, however, seems not to have long obtained in England, if ever, with regard to tenure under inferior lords; but, as to the king's tenures *in capite*, the *prima seisina* was expressly declared, under Henry III. and Edward II., to belong to the king by prerogative, in contradistinction to other lords. The king was entitled to enter and receive the whole profits of the land, till livery was sued, which suit being commonly made within a year and day next after the death of the tenant, in pursuance of the strict feudal rule, therefore the king used to take, as an average, the first fruits, that is to say, one year's profits of the land. And this afterwards gave a handle to the popes, who claimed to be feudal lords of the church, to claim, in like manner, from every clergyman in England, the first year's profits of his benefice, by way of *primitiæ*, or first fruits.

4. These payments were only due if the heir was of full age but if he was under the age of twenty-one being a male, or fourteen being a female, the lord was entitled to the wardship of the heir, and was called the *guardian in chivalry*. This wardship consisted in having the custody of the body and lands of such heir, without any account of the profits, till the age of twenty-one in males, and sixteen in females. For the law supposed the heir male unable to perform knight-service till twenty-one; but as for the female, she was supposed capable at fourteen to marry, and then her husband might perform the service. The lord, therefore, had no wardship, if, at the death of the ancestor, the heir male was of the full age of twenty-one, or the heir female of fourteen; yet, if she was then under fourteen, and the lord once had her in ward, he might keep her so till sixteen, by virtue of the statute of Westm. 1. 3 Edw. 1., c. 22, the two additional years being given by the legislature for no other reason but merely to benefit the lord. The wardship of the body was a consequence of the wardship of the land; for he who enjoyed the infant's estate was the most proper person to educate and maintain him in his infancy; and also, in a political view, the lord was most concerned to give his tenant a suitable education, in order to qualify him the better to perform those services, which, in his maturity, he was bound to render. When the male heir arrived to the age of twenty-one, or the heir female to that of sixteen, they might sue out their livery or *ousterlemain*; that is, the delivery of their lands out of their guardian's hands. For this they were obliged to pay a fine, namely, half a year's profits of the land; though this seems expressly contrary to *Magna Charta*. However, in consideration of their lands having been so long in ward, they were excused all reliefs, and the king's tenants also all primer seisins. When the heir thus came of full age, provided he held a knight's fee *in capite* under the crown, he was to receive the order of knighthood, and was compellable to take it upon him, or else pay a fine to the king. For, in those times, no person was qualified for deeds of arms and chivalry who had not received this order, which was conferred with much preparation and solemnity. This prerogative, of compelling the king's vassals to be knighted, or to pay a fine, was exerted as an expedient for raising money by many English princes, particularly by Edward VI. and queen Elizabeth. It was abolished by statute 16 Car. I., c. 20.

5. But, before they came of age, there was still another piece of authority, which the guardian was at liberty to exercise over his infant wards; the right of marriage (*maritagium*, as contradistinguished from *matrimonium*), which, in its feudal sense, signifies the power which the lord or guardian in chivalry had of disposing of his infant ward in matrimony. For, while the infant was in ward, the guardian had the power of tendering him or her a suitable match, without disparagement, or inequality; which if the infants refused, they forfeited the value of the marriage (*valorem maritagii*) to their guardian; that is, so much as a jury would assess, or any one would *bona fide* give to the guardian for such an alliance; and, if the infants married themselves without the guardian's consent, they forfeited double the value (*duplicem valorem maritagii*). This seems to have been one of the greatest hardships of the ancient tenures.

6. Another attendant or consequence of tenure by knight-service, was that of fines due to the lord for every alienation, whenever the tenant had occasion to make over his land to another. This depended on the nature of the feudal connection; it not being reasonable nor allowed, as we have before seen, that a feudatory should transfer his lord's gifts to another, and substitute a new tenant to do the service in his own stead, without the consent of the lord; and, as the feudal obligation was considered as reciprocal, the lord also could not alienate his seigniory without the consent of his tenant, which consent of his was called an *attornment*. This restraint upon the lords soon wore away; that upon the tenants continued longer. In England, these fines seem only to have been exacted from the king's tenants *in capite*, who were never able to alienate without a license The statute 1 Edw. III., c. 12, ordained that one third of the yearly value should be paid for a license of alienation; but if the tenant presumed to alienate without a license, a full year's value should be paid.

7. The last consequence of tenure in chivalry was escheat; which is the determination of the tenure, or dissolution of the mutual bond between the lord and tenant, from the extinction of the blood of the latter by either natural or civil means; if he died without heirs of his blood, or if his blood was corrupted and stained by commission of treason or felony, whereby every inheritable quality was entirely blotted out and abolished.

These were the principal qualities, fruits and consequences of the tenure by knight-service. The description here given is that of knight-service proper; which was to attend the king in his wars. There were, also, some other species of knight-service. Such was the tenure by grand serjeanty *per magnum servitium*, whereby the tenant was bound, instead of serving the king generally in his wars, to do some special honorary service to the king in person: as to carry his banner, his sword, or the like; or to be his butler, champion, or other officer, at his coronation. These services, both of chivalry and grand serjeanty, were all personal and uncertain as to their quantity or duration. But the personal attendance in knight-service growing troublesome and inconvenient in many respects, the tenants found means of compounding for it, by first sending others in their stead, and in process of time making a pecuniary satisfaction to the lords in lieu of it. This pecuniary satisfaction at last came to be levied by assessments, at so much for every knight's fee; and therefore this kind of tenure was called *scutagium* in Latin, or *servitium scuti*; *scutum* being then a well known denomination for money; and, in like manner, it was called in Norman French *escuage*; being indeed a pecuniary, instead of a military service. The first time this appears to have been taken, was in the 5 Hen. II., on account of his expedition to Toulouse; but it soon came to be so universal, that personal attendance fell quite into disuse. From this period, when the kings went to war, they levied scutages on their tenants, that is, on all the landholders of the kingdom, to defray their expenses, and to hire troops; and these assessments, in the time of Henry II., seem to have been made arbitrarily and at the king's pleasure; which prerogative being greatly abused by his successors, it became matter of national clamour; and king John was obliged to consent, by his *Magna Charta*, that no scutage should be imposed without consent of parliament. But this clause was omitted in his son Henry III.'s charter; where we only find, that

scutages or escuages should be taken as they were used to be taken in the time of Henry II.; that is, in a reasonable and moderate manner. Yet afterwards, by statute 25 Edw. I., c. 5 and 6, and many subsequent statutes, it was again provided, that the king should take no aids or tasks, but by the common assent of the realm; hence it was held that escuage or scutage could not be levied but by consent of parliament, such scutages being, indeed, the ground-work of all succeeding subsidies, and the land-tax of later times. By the degenerating of knight-service, or personal military duty, into escuage, or pecuniary assessments, all the advantages (either promised or real) of the feudal constitution were destroyed, and nothing but the hardships remained. Instead of forming a national militia, composed of barons, knights and gentlemen, bound by their interest, their honour and their oaths, to defend their king and country, the whole of this system of tenures now tended to nothing else but a wretched means of raising money to pay an army of occasional mercenaries. In the mean time, the families of all the nobility and gentry groaned under the intolerable burdens which (in consequence of the fiction adopted after the conquest) were introduced and laid upon them by the subtlety and finesse of the Norman lawyers. A slavery so complicated and so extensive called aloud for a remedy. Palliatives were from time to time applied by successive acts of parliament, which assuaged some temporary grievances. King James I. consented, in consideration of a proper equivalent, to abolish them all, though the plan proceeded not to effect. At length the military tenures, with all their heavy appendages, (having, during the commonwealth, been discontinued,) were destroyed at one blow by the statute 12 Car. II., c. 24, which enacts, "that all sorts of tenures, held of the king or others, be turned into free and common socage, save only tenures in frankalmoign, copyholds, and the honorary services (without the slavish part) of grand serjeanty."—For further information, see *Socage*, *Fee*, *Entails*, *Villenage*; also *Feudal System*. In the United States of America the property of lands is allodial; that is, the owner holds of no superior, with the exception of some small remains of socage tenure in New York.

TEOCALLIS; ancient monuments of Mexico. See *Mexico, Antiquities of*, and *Pyramids*.

TEOS, or TEIOS; a maritime town on the coast of Ionia, in Asia Minor, opposite Samos. It was one of the twelve cities of the Ionian confederacy, and gave birth to Anacreon and Hecatæus, who is by some deemed a native of Miletus. According to Pliny, Teos was an island.

TEPLITZ; a celebrated watering place, situated in a pleasant and fruitful plain in Bohemia, with a population of 2500; forty miles north-west of Prague; lat. 50° 37′ N.; lon. 13° 51′ E. It belongs to the prince of Clary, who has a beautiful castle here, with a fine garden attached to it, which is open to the public. The waters are warm and sulphureous, and are much resorted to. The public baths are twenty three in number. On the day of the destruction of Lisbon by an earthquake (Nov. 1, 1755), the waters ceased to flow for several minutes, and then rushed out with great violence. The village of Schönau, and several castles, monasteries and mountains in the vicinity, are extremely romantic, and render the environs delightful.—See Reuss's *Guide for Visitors of the Baths* (in German, 1823).

TEQUENDAMA, Cataract of. See *Cataracts*.

TERCERA, or TERCEIRA; one of the Azores islands, supposed to have derived its name from its standing the third in this cluster of islands, in point of situation, though the first in dignity. It is twenty-five miles long, and fifteen broad; population, 28,900. Its figure is almost circular, the coasts high, and so surrounded with craggy rocks, that it is deemed impregnable, every accessible part on the coast being defended by strong forts, heavy cannon, and a numerous and regular garison. The only tolerable port in the whole island is the harbour of Angra (15,000 inhabitants). The island is fertile, pleasant and healthy: the very rocks produce vines. The land yields large crops of corn, and a great variety of fruits. Besides Angra, there are several other towns and large villages in Tercera, with a number of forts and garrisons. Lon. 27° 15′ W.; lat. 38° 38′ N.

TERENCE, or TERENTIUS. Publius Terentius Afer, the celebrated Roman comic writer, was born in Africa (whence his surname *Afer*), about B. C. 194, and, while a child, was bought by Publius Terentius Lucanus, a Roman senator, who took him to Rome, and gave him a good education. His master having emancipated him, the young African now assumed the name of his benefactor, and soon acquired reputation and friends by the talents which he displayed in his comedies. Lælius and Scipio Africanus (the destroyer of Carthage and Numantia) admitted him into their intimacy; and some accounts aver that they assisted him in the composition of his plays. About the year 161, he went to Greece, probably with the purpose of collecting new materials for the theatre. While on his return to Italy, he suffered shipwreck, and either perished in the waves, or died not long after. Of his dramatic works, six comedies alone are extant: the Adrian (acted at Rome, B. C. 167; the Eunuch (performed 161); *Heautontimoroumenos*, or the Self-Tormentor (163); the Adelphi, his last piece, brought out in Rome the year before his death; Phormio, or the Parasite; and Hecyra, or the Step-Mother. The comedies of Terence were much admired by the cultivated Romans, and were likewise esteemed for their prudential maxims and moral sentences. If we compare him with his contemporaries, he will be found to have been much in advance of them in point of style. His language is pure; but, in originality of imagination, he is inferior to the Greeks, and his predecessor Plautus. Most of his plays are little more than translations from the Greek; but he is valuable to us on this very account, as giving us an idea of his model Menander. His characters have much truth of nature; but they are often superficial. His plots are usually simple: greedy courtesans, trickish slaves, miserly fathers, and prodigal sons, are the chief persons of his drama, and a marriage his ordinary *denouement*. The best editions of his works are those of Lindenbrog (Paris, 1602; Frankfort, 1623) and Westerhof (Hague, 1726); that of Bentley (London, 1726; Amsterdam, 1727, and Leipsic, 1791) is particularly valuable in regard to the metre, but is disfigured by rash conjectures. Other useful editions are those of Zeune (Leipsic, 1787, 2 vols.), Lenz (Jena, 1785), Schmieder (Halle, 1794), Bothe (Berlin, 1806), Bruns (Halle, 1811), and Perlet (Leipsic, 1820). We have an English translation by the elder Colman.

TEREUS. See *Philomela*.

TERMAGAUNT, or TURMAGAUNT. The origin of this name is altogether uncertain. Various etymologies have been proposed, but none of them is at all satisfactory. The old English writers frequently speak of *Termagaunt* and *Mahoun* (Mohammed), and the Norman-French writers couple *Tervagan* (of which the English form is a corruption) with *Mahum* and *Apollin* (Apollyon.) Ariosto and Tasso also speak of *Macone e Trivigante* (Mohammed and Termagaunt). Both of these personages were dramatic characters in the old mysteries, at a time when legends of the Saracens were the most popular subjects of poetry and the drama in Europe. See Ritson's *Metrical Romances*, notes, vol. iii, p. 251 seq., or Todd's *Spenser*, note to C. vii, st. 47.) The modern signification of the word, *shrew*, *virago*, is evidently derived from the turbulent and violent character of the old dramatic personage.

TERMINALIA. See *Terminus*.

TERMINISM, in German philosophy, or DETERMINISM; the doctrine that all things happen through a necessary connexion of causes and effects extending through all nature. In theology, *terminism* is the doctrine that God has assigned to every one a term of repentance, during which his salvation must be worked out.

TERMINOLOGY of a science or art; that branch which teaches the meaning of its technical terms; also the aggregate of these technical terms. In some sciences, it is of particular importance, as in botany, in which not even a leaf can be described without an agreement on certain technical terms. The terminology is generally derived in a great measure from the nation which has done most for a particular art or science, as the military terminology from France, the naval from Holland and England.

TERMINUS; a divinity at Rome, who was supposed to preside over bounds and limits, and to punish all unlawful usurpation of land. His worship was first introduced at Rome by Numa, who persuaded his subjects that the limits of their lands and estates were under the immediate inspection of heaven. His altar was on the Tarpeian rock. He was represented with a human head, without feet or arms, to intimate that he never moved, wherever he was placed. (See *Hermes*.) The people of the country assembled once a year with their families, and crowned with garlands and flowers the stones which separated their different possessions, and offered, at first, cakes and fruits, at a later period, lambs and pigs, to the god who presided over their boundaries. It is said that, when Tarquin the Proud wished to build a temple on the Tarpeian rock to Jupiter, the god Terminus refused to give way, though the other gods resigned their seats with cheerfulness; and his altar therefore remained in the temple of Jupiter. But, as Terminus could be worshipped only in the open sky, a hole was left in the roof of the temple directly over the altar. The resistance of the god was considered an omen that the boundaries of Rome should never be encroached upon. The *Terminalia* were annual festivals at Rome, observed in honour of the god Terminus, in the month of February. It was then usual for peasants to assemble near the principal land-marks which separated their fields, and, after they had crowned them with garlands and flowers, to make libations of milk and wine, to sacrifice a lamb or a young pig upon altars of turf, and to sing songs in honour of the god. Besides these private festivals, there were public *Terminalia* celebrated on the Roman frontiers in the earlier periods of the republic. These public festivities, however, went into disuse after the territories of Rome were extended by conquest. The *Terminalia* had also an allusion to the close of the year, as the Roman year was considered to end on the 23d February, when they were solemnized, the remaining days being considered as intercalary.

TERMITES; sometimes called *white ants*, from their mode of life. They belong, however, to a different order of insects—the *neuroptera* of Linnæus. They live in societies, often prodigiously numerous, and composed of three sorts of individuals, as with the bee and ant. The most numerous are the workers, which have a rounded head, and the abdomen sessile and club-shaped. Among these may be discovered, occasionally, individuals of the second sort, called *soldiers*, which are easily distinguished by the larger size of the head and jaws. Each colony contains but a single perfect male and female. At a certain season, the termites acquire four large equal wings: the form of the body is then somewhat changed, and the colour becomes darker. They now fill the air in countless numbers, and serve as food for various animals, and even for man in some parts of the globe. The few pairs which escape, if discovered by some wandering workers of their own species, are protected by them, and found new colonies. The termites are the greatest pest of tropical climates: they destroy all articles of furniture made of wood, cloths, &c.; they enter the foundations of houses, and eat out the whole interior of the timbers, so that they may appear perfectly sound externally, while they will crumble under the slightest blow. An African species is celebrated for the edifices it rears, in the form of a sugar-loaf, ten or twelve feet in height, and so solid that the wild cattle mount upon them without breaking through. Internally they are divided into numerous apartments; and have subterranean galleries connected with them, from the extremities of which the insects issue to commit depredations: when these structures are broken open, the soldiers fight with great fury, and bite every thing they meet with. Another species of the same country builds its nest among the branches of trees, sometimes at the height of sixty or eighty feet from the ground.

TERMS are those spaces of time wherein the courts of justice are open for all that complain of wrongs or injuries, and seek their rights by course of law or action, in order to their redress. During the English terms, the courts in Westminster hall sit and give judgments, &c.; but the high court of parliament, the chancery, and inferior courts, do not observe the terms; only the court of king's bench, common pleas, and exchequer, the highest courts at common law. Of these terms there are four in every year: viz. Hilary term, which begins the 23d of January, and ends the 12th of February, unless on Sundays, and the day after; Easter term, which begins the Wednesday fortnight after Easter-day, and ends the Monday next after Ascension-day; Trinity term, which begins on the Friday after Trinity Sunday, and ends the Wednesday fortnight after; and Michaelmas term, which begins the 6th and ends the 28th of November.

TERNATE. See *Moluccas*.

TERNI, a town in the States of the Church, delegation of Spoleto, in the fertile valley of the Nera the birth-place of Tacitus, and of the em-

perors Tacitus and Florian, contains some interesting ruins of the old Latin colony of Interamna (lying between two arms of the Nera). Four miles east from Terni is the celebrated *caduta del Marmore*, or fall of the Velino or Evelino, 300 feet in height, well known to the readers of Byron by his glowing description in Childe Harold (iv. 69—72). In the notes to this passage (37 and 38), he says, "It is worth all the cascades and torrents of Switzerland put together; which are rills in comparison. It is singular enough that two of the finest cascades in Europe should be artificial—thus of the Velino and the one at Tivoli." (See *Cataract.*) This "matchless cataract" is, in fact, the work of M. Curius Dentatus (B. C. 270), who caused the rock to be cut through for the purpose of draining the marshes, and making an outlet of the Velino. Clement VIII. caused the old canal of Dentatus to be reopened and enlarged. In the garden of the episcopal palace are the ruins of an amphitheatre, and in the church of St Salvador (St Saviour) the remnants of a temple of the sun. The town has about 7000 inhabitants; and much oil and wine are produced in the neighbourhood. Near Terni the Neapolitans were defeated by the French in 1798. Forty-five miles north of Rome.

TERPANDER, a distinguished Greek poet and musician, flourished about B. C. 650, was born at Methymna or Antissa, on the island of Lesbos. When Lacedæmon was distracted by internal troubles, and the oracle was consulted respecting the means of quieting them, it commanded the Spartans to send for the Lesbian singer. He came, and restored peace and quiet, by the sweetness of his songs, which he accompanied on his lyre. His melodies were afterwards known as the Lesbian melodies; and, for a long time, they served as universal models. He did much to improve the art of music, and is said to have added three new strings to the lyre. Other accounts ascribe this improvement to Orpheus, Amphion, or even to Apollo. Terpander was probably the first to introduce the seven-stringed lyre into Sparta. The invention of the musical notation has also been attributed to him, and with some degree of probability, although some accounts refer it to Pythagoras, who lived a century later. The Lacedæmonians sang his songs at their festivals; and hence he has also been called the inventor of the *scolia*, or drinking songs, sung at the feasts of the ancient Greeks.—See *Scolia h. e. Carmina convivalia Græcorum*, by Ilgen (Jena, 1798).

TERPODION; one of the finest musical keyed instruments invented in modern times. The interior mechanism consists of wooden staves, which vibrate by the friction of a wooden cylinder, set in motion by a wheel, and thus produce the sweetest tones, susceptible of the finest swell and fall. The higher tones much resemble those of a flute, the lower those of the organ. It is particularly fine as an accompaniment of vocal music, but is less fit for compositions of a lively character. John David Buschmann of Friedrichsrode, near Gotha, is the inventor, and has exhibited his instruments in the large cities of Germany and England.

TERPSICHORE (*she who loves dancing*); one of the Muses, the inventress and patroness of the art of dancing and lyrical poetry. She is generally represented with the tambourine (*tympanum*), crowned with flowers, and in a mirthful attitude.

TERRA, the Earth, was a cosmological divinity of the ancients. After the chaos, says Hesiod, the extended earth was the abiding place of all the immortals, who inhabit the tops of snowy Olympus. By her own power she brought forth the starry heaven (*Uranos*), the lofty mountains, and the sea (*Pontus*). By Uranos she became the mother of the Titans (q. v.), Thea, Rhea, Mnemosyne, Themis, Phœbe, Tethys, the Cyclops, and the hundred-handed giants (Centimani). Uranos imprisoned these children, immediately after their birth, in a dungeon. Terra, meditating revenge, prepared a sickle of adamant, and persuaded her sons to castrate their father. Saturn perpetrated the deed. Terra received the drops of blood which issued from the wound, by which being impregnated, she brought forth the Furies, Giants, and the Melian nymphs. By her son Pontus, she afterwards had Nereus, Thaumas, Phorcys, Ceto, and Eurybia. Dissatisfied also with Saturn, she promised her daughter Rhea to bring up the new-born Jupiter, and carried him to Crete. When he had grown up, she aided him in obtaining the throne, advising him to free the imprisoned Centimani and Cyclops.

TERRA COTTA (*Italian*) is the common name for a very large class of remains of antiquity, which have not, till recent times, been treated with the attention which they deserve. The mythical history of the Greek art celebrated Dibutades, Rhœcus, Theodos, as masters in works of clay, without, however, stating whether these works were baked, or merely dried in the sun. The Greeks may, at a later period, have given up the use of clay for large works, after they had become accustomed to marble and bronze; but clay was still used for fine pottery, and for lamps, of which so admirable specimens have come down to us. In Tuscany and Rome, however, works of sculpture, both entire figures and reliefs, in terra cotta, have been found in abundance. These are not generally of large size, though whole friezes and images on pediments were made of terra cotta in antiquity (*fastigia templorum fictilia*), but manifest the great skill of the *officinæ figulinæ*, which were common in Rome and Italy. The works of Damophilus, Arcesilaus, and Pasiteles may have come down to us in copies, among the remains which, since the time of count Caylus, have been more assiduously brought together in museums of antiquities. A collection, made on the spot, by Mr Charles Townley, belongs at present to the treasures of the British museum (Description of the Collection of ancient Terracottas in the British Museum, with thirty-nine engravings, London, 1810, small folio); another, collected by Seroux d'Agincourt, was left by him to the museum of the Vatican (*Recueil de Fragmens de Sculpture antique en Terre cuite, par M. Seroux d'Agincourt*, Paris, 1814, 4to.). Earlier than the appearance of these works, some *rilievi* found at Velletri were described in the work *Bassirilievi Volschi in Terra cotta* (Rome, 1785, folio.) Accurate examination, particularly of the vessels, has shown a variety in the application of this material, which may lead to results of much advantage to modern art. The sorts of works distinguished are those dried in the air; those simply baked; those baked and coloured, but not with fixed colours; those varnished, and having colours burnt in: a mixed species, in which the colours are in part fixed, in part merely painted on the substance; and finally, the most costly of all, works with rich gilding. These different productions, as regards the material, are of the most various fine-

ness. Much of what has come down to us may have been merely models and casts (*typi, protypa, ectypa*). The investigations of professor Busching into the history of this branch of the fine arts are important. He has traced it in the middle ages, and shown, by the monument of duke Henry IV. (the Minnesinger) in the church of the cross at Breslau, that this art was successfully practised in Silesia in the thirteenth century (about 1290). Busching has illustrated this subject in a magnificent work.

TERRA, or TIERRA DEL FUEGO; a group of islands lying to the south of the continent of South America, from which it is separated by the straits of Magellan (see *Magalhaens*), and extending from lat. 56° to 53° 30′ S. The southern extremity is cape Horn. It received its name, signifying *Land of Fire*, from the fires seen along its shores by the discoverer Magalhaens, who supposed them to be volcanic. The existence of volcanoes here has been doubted; but captain Hall saw one in activity in 1820, and captain Weddel found lava on the coast. The interior of these islands has never been explored. So far as they are known to us, they are rugged and unprolific. The climate is severe, and there are summits visible to mariners which appear to be covered with perpetual snow. Captain King states the mean temperature during the three winter months at 34.°5, the maximum being 49.°5, and the minimum 12.°6. The inhabitants, at least those on the coasts, are in a very rude state; but they are friendly and peaceable: they live by fishing. The following exhibits a representation of their costume. The seals are

numerous on the coasts, and dogs, otters, and guanacoes are also found here. The three principal islands of the group are King Charles's Southland, to the east, Santa Ines, or South Desolation, on the west, and Clarence island, lying between them. The latest information concerning this region is contained in Weddel's Voyage towards the South Pole (London, 1825), and the Journal of the Royal Geographical Society for 1831, art. xi, containing the results of the examination of the coasts by captain King.

TERRA FIRMA (that is, *firm land*); mainland, or continent, in opposition to insular territories. In Italy, the name of *Terra firma*, or *il dominio Veneto*, is given to the continental provinces of Venice, in contradistinction to the insular portions. By it is therefore signified the duchy of Venice, Venetian Lombardy, the marquisate of Tarvis, the duchy of Friuli and Istria.—Under this name was formerly comprehended a vast extent of country in South America, forming a government under the authority of the crown of Spain, including several extensive provinces, and three audiences, which were fixed at Panama, Quito, and Santa Fé de Bogota. The large provinces were Terra Firma Proper, or Darien, Popayan, Quito, and New Grenada, all of which were again subdivided into several smaller provinces or jurisdictions. These provinces afterwards formed the viceroyalty of New Grenada, and now constitute the republic of Colombia or New Grenada. See *Colombia*, and *Venezuela*.

TERRA MAGELLANICA. See *Patagonia*.

TERRA SIGILLATA (that is, *sealed earth*); called also *Lemnian earth*; a sort of bole found in the island of Lemnos, which was formerly much used in medicine, as a styptic, &c. It derives its name from the circumstance of its being impressed with the seal of the grand signior, or the governor of the island. It is, however, found in other places in the East, as Armenia and Malta, and in Italy, France, &c. The Lemnian bole is detersive, like fuller's earth. See *Clay*.

TERRACINA; a town in the Campagna di Roma, forty-seven miles south-east of Rome; population, 9000. It is situated at the southern extremity of the Pontine marshes, in a picturesque situation, but rendered unhealthy by the surrounding marshes. It was anciently the capital of the Volsci, and named *Anxur*. The Greeks called it *Trachyna*, corrupted into *Terracina*. It had once a harbour; but that is now choked up. Near Terracina are considerable fragments of the *Via Appia*, made from Rome to Capua.

TERRAIN; a French word, used in military language for the natural condition of the ground on which any military operation takes place; and the expression embraces, therefore, all objects on the surface of the earth, which can affect the disposition to be made of troops. In English, the word *ground* is generally used. The Germans divide the doctrine of *terrain* into the general, which is much the same as that which others call *military geography* (q. v.), and special, which is the accurate knowledge of a particular theatre of war. General conclusions may be drawn from experience, in which geology is often an assistant; but particular observation of the ground is always indispensable.

TERRAS. See *Cements*.

TERRAY, Joseph Marie, a notorious French minister of finance, born in 1715, entered the church, became an abbé, member of the spiritual bench of the parliament of Paris, insinuated himself into favour at court, and, during the last days of the reign of Louis XV. was minister of finance. Finding a great deficit in the treasury, he employed the most disgraceful means to cover it, and publicly declared that he held his office only to rob, and because he excelled in that operation. He contrived new impositions, abolished the pensions which had been previously granted, and thus reduced many individuals to destitution. In addition to this, he treated with derision the unfortunate victims of his policy, who applied to him for relief. Louis XVI. removed this monster (1775); and a horrible disease, the consequence of his excesses, put an end to his life in 1778. He was the subject of general execration; and even his services in

restoring order into the finances were overlooked, since he did not prevent the most shameless dissipation of the public money by the courtiers.

TERROR, REIGN OF. During the French revolution, Marat and Robespierre, in the beginning of March, 1793, introduced the system of terror, so called, under the pretext, that the condition of France left no other means to save her. To understand this phenomenon in the history of man, requires an accurate knowledge and a comprehensive view of the state of France, at that time convulsed by civil war, fighting single-handed against the greater part of Europe, and filled with a population which the clergy had done almost nothing to instruct, and the court and nobility every thing to corrupt. History affords many instances of blood-thirsty individuals; but here we find a large portion of a nation urging the slaughter of persons of all sexes, ages, and conditions, while their mouths were full of high-sounding phrases of liberty, equality, virtue, and justice, perverting a thousand innocent acts to crimes, and even inventing new crimes, e. g. *négotiantism*, in Bordeaux, to suit the occasion. The reign of terror shows a more general frenzy than any other period of history. One of the main causes of this gigantic madness must be sought for in the disorganization of political society in all its branches, which began with Louis XIV., and frightfully increased during the reigns of his successors. The ascribing of the mischief to the writings of the philosophers, so called, shows an ignorance of the nature of man and of society. Such madness could result only from deep-seated disease and depravity, to which many stimulants were added. The revolutionary tribunal was the first great instrument of the terrorists. This was established March 11, 1793, but did not receive its name until the 8th of Brumaire (October, 1793), when the Mountain party in the convention triumphed over the Girondists. The object of the revolutionary tribunal was to punish all those who should oppose the progress of the revolution, and incur the suspicion of adhering to the royal family. It may easily be imagined what a field such a tribunal would afford to malignity, hatred, and the spirit of persecution, as it was bound by no rules, sentenced only to death, never investigated the points of the accusation, and, at last, hardly the names of the accused. After the fall of the Girondists in 1794, and the accession of Robespierre and his accomplices to power, the trial of individuals ceased. Fouquier Tinville and his comrades daily handed in lists of persons charged with treason. These were brought in crowds before the tribunal, the accusation against them read, and sentence of death immediately pronounced, without even examination being had, to ascertain whether the subjects of the accusation were actually the persons before the court; and, in fact, the confounding of persons of the same name often brought individuals to the guillotine, who had never been accused. Similar revolutionary tribunals were established in the large towns in the provinces, and the same tragedy was acted in Nantes, Lyons, Arras, Strasburg, and many other places. As this mode of exterminating the pretended enemies of the republic was too slow to satisfy the party in power, they shot and drowned the accused by hundreds. The intrigues of the royalists must be admitted to have contributed to these excesses; and the object of Robespierre was to give energy to the government, and secure the country from invasion.* Many of his associates, however, were actuated by the love of plunder. The system of terror at length destroyed itself. A part of the terrorists became victims to the very system which they had established, and the overthrow of the rest soon followed. With the revolution of Thermidor 9 (July 27, 1794), or with the overthrow of Robespierre, terrorism ceased to be the professed system of government; but its consequences remained. Prudhomme, a republican, not unfriendly to the revolution, and who wrote during the period of excitement, has left six volumes of details of this deplorable period. Two of the six volumes contain an alphabetical list of all the persons put to death by the revolutionary tribunal, with their professions, domicils, the dates of their condemnations, the place and day of their execution, &c. We find among the 18,613 victims—

Noblemen	1,278
Noblewomen	750
Females of the class of mechanics and peasants	1,467
Nuns	350
Priests	1,135
Men not noble, of various classes	13,633
Total	18,613
Women who died in consequence of premature delivery	2,000
Women pregnant and in childbed	348
Women killed in the Vendee	15,000
Children " "	22,000
Whole number who perished in the Vendee	30,000
Victims under the proconsulate of Carrier, at Nantes	32,000
Including—	
Children shot	500
" drowned	1,500
Women shot	264
" drowned	500
Priests shot	300
" drowned	460
Noblemen drowned	1,400
Mechanics drowned	3,300
Victims in Lyons	32,000

These numbers do not comprehend the victims of the massacres at Versailles, Carmes, l'Abbaye, Avignon, the fusillades at Toulon, and Marseilles, after the sieges of those places, and the massacre of the entire population of the little town of Bédoin, in Provence. More than 50,000 revolutionary committees were established in France, to enforce the law against the suspected (that of Sept. 21, 1793). Cambon, member of the convention, calculates that they cost the country 591,000,000 francs (in assignats) a year: each member received three francs a day; and there were 150,000 who had the right to designate for death. Paris alone had sixty committees. It will be seen from the above, that the nobles, priests, nuns, and monks, form but a small part of those who died by the guillotine. The Girondist Riouffe, a prisoner with madame Roland and others at the *Conciergerie*, gives the most appalling details in his *Mémoires d'un Détenu*. Among other things, he says, *Déjà un aquéduc immense qui devoit voiturer du sang avoit été creusé à la place Saint-Antoine. Disons-le, quelque horrible qu'il soit de le dire, tous les jours le sang humain se puisoit par seaux, et quatre hommes étoient occupés, au moment de l'exécution à les vider dans cet aquéduc.* More horrid details may be found in the preface of Châteaubriand's *Etudes ou Discours Historiques*. A list of all the persons who perished by the guillotine in that period, is given in the above-mentioned work of Prudhomme.

* Louvet, in his memoirs, expresses his conviction that both Robespierre and Marat were in the pay of the allies.

TERTIARIANS. See *Orders, Religious.*

TERTIARY FORMATIONS. See *Geology.*

TERTULLIAN, QUINTUS SEPTIMIUS FLORENS, considered the most early Latin father extant, was born at Carthage, about the middle of the second century. His father was a centurion under the proconsul of Africa; and Tertullian was at first a pagan, although when or where he embraced the Christian religion does not appear. He received a liberal education, and was well versed in Greek and Roman literature, and learned in the Roman law. He flourished chiefly under the reigns of the emperors Severus and Caracalla; and Jerome mentions a report that he lived to a very advanced age. He employed himself vigorously in the cause of Christianity, but, towards the latter part of his life, quitted the Catholic church to join the Montanists, out of which he formed a sect of his own, named *Tertullianists.* (See *Montanus.*) The ground of his separation related rather to discipline than doctrine, being favourable to the austerities inculcated by Montanus. Of the personal history of Tertullian, little is known. Of his writings, the most noted is his Apology for the Christian Religion, which contains much information on the manners and conduct of the early Christians, and asserts the falsehood of the calumnies by which they were assailed, and the injustice of persecuting them. Connected with this work are his two books *Ad Nationes*, in which, with his characteristic vehemence, he carries his attack into the quarters of his opponents. He also wrote against various heresies, and several tracts on baptism, on idolatry, &c. In one of these, upon Public Spectacles, he dissuades Christians from attending shows and festivals, as partaking of idolatry; and he luxuriates in the anticipation of the transport with which he shall survey the torments of persecutors, philosophers, poets, and tragedians in another world. This father was a man of lively parts, but he displays little judgment in his reasoning; and, while led by his temper to violence and exaggeration, he was at the same time credulous and austere. His style is concise and figurative, but harsh, unpolished, and obscure. His works have been frequently edited, both collectively and separately, particularly his Apology. Of the entire works, the editions of Rigaltius (Paris, 1641), and of Semler (Halle, 6 vols., 1770), are esteemed the best. The best edition of the Apology is that by Havercamp (Leyden, 1718, 8vo.). He is not to be confounded with St. Tertullian, who suffered martyrdom in 360.

TESCHEN; a town of Austrian Silesia, which gives name to a circle; thirty miles east of Troppau; lon. 18° 41′ E.; lat. 49° 43′ N.; population, 5379. The inhabitants carry on some commerce in leather, wood, and wine. Here is a manufacture of fire-arms, of a particular kind, called, from the town, *teschine.* In the year 1779 (May 13), a treaty of peace was concluded here between the emperor Joseph II. and the king of Prussia, Frederic II., which put an end to the war for the Bavarian succession. See *Bavaria, Maria Theresa,* and *Confederation of the Princes.*

TESSELLATED PAVEMENT (Lat. *tessella,* diminutive of *tessera*); a pavement of rich mosaic work, made of curious square marbles, bricks, or tiles, in shape and disposition resembling dice. Various ancient specimens of these have been from time to time exhumed in Italy and other countries of Europe.

TESSIN, OR TICINO; one of the Swiss cantons, bounded north by Uri, north-east by Grisons, south-east and south by Austrian Italy, south-west by Sardinian Milanese, and west by Valais. (See *Switzerland.*) The inhabitants are mostly Italians and Catholics. It is composed of what were formerly called the Italian bailiwicks, which, though long subject to Switzerland, were not formed into a canton till 1815. Bellinzona is the capital. It is extremely mountainous, the ramifications of the Alps dividing it into more than twenty distinct valleys. It has a mild climate; is well watered and fertile; and no country is more remarkable for scenery, at one time rich and beautiful, at another awful and sublime. The government has heretofore been unfavourable, the inhabitants ignorant and indolent, and agriculture and manufactures in a backward state. The first demands of reform in the cantonal administrations, in 1830, proceeded from Tessin, in which there had been many abuses in the government.

TESSIN, CHARLES GUSTAVUS, count of, was born at Stockholm, in 1695, and travelled, from 1714 to 1719, in Germany, France, and Italy. In the political discussions which arose in Sweden after the death of Charles XII., he declared for the party of the Hats, of which his influence caused the decided triumph. He was nominated president of the assembly of nobility in the diet of 1738. From 1739 to 1742, he resided as ambassador at Paris. From 1747 to 1752, the count had the direction of foreign affairs as president of the chancery; and, at the same time, he was appointed governor of the prince Royal, afterwards Gustavus III. He addressed to his pupil a series of letters relative to morals, politics, and administration, which have been translated into English and other languages. The English version is entitled Letters to a Young Prince (London, 1755, 8vo.). In 1761, he resigned all his employments, and settled at his estate of Akeroe, in Sudermania, where he died in 1770. He promoted the establishment of the academy of sciences at Stockholm; and besides his Letters, he wrote a number of discourses and essays. A description of a cabinet of natural history which he had formed, was published in 1753, under the title of *Museum Tessinianum.*

TEST ACT. See *Corporation and Test Acts*

TESTACEA. See *Conchology.*

TESTAMENT, OLD AND NEW. The practice of calling the Hebrew and Christian sacred writings the books of the Old and New Testament, arose from the language of the old Latin translation of these books (the *versio vulgata* or *vulgate*). The Latin word *testamentum* (will) was considered to correspond to the Greek διαθηκη, which often occurs both in the Alexandrian version of the Hebrew Scriptures, and in the sacred books of the Christian revelation, and which, properly, signifies a *covenant,* a *league.* As early as the patriarchal age, the divine revelations and instructions with which the Hebrews were blessed, were considered in the elevated light of a covenant between God and the patriarchs, and afterwards between God and the whole Hebrew nation. See the fifteenth chapter of Genesis, in which God confirms to Abraham the promise of the birth of Isaac and of the possession of Palestine by his descendants, by a solemn covenant. The law given on mount Sinai, and the whole Mosaic system of religious doctrines and ceremonies, were closely connected with these divine promises to the patriarchs and

their race, and, in fact, were but a further developement, or the perfect completion of them. The Mosaic dispensation was, therefore, in conformity to the divine will, represented as a league or covenant between God and the Hebrew nation; a league which solemnly engaged the Hebrews to worship Jehovah alone as the only true God, and to obey his commandments faithfully, while, in return, they received the divine promise that they should be regarded as a chosen people, while they continued faithful and obedient. (See *Exodus*, ch. xxiv, and *Jeremiah* xxxi, 22.) The intimate connexion which exists between the Hebrew revelation and the more perfect dispensation announced by Christ, for which, in the course of divine Providence, the former was but a preparation, would naturally lead Jesus and his apostles to designate the new religion as a new and more perfect covenant, made, through the mediation of Christ, between God and the whole human race, without distinction or exclusion. The sacred and elevated idea of such a covenant corresponds with the whole spirit and character of Christianity, considered as a positive, revealed religion. Whilst God proclaims, through Christ, forgiveness of sins and eternal happiness to all men who evince a firm, living, active faith in Jesus, men are bound, through Christ, to comply with these conditions of salvation. In this sense, the Christian Scriptures often speak of an old and a new, the first and the second covenant (see the *Gospel of St Matthew*, xxvi, 28; *St Mark*, xiv, 24; *Hebr.*, viii, 8. ix, 15; *Galatians*, iv, 24); and the Hebrew Scriptures themselves are called the *old covenant* (2 *Cor.* iii, 14). The language of the Bible itself sufficiently explains, therefore, why the early Christian church called its sacred writings the "books of the new covenant" (*sefrei haBrith*). The Latin vulgate, then, having, as we have before observed, used this expression *testamentum* (as in *Gen.* ix, 9, 12; xiii, 15), it became common to designate the Scriptures as the books of the *Old* and *New Testament*, in the sense of *old* and *new covenant* (see, for instance, Tertullian's treatises against Marcion, b. iv, ch. 1, and against Praxeas,) and not in the common sense of the word, *last will*.

TESTAMENT. See *Will*.

TESTUDO, in zoology. See *Tortoise*.

TESTUDO, in the military art of the ancients, was a kind of cover or screen which the soldiers (e. g., a whole company) made themselves of their bucklers, by holding them up over their heads, and standing close to each other. This expedient served to shelter them from darts, stones, &c., thrown upon them, especially those thrown from above, when they went to the assault.

Testudo was also a kind of large wooden tower, which moved on several wheels, and was covered with bullocks' hides, serving to shelter the soldiers when they approached the walls to mine them, or to batter them with rams.

TETANUS (from τείνω, I stretch); a spasmodic rigidity of the whole body. The body becomes stiff, the breathing heavy, but the senses remain uninjured. If the lower jaw is drawn to the upper with such force that they cannot be separated, the disorder is called *locked jaw* (*trismus*).

TETHYS; in mythology, the greatest of the sea deities, wife of Oceanus, and daughter of Uranus and Terra. She was mother of the chief rivers of the universe, such as the Nile, the Alpheus, the Mæander, Simois, Peneus, &c., and about 3000 daughters, called *Oceanides*. Tethys is confounded, by some mythologists, with her granddaughter Thetis, the wife of Peleus and the mother of Achilles. Her name signifies *nurse*, and seems to contain an allusion to the old notion, that water was necessary for the generation and nourishment of all things. The word *Tethys* is poetically used to express the sea.

TETRACHORD, with the ancient Greeks; a scale of four tones. The ancients divided their musical system into tetrachords, as we divide ours into octaves. Therefore they only required, in their singing schools, four syllables for solmization, whilst, in modern times, six syllables were introduced by Aretino. The tetrachords were originally only diatonic; at a later period, also, chromatic and enharmonic.

TETRAEDRON, or TETRAHEDRON, in geometry, is one of the five Platonic or regular bodies or solids, comprehended under four equilateral and equal triangles; or it is a triangular pyramid of four equal and equilateral faces.

TETRAGON, in geometry; a quadrangle, or figure with four angles.

TETRALOGY. See *Trilogy*.

TETRANDRIA; the fourth class in Linnæus's sexual system.

TETRAPLA; a Bible disposed, by Origen, under four columns, in each of which was a different Greek version, namely, that of Symmachus, of Aquila, of the Seventy, and of Theodotion.

TETUAN; a town of Morocco, on the northern coast of Africa, thirty miles south-east of Tangiers; lon. 5° 27′ W.; lat. 35° 20′ N.; population 14,000. It is about half a mile from the Mediterranean, inhabited by Moors (chiefly Andalusians) and Jews, who most of them speak Spanish. They are commercial, gentle in manners, and polite. The environs of this city are planted with vineyards and gardens, kept in good order, and the fruits here are better and more carefully nurtured than in the other parts of the empire. Tetuan was formerly the residence of the European consuls; but in 1770, an Englishman having killed a Moor, the reigning emperor declared that no European should again enter the town.

TETZEL, JOHN, a notorious vender of indulgences, was born at Leipsic, where he studied theology, entered, in 1489, the order of the Dominicans, and received permission to go into the world and preach. In 1502, he was appointed by the Roman see a preacher of indulgences, and carried on, for fifteen years, a very lucrative trade in them, practising the most shameful delusions upon the people. His life was so corrupt that, at Innspruck, he was sentenced to be drowned in a sack, for adultery. In consequence of powerful intercession, the sentence was mitigated to perpetual imprisonment. But being released also from this, he travelled to Rome, was absolved by pope Leo X., and even appointed apostolic commissary; and the archbishop of Mentz made him inquisitor. He now carried on the sale of indulgences with still greater effrontery, and travelled through Saxony in a wagon, provided with two large boxes, one of which contained the letters of indulgence, while the other was destined for the money obtained for them. The latter had the following inscription:—

Sobald das Geld im Kasten klingt,
S'obald die Seel gen Himmel springt

When in the chest the money rings,
The soul straight up to heaven springs.

He is said to have had ninety gold guilders a month, besides his expenses. In many towns, he was received with the ringing of bells, and every where levied large contributions, as he offered absolution for every crime, murder, perjury, adultery not excepted. He carried on this infamous trade unchecked, until Luther came out, in 1517, with his thesis against the crying abuse. These were answered by Tetzel; and the students of Wittenberg burned the answers in the market place. Tetzel himself received a severe reprimand from the papal chamberlain who was sent to settle the dispute. He died of the plague, in the Dominican convent at Leipsic. It is reported that Tetzel went so far as to give absolutions for crimes yet to be committed. It is well known that a great part of the money thus received was used for the erection of St Peter's church at Rome.

TEUCER; in fabulous history a king of Phrygia, son of the Scamander by Idæa. According to some authors, he was the first who introduced among his subjects the worship of Cybele, and the dances of the Corybantes. The country where he reigned was from him called *Teucria*, and his subjects *Teucri*. His daughter Batea married Dardanus, a Samothracian prince, who succeeded him in the government of Teucria.

2. A son of Telamon, king of Salamis, by Hesione, the daughter of Laomedon. He was one of Helen's suitors, and accordingly accompanied the Greeks to the Trojan war, where he signalized himself by his intrepidity. It is said that his father refused to receive him into his kingdom, because he had left the death of his brother Ajax unrevenged. This severity of the father did not dishearten the son; he left Salamis, and retired to Cyprus, where he built a town, which he called Salamis, after his native country. He attempted, to no purpose, to recover the island of Salamis, after his father's death. Some suppose that Teucer did not return to Cyprus, but went to settle in Spain, and thence into Galatia.

TEUTOBURG FOREST: the place where Arminius defeated the Roman general Quinctilius Varus, in the year 9 A. D. (For information respecting this important battle, see *Arminius* and *Varus*.) Tbough the ancients gave the name of the Teutoburg forest to the battle ground, and a wood in Lippe, near Paderborn, is still so called, it is not certain where the battle was actually fought, as the Romans probably comprehended under the name a more extensive tract than is at present understood by it. The most correct opinion is, perhaps, that which places it some leagues west of Pyrmont, at a place where remains of ancient walls, &c, have been found. The names of several spots, too, in that vicinity, have reference to the battle, as *Hermannsberg* (Arminius's mountain), *Varen* or *Varusbusch* (Varus's grove), *Kriegsbusch* (Wargrove), &c. There are fosses and redoubts, and two rows of graves, in which ashes, bones and arms are found, the latter having the appearance of German origin. There are many works relating to this point, among which we may mention that of W. Müller —*Vermuthungen über die Gegend, wo Hermann den Varus schlug* (Hanover, 1824, 4to., with a map).

TEUTONES; a warlike tribe, who with the Cimbri, Ambrones, and Tugurini, migrated, 113 B. C., toward Italy. Whence they came is uncertain; most probably, they were of the Germanic stock. After they and their allies had several times defeated the Romans, they were at length routed, 102 B. C., by Marius, near the site of Aix, in France —For more information, see J. C. Pfister's *History of the Germans from original sources* (1st vol. Hamburg, 1829, in German). See the following article.

TEUTONIC; that which belongs to the Teutones. Thus we say, "Teutonic tribes," and particularly "Teutonic stock of languages," by which all the languages of the Germanic family are meant. The name is not applied specially to the idiom of the Teutones, but is merely a scientific term, having reference to *Teut* (see *Tuiscon*) and *Teutschen*, or *Deutschen* (the name which the Germans give themselves), because *German* is now used more particularly of the modern German, and *Teutonic* suggests a time when the many languages, belonging to the same family, had not yet assumed the shape of distinct idioms. See the article *Germany*, division *German Language*.

The languages now classed under the Germanic or Teutonic family or stock, are the following:—1. Northern languages, to which belong, *a*. the Scandinavian, with its divisions—the Swedish, (comprising two dialects, those of Dalecarlia and Gothland), the Danish, and the dialects which are spoken in Norway and some of the Orkney islands: and, *b*. the Icelandic: 2. German, which is divided into *a*. the Franconian dialect, from which originated the Suabian (Alemannic) of the middle ages, the Upper German, and the (so called) Cimbrian; *b*. the Saxon or Sassic (to which belong the Anglo-Saxon, with its daughter, the English), and the dialect spoken in the lowlands of Scotland, similar, in many respects, to the parent stock; also the Lower Saxon, or *Plattdeutsch*, and the Frisian and Dutch; 3. the Mœsogothic, in which the most ancient monument of the Germanic languages, the translation of the Bible by Ulphilas, of the fourth century, is written. Others have divided the Germanic stock thus:—1. German branch, properly so called, embracing, *a*. Upper German; *b*. Lower German (the latter of which includes the Frisian, Netherlandish, and Dutch, and Lower Saxon, or *Plattdeutsch*); *c*. Central German; *d*. High German: 2. Scandinavian branch, comprehending, *a*. Danish; *b*. Norwegian; *c*. Icelandic; *d*. Swedish: 3. English, under which fall the Anglo-Saxon and Scottish.—Respecting the mixture of the Germanic stock in most of the languages of Europe, see the part of the article *Germany* already referred to.

TEUTONIC ORDER. This religious order of knights was founded, in 1190, by Frederic duke of Suabia, during a crusade in the Holy Land, at the time of the siege of Acre, and intended to be confined to Germans of noble rank; hence its name. The rule of the order was similar to that of the Templars. The original object of the association was to defend the Christian religion against the infidels, and to take care of the sick in the Holy Land. As the order was dedicated to the virgin Mary, the knights called themselves also *Brethren of the German house of our Lady of Jerusalem*. The dress of the members was black, with a white cloak, upon which was worn a black cross with a silver edging. The grand master lived at first at Jerusalem, but afterwards, when the Holy Land fell again under the power of the Turks, at Venice, and, from 1297, at Marburg. By degrees the order made several conquests, and acquired great riches. At the beginning of the fifteenth century, it had reached the highest pitch of its power. Its territory extended from the Oder to the gulf of Finland, and its annual revenue was calculated at 800,000

marks. But it afterwards gradually declined, in consequence of its luxury and dissensions In the year 1229, the Teutonic knights were called in by the Poles to aid them against the Prussians, who, also, after a war of fifty-three years, were forced to acknowledge the supremacy of the order, and to embrace the Christian religion. They also reduced the Sclavonian countries along the Baltic, particularly after their union (1237) with the Brethren of the Sword in Livonia. In 1309, the grand master fixed his seat at Marienburg, in Prussia. But the government of the order became so oppressive, that West Prussia submitted, in the fifteenth century, to Poland; and the order was obliged to hold East Prussia under the supremacy of Poland. The endeavour to acquire independence brought on a war with Poland, the result of which was, that the order lost also East Prussia, which, in 1525, was granted to the grand master, the margrave Albert of Brandenburg, as an hereditary duchy, under the sovereignty of Poland. Afterwards the head of the order, from 1527, had his seat at Mergentheim, in Suabia, at present part of the kingdom of Würtemberg, and became a spiritual prince of the empire. The eleven bailiwicks (provinces) were divided into commanderies, comprising together 850 square miles, containing 88,000 inhabitants. By the peace of Presburg, 1805, the emperor of Austria obtained the dignity, rights, and revenue of grand master of the Teutonic order. In the war with Austria, 1809, Napoleon abolished this order, at Ratisbon, April 24. Its lands fell to the princes in whose territory they were situated. The archduke Anthony calls himself at present, grand master of the Teutonic order in the empire of Austria.

TEVIOT, a river of Scotland, which rises in Mosspaul, on the borders of Dumfries-shire, passes by Hawick, and joins the Tweed at Kelso. The valley which it waters, comprising the most of Roxburghshire, is called *Teviotdale*.

TEWKSBURY; a town in England, in Gloucestershire, 103 miles west of London; lon. 2° 9′ W. It is situated at the conflux of the Severn and Avon, in a beautiful vale, and is a handsome town, consisting mostly of three principal streets. The houses are chiefly built of brick. The church called *Abbey church* is a noble pile of building, and one of the largest in England which is not collegiate or cathedral. It contains many interesting monuments, and is the only remains of the celebrated monastery of Tewksbury, founded by the Saxons, in 715. Tewksbury has been long noted for its mustard; but it is at present chiefly distinguished for its manufacture of stockings. It sends two members to parliament. Near this town was fought a bloody battle, between the parties of York and Lancaster, which put a final period to the power of the latter. The field on which it was fought, about half a mile from the town, is called *bloody meadow*. (See the articles *Edward IV.* and *Margaret of Anjou.*) Population of burgh and parish in 1831, 5780.

TEXAS; formerly a province attached to the viceroyalty of Mexico; afterwards, with Cohahuila, forming a state in the Mexican confederacy; for a short time anarchically independent; in 1846, made a state of the North American Union. Its contiguity to the States, and its rapidly increasing population, consisting chiefly of Anglo-American emigrants, renders it, although thinly peopled, and possessing little wealth, of great interest. Texas is, indeed, likely, at some future period, to become opulent, powerful and civilized, from the advantages of a soil of surprising fertility, a great facility of internal communication by means of numerous rivers intersecting it, and a geographical position highly favouring its intercourse both with the new and the old world. It has a seacoast 350 miles long, affording, by means of its numerous rivers, intercourse at a great number of points with the gulf of Mexico. Although the mouths of these rivers seldom admit vessels drawing more than ten feet of water, the Red river has depth sufficient for ships of 400 tons. (See *Red River*, and *Mexico, Gulf of.*) It is separated from Louisiana by the Sabine river, on the east, and from Arkansas, on the north, by Red river. The territory comprises 397,319 square miles, or 254,284,160 acres. Most of the productions of tropical climates grow here in great perfection, and the cotton is equal to the finest produced within the United States. The face of the country is generally level. The principal rivers are the Trinity, the Brassos (600 miles in length), and the Colorado (450 miles). An attempt was made, in 1827, to erect Texas into an independent republic, by the name of *Fredonia*; but it was easily put down by a small Mexican force, and the Fredonians were driven out of the country. In 1835, the inhabitants of Texas, aided by adventurers from New Orleans, declared themselves independent of the government of Mexico, and proclaimed war against that republic. On Feb. 28, 1845, the House of Reps., U. S., voted the annexation of Texas, by 130 to 98 voices; March 1, adopted by the Senate. It was enacted, that Texas be "divided into two parts;"—in that of the south, that is to say, from 36° 30′ latitude, "slavery is *permitted!*"

TEXEL, OR TESSEL; an island of the province of North Holland, about eleven miles in length, and six in its greatest breadth; lon. 4° 40′ E.; lat. 53° 5′ N.; population, 5000. It is situated at the entrance of the Zuyder Zee, and separated from North Holland by the narrow channel of Mars-Diep. The soil is well fitted for sheep pasture, and it is noted for cheese. It has a capacious and good harbour, and a fort, which commands the entrance. Besides the petty town of the same name, it contains six villages. The land is fertile in pasture, and the whole well secured with dikes of prodigious strength and height. Near this island was the celebrated sea-fight between the fleet of Holland, under admiral Tromp, and that of England, under admiral Blake, in 1653, in which Tromp was killed. In 1673, a battle was fought between the fleet of Holland and the united fleets of England and France.

TH. See *T*.

THAARUP, THOMAS, one of the most esteemed lyrical and dramatic poets of Denmark, was born at Copenhagen, in 1749, and died in 1821. Several of his productions have been translated into German.

THADDEUS, OR JUDE. See *Judas*.

THAIS, the mistress of Alexander the Great was a native of Athens. She is said to have instigated Alexander to set fire to Persepolis, the residence of the Persian kings, in revenge for the injuries done to her native city by Xerxes, and to have prompted him, when inflamed with drinking, to throw the first torch himself. She was afterwards the mistress, and finally became the wife, of Ptolemy, king of Egypt.

THAL; German for *valley* or *dale*; found in many geographical names, as *Schönthal* (Fair valley).

THALES, a native of Miletus, in Ionia, or, ac-

cording to some, of Phœnicia, the earliest philosopher of Greece, and the founder of the Ionian school, was born about 640 B. C., and at first turned his attention to politics, but subsequently devoted himself to philosophical studies. His political career could not have been very distinguished, since Plato classes him among those sages who had little concern in public affairs. In his mature years, he is said to have made several visits to Egypt, where he calculated the heights of the pyramids, and received instruction from the priests. From them he probably acquired a knowledge of geometry, in which, however, his researches seem to have carried him beyond his teachers. After his return, his reputation for learning and wisdom became so great, that he was reckoned among the seven wise men, and his sayings were in the highest esteem among the ancients. To the Ionians he gave the wise counsel to form a general confederacy, for the purpose of resisting the Persian power, and to make Teos the seat of the union. He also dissuaded the Milesians from entering into an alliance with Crœsus against Cyrus. These are the only accounts concerning the political life of Thales, which have been preserved to us. According to the most commonly received opinion, he died about B. C. 548, while present at the Olympic games, exhausted by heat and the infirmities of age. His philosophical doctrines were taught orally, and preserved only by oral tradition, until some of the later Greek philosophers, particularly Aristotle, committed them to writing several hundred years after his death. He considered water, or rather fluidity, the element of all things, and that every natural object had its peculiar fluid principle, which contributed to its preservation. He taught that all natural phenomena are produced by the condensation and rarefaction of water, and are resolvable into this element. Earth is condensed water; air is rarefied water; and fire rarefied air. If water is the origin of all things, it must not be considered as dead matter, but as a life-giving principle, which he also called the *soul of the world*, or the *divine principle*. When he taught that the universe was pervaded by demons, or spirits, and assigned a soul to inanimate objects, he meant that this creative, moving, forming power, was necessarily diffused and at work throughout the universe, as an essential property of the original principle. This notion also served to connect his philosophical system with the popular religion; but he did not confound these demons, or powers, with the natural objects which they governed. The philosophical doctrines of Thales are, however, but imperfectly understood, on account of the want of written memorials. Among his maxims, or prudential sayings, is the celebrated Γνωθι σεαυτον (Know thyself). The accounts of his physical and astronomical knowledge are very contradictory. He is said to have first divided the year into 365 days. The story that he foretold an eclipse of the sun, although he may only have indicated the year of its occurrence, implies a more correct knowledge of the solar system than he and his disciples appear, from the statements of Plutarch and Diogenes Laertius, to have possessed; that is, supposing his prediction to have been founded on his own observations and calculation. It is, however, probable that he may have become acquainted with the approach of an eclipse during his residence in Egypt, or through his connexions with the Phœnicians, who were skilful astronomers, or may have learned some mechanical method of calculatin it. At any rate, it is worthy of note, that the Ionic school first taught that the stars were merely material bodies, and not, according to the popular notion, divine beings.

THALIA; one of the nine Muses. She was venerated, by the country people, as the preserver of growing plants, and the inventress of agriculture and arboriculture. She was also the Muse of comedy, which had its origin in rural usages, and is usually represented with the comic mask, and the shepherd's crook (*pedum*) in her hand. (See *Muses.*) One of the Graces was also called *Thalia.* (See *Graces.*) The name signifies, in the original Greek, *flourishing, blooming.*

THAMAS KOULI KHAN. See *Nadir Shah.*

THAMES (anciently *Tamesis*); a river of England, which takes its source in the Cotswold hills, and forms a stream near Lechlade, navigable for barges. The chief spring, or Thameshead, is about three miles from Cheltenham, whence it proceeds to Oxford, Dorchester, Henley, Windsor, Staines, Kingston, Richmond, Brentford, Hammersmith, Battersea, Westminster, London, Greenwich, Woolwich, Gravesend, Tilbury Fort, and at the Nore joins the Medway, and enters the sea. The tide runs as far up as Teddington, about seventy miles from the sea. Large ships of war can go up to Deptford; merchant ships of 700 or 800 tons, as far as the port at London. The canal navigation of the Thames, as well as the docks, and other great works connected with it, are very complicated and extensive. The length is 230 miles. For an account of the docks, see *Docks*, and *London*, and for the Thames tunnel, the article *London.*

THAMYRIS, or THAMYRAS; a celebrated Thracian poet, who flourished anterior to Homer. He obtained the prize for singing at the Pythian games, and he accompanied himself on the lyre. Plato sets him by the side of Orpheus, Olympus and Phemius, and asserts that no one ever equalled him in singing or in playing on the flute and lyre, and that, therefore, after his death, his soul took up its residence in the body of the nightingale. Strabo compares him to Musæus. There is a well-known fable of his having challenged the Muses to a contest in singing. The latter were victorious, and punished his audacity by depriving him of his sight, and of his musical talents, and breaking his lyre. (*Iliad*, II., 595.) He is represented as the inventor of the Dorian mode. None of his productions have come down to us.

THANE; the name of an ancient rank among the English or Anglo-Saxons. Skene makes the thane to have been equal in dignity to an earl's son. Camden says, the thanes were only dignified by the offices which they bore. Their origin is referred to Canute. (See *Sword.*) A freeman, not noble, was raised to the rank of a thane by acquiring a certain portion of land, by making three voyages at sea, or by receiving holy orders. See the article *Britain*, division *Civil State.*

THANET, Isle of; a district of England, county of Kent, at the mouth of the Thames, separated from the main land by the river Stour on the south, and the Nethergong on the west. It extends about nine miles from east to west, and five from north to south. The soil is dry; the air pure and bracing; and the prospect extensive, comprehending an expanse of rich and highly cultivated fields, and a delightful view of the ocean, varied with the shipping continually passing and repassing. The towns are Margate, Ramsgate and Broadstairs, all

frequented for sea bathing. The population on the island is above 50,000.

THEANO; wife of Metapontus, king of Iauria. She was barren, and, her husband being greatly desirous of having heirs, she presented him some supposititious children as her offspring. She afterwards actually became a mother; and when her own children had grown up, she persuaded them to attempt the lives of the others, while engaged in the chase. In the struggle, however, her own children were slain, and Theano died of despair.

THEATINES; a religious order of regular priests, founded, in 1524, by St Cajetan of Thiene, and the bishop of Chieti (anciently Theate), who was afterwards pope Paul IV. They bound themselves, besides the usual monastic vows, to preach against heretics, to take charge of the care of souls, to attend the sick and criminals, and to trust entirely in Providence, having no property, and not even collecting alms, but expecting the voluntary gifts of the charitable. Some of their churches and altars are sumptuous. In Italy, and particularly in Naples, the order is numerous and influential; and the bishops are chiefly taken from their number. In Spain and Poland, it has also flourished considerably; but it has not extended much in other countries. *See Orders, Religious.*

THEATRE (from the *Greek*) signified, originally, that part of the playhouse where the spectators sat, but was often applied to the whole building. Among the Greeks and Romans, playhouses were the chief public edifices next to the temples: they were not then used merely for the purpose of amusement, but the exhibitions which took place in them had, in part, a religious character. Being consecrated to Bacchus (Dionysus), they were often called *Dionysian*, or *Lenæan theatres*; the pieces were termed *Dionysiacs*, and the actors *Dionysiac artists*. Every considerable Greek and Roman city had its theatre; but at first the dramas, and the places where they were exhibited, were equally rude. A hut, formed without art from the boughs of trees (whence the name scene), was the stage, where, at the feasts of Bacchus, dithyrambics, in honour of the god, were sung to the assembled multitude. Thespis wandered about with a wagon, and upon this performed his rude plays. Susarion (562 B. C.) exhibited his satirical pieces upon a stage of boards; and gradually the genius of Greece produced those master-pieces of architecture whose remains we still admire. The Romans, their imitators, surpassed them in the magnificence and size of their edifices. The first stone theatres were built in the Grecian colonies, in Etruria and Lower Italy; and at Adria, an Etruscan colony, the remains of a theatre are found, which is the oldest known. There were, likewise, stone theatres in Sicily sooner than in Greece; yet, in the seventieth Olympiad (500 B. C.), the theatre at Athens was of wood; but, as it fell down during the performance of a piece of Pratinas, on account of the immense multitude assembled, a building of stone was begun in the time of Themistocles, which was the first of the kind in Greece, was called the *theatre of Bacchus*, and afterwards served as a model for all the others. The common form of the theatre was a semicircle; that of the amphitheatre an ellipse. The Romans, likewise, for a long time, had only wooden buildings for their scenic representations. These, after the conclusion of the performance for which they were erected, were taken down; there was merely a stage for the players; the spectators were obliged to stand. Marcus Scaurus [illegible] (died 13 B. C.) first built a theatre with seats for the spectators. Julius Cæsar, the [illegible] Scaurus and Curio were erected, which were distinguished for their size and splendour, but were of wood, and, after the plays were over, were taken down. The theatre of Marcus Scaurus, a contemporary of Cicero and Cæsar, was exceedingly magnificent, and so large that it could contain 80,000 persons. The building was adorned with 360 columns, placed in three rows, one over the other: the lower row, thirty-eight feet high, was of marble, and ornamented with 300 statues; the second row was of glass; the third of wood gilt. The theatre of Curio was movable, and was converted from two theatres into an amphitheatre. Pompey was the first who erected a stone theatre in Rome, the remains of which now compose the palace Ursini. It was built after the plan of the theatre of Mitylene, and was finished under Caligula. It held 40,000 persons. After the erection of this, stone theatres were built not merely in Rome, but also in other cities of the Roman government. From this time, also, the stages were covered with marble, and sometimes with marble columns. At Nero's entertainments they were covered with gold; and as the whole of the theatre, and all that was put upon the stage, was gilt, or adorned with gold, the day in which this happened was called the *golden*. Before this time, in the Roman theatres, which, as is well known, had no roof, a covered colonnade was erected for the shelter of spectators in bad weather. This was also the case in the theatre of Pompey, which contained a place filled with trees and ornamented with fountains and statues. Some time after the Punic war, Quintus Catulus introduced into Rome, from Campania, the custom of covering the theatre and the orchestra with a cloth, to protect the people present from the weather. The cloths were commonly dyed with purple and other colours. In later times, the finest and most costly linen was employed; and Nero even appropriated to himself the purple vessel, adorned with gold, in the middle of which his image was wrought, surrounded with stars, guiding the chariot of the sun. In order to lessen the heat caused by such a mass of [illegible] in such covered theatres, very expensive means were resorted to. Pompey caused the passages and the steps leading to the seats, to be moistened with water. Afterwards, a mixture of wine and [illegible] was used, in which was steeped the [illegible] saffron, in order to produce an agreeable perfume. This was conducted through pipes concealed in the walls of the theatre, and was raised by pressure to the highest seats. There the pipes had very small openings, through which the liquid issued in a fine rain, and diffused coolness through the whole theatre. There was likewise sometimes a [illegible] mixed with the wine; and frequently the [illegible] with which the theatre was ornamented, were employed in sprinkling it, they being made [illegible] the wine carried through them in pipes. In theatres were built, whenever it was possible, [illegible] the declivity of a hill, in order to be able, [illegible] easily, to place the seats for the spectators [illegible] steps, one above another. If the place [illegible] it was necessary, of course, to support the [illegible] seats artificially. This was less frequently [illegible] the Greek theatres than in the Roman. The [illegible] of the building was a semicircle, the ends of [illegible] were somewhat prolonged, and were connected [illegible]

a straight part. It had three principal parts: 1st, the theatre, properly so called, that is, the place for the spectators, in the semicircle; 2d, the scene, or the place for the players, in the straight part; 3d, the orchestra, the place extending from the stage to the seats of the spectators. In these respects the Greek and Roman theatres were essentially alike. But they differed considerably in other particulars. (See *Orchestra*, and *Proscenium*.) To the machinery, especially the Greek, belongs, 1st, the machine, particularly so called, at the left entrance over the stage, in order to represent, in tragedy, the gods and heroes hovering in the air; 2d, the theologeion, over the stage, for representing the gods in Olympus; 3d, the crane, which was let down in order to raise a person quickly from the stage; 4th, the hanging cords, to support the gods and heroes hovering in the air. Other machines were placed under the stage; as, for instance one to elevate it.

Besides the theatres already named, the principal ones of antiquity were those at Segestus, Syracuse and Agyrium. The beautiful theatres at Corinth and Sparta (of which there are still remains), and at Epidaurus and Megalopolis, upon the island of Ægina, were probably the most magnificent in Greece. Of that at Epidaurus, extensive ruins are still to be seen. Of the ancient theatres in the Italian cities, we mention only those discovered in modern times at Herculaneum and Pompeii, and those at Iguvium in Umbria, at Antioch and Pola. In Rome, the most remarkable, besides the theatre of Pompey, were the theatre of Cornelius Balbus, and that of Marcellus, which could contain 22,000 men. In the interior, as well as the exterior, the theatres of the present day differ essentially from the Greek and Roman.

The term *theatre* is also given to buildings for the delivery of anatomical lectures, accompanied with dissections; also to the body of pieces, in any language, written for representation; thus we say, the *French theatre*, the *English theatre*, &c.

THEBAID, or THEBAIS. See *Statius*.

THEBES; an ancient city, and capital of Egypt, in the Thebaid, or Upper Egypt, on both sides of the Nile, about 260 miles south of Cairo. Thebes is famous as "the city of a hundred gates," the theme and admiration of ancient poets and historians, the wonder of travellers—"that venerable city," in the language of doctor Pocock, "the date of whose destruction is older than the foundation of other cities, and the extent of whose ruins, and the immensity of whose colossal fragments, still offer so many astonishing objects, that one is riveted to the spot, unable to decide whither to direct the step or fix the attention." These ruins extend about eight miles along the Nile, from each bank to the sides of the enclosing mountains, and describe a circuit of twenty-seven miles. The most remarkable objects on the eastern side are the temples of Carnac and Luxor; and on the western side are the Memnonium, or palace of Memnon, two colossal statues, the sepulchres of the kings, and the temple of Medinet Abu. The glory of Thebes belongs to a period prior to the commencement of authentic history. It is recorded only in the dim lights of poetry and tradition, which might be suspected of fable, did not such mighty witnesses remain to their truth. At the time of the Persian invasion, Memphis had supplanted Thebes; and the Ptolemies afterwards removed the seat of empire to Alexandria. Strabo and Diodorus described Thebes under the name of *Diospolis*, and gave such magnificent descriptions of its monuments as caused the fidelity of those writers to be called in question, till the observations of modern travellers proved their accounts to have fallen short of the reality. At present, its site presents only a few scattered villages, consisting of miserable cottages, built in the courts of the temples. The ancient structures, however, remain in a state of wonderful preservation. Almost the whole extent of eight miles along the river is covered with magnificent portals, obelisks, decorated with the most beautiful sculpture, forests of columns, and long avenues of colossal statues. The largest of these temples, and of any in Egypt, is that at Carnac, on the site of the ancient Diospolis. Diodorus describes it as thirteen stadia (about one and a half mile) in circumference, which nearly agrees with the observation of Denon. It has twelve principal entrances; and the body of the temple, which is preceded by a large court, consists of a prodigious hall or portico, the roof of which is supported by 134 columns, some twenty-six, others thirty-four feet in circumference; four beautiful obelisks then mark the entrance to the shrine, which consists of three apartments, built entirely of granite. About one and a fourth mile above Carnac is the village and temple of Luxor. This temple, though not of such vast dimensions as that of Carnac, is in a superior style of architecture, and in more complete preservation. The entrance is thought to surpass every thing else that Egypt presents. In front are the two finest obelisks in the world, formed of rose-coloured granite, and rising, as Denon supposes, after allowing for the portion buried in the ground, to the height of 100 feet. But the object which most attracts attention consists in the sculptures which cover the east wing of the northern front. They contain, on a great scale, a representation of a victory, gained by one of the ancient kings of Egypt over their Asiatic enemies. The number of human figures introduced amounts to 1500, 500 on foot and 1000 in chariots. The Memnonium (see *Memnon*), and the temple of Medinet Abu, are objects of great interest, both for the grandeur of their architecture and the richness and variety of their sculptures. The tomb of Osymandyas, the temple of Isis, the labyrinth, and the catacombs, also lie on the western side of the Nile. In the interior of the mountains which rise behind these monuments are found objects less magnificent and imposing indeed, but not less interesting—the tombs of the kings of Thebes. Several of these were opened by Belzoni, and were found in a state of great preservation, with mummies in the sarcophagi, as well as dispersed through the chambers. The colossal statues have excited great admiration. The largest has been broken off at the waist, and the upper part laid prostrate on the back. It measures six feet and ten inches over the front, and sixty-two feet round the shoulders. Two other colossal statues, about fifty feet high, are seated on the plain. Champollion (*Précis du Système Hiéroglyphique*) has deciphered many of the inscriptions on these ruins. That the magnificent ruins of Carnac, Luxor and Medinet Abu are the remains of the hundred-gated Thebes, the earliest capital of the world, cannot be doubted. According to the measurement made by the French, the distance of these ruins from the sea on the north amounts to 680,000 metres (850 miles), and from Elephantine on the south to 180,000 metres (225 miles), corresponding exactly with the 6800 and 1800 stadia

of Herodotus (ii, 9). Without including the Hippodrome and Medamud (an Arab village), the circumference of the ruins is about 15,000 metres, agreeing with the 140 stadia (17½ miles) mentioned by Diodorus (i, 45) as the circumference of Thebes. The origin of the name of this celebrated city, as well as the date of the foundation, is unknown. *Thebæ* of the Greeks is, perhaps, derived from the Egyptian *Thbaki* (the city); and the *No-Ammon* of the Hebrews, and *Diospolis* of the Greeks, are mere translations of the Egyptian *Thbaki-antepi-Amoun* (city of the Most High).—See Champollion, *Egypte sous les Pharaons*, i, 218; and the great work of the French government, *Description de l'Egypte* (12 vols., folio, 25, 8vo.).

THEBES (Θῆβαι); the capital of Bœotia, and one of the most celebrated cities of Greece, the birth-place of Pindar, Epaminondas and Pelopidas. It was situated on an elevated level, on which were the sources of the Dirce and Ismenus. Cadmus, leading thither a Phœnician colony, is said to have founded the city by building the citadel called *Cadmea* (B. C. 1500). Amphion built the city around it, and enclosed it with a wall, having seven gates, which he called from the names of his seven daughters by Niobe. The circuit of the city is said to have been almost seventy stadia. The environs were adorned with meadows and gardens. To the east was the celebrated fountain Œdipodia, in which Œdipus purified himself after the murder of his father. The city, once the first in Greece, contained many splendid temples and public buildings, with numerous statues. In the time of Pausanias (viii, 33, 1), with the exception of the citadel and the few houses contained in it, it was merely a heap of ruins. The Theban government was at first monarchical, and three dynasties successively occupied the throne: 1. the Cadmeans, the descendants of Cadmus, till Antesion; 2. the three Sparti, Amphion and Zethus, during the minority of Laius, and Creon between Laius and Œdipus; 3. the Bœotians, or last kings. The sons of Œdipus, Eteocles and Polynices, fell in single combat, each by the hand of the other, after the latter had called in the Argives to his assistance. Laodamas, son of Eteocles, next ascended the throne, during whose minority his great uncle Creon acted as regent. The Argives, who still continued the war, were all slain except Adrastus, at whose suit Theseus marched against Creon, slew him, and compelled the Thebans to suffer the burial of the Argives, which they had hitherto prevented. The sons or grandsons (Epigoni) of the slaughtered princes, ten years later, revenged the death of their ancestors. The war called the "expedition of the seven against Thebes," and the war of the Epigoni, are celebrated in the early Grecian annals. Led by Alcmæon and Thersander, the Epigoni conquered and destroyed Thebes (about 1215 B. C.), and put to death, or drove out, Laodamas. When Xanthus, the last king of the Thebans, fell in single combat with Melanthus, king of Athens, a democratical form of government was substituted for the monarchical in Thebes (about 1126 B. C.) Thebes now aspired, in rivalry with Athens and Sparta, to obtain the supremacy in Greece. But the inactivity of the Thebans, and their perfidious leagues with the Persians, obstructed the growth of their power. Their Bœotian towns fell off, and an alliance with Sparta, concluded with the design of recovering their former ascendency in Bœotia, proved ineffectual. Athens took the Bœotians under her protection, and Thebes lost her dominion over Bœotia, which now became subject to the Athenians. In the Peloponnesian war, the Thebans rendered the most important services to the Spartans; and they were successful in several subsequent wars against Athens and Sparta. But Phœbidas, the Spartan commander, finally possessed himself of the Cadmea, and the aristocratical party in Thebes gained the upper hand. All sorts of oppression and injustice were committed, until Pelopidas and Epaminondas headed a conspiracy which put an end to the tyranny by the death of the tyrants (B. C. 378). These two chiefs were therefore named Bœotarchs amid the acclamations of the people. The Spartan Cleombrotus invaded Bœotia for the purpose of punishing the authors of this revolution; and Athens, although it had favoured the conspiracy, abandoned the Thebans; but Pelopidas, to excite the Athenians against Sparta, instigated Sphodrias, who had been left in command of the Spartan forces by Cleombrotus, to attack the Athenian port Piræus. He was repulsed, and Athens immediately declared war against Sparta. The allies now gained several victories; but Athens finally concluded a peace with the Lacedæmonians, under the mediation of Persia. Thebes, nevertheless, continued the war, to preserve Bœotia, and gained those brilliant victories under Epaminondas and Pelopidas, which suddenly raised her above all the Grecian states. Nearly all of the Peloponnesians took part against Sparta, and formed alliances with Thebes. The Persians and Athenians now joined the Lacedæmonians, but were unable to effect much: and the war continued with almost uninterrupted success on the side of the Thebans till the battle of Mantinea (B. C. 363), in which Epaminondas fell. A general peace was then negotiated by the mediation of Artaxerxes, in which each party was left in possession of its own territory. Thebes, although for some time still formidable, now began to decline. In the sacred war (so called because it was undertaken on account of the alleged encroachments of the Phocensians on the possessions of the Delphic temple, and during which they stormed and plundered the temple), in which all the Grecian states finally became involved, Thebes took part against Phocis (354 B. C.), and subsequently entered into an alliance with the Athenians, and other Greeks, against Philip of Macedon. After the battle of Cheronæa, it was obliged to receive a Macedonian garrison, and recall the exiles. After Philip's death, an insurrection broke out in Thebes, and an attempt was made to drive the Macedonians from the Cadmea. But Alexander hastened to their relief, captured and destroyed (B. C. 335) the city, and reduced the inhabitants to slavery. Twenty years afterwards, Cassander rebuilt Thebes; but it never recovered its former importance. In the war of the Romans against Mithridates, king of Pontus, it joined the latter out of gratitude to Athens, and was severely chastised by the Romans. From this time, the Thebans disappear more and more from history. In its most flourishing period, Thebes was a very populous city. The inhabitants, like those of Athens, were divided into three classes—citizens, strangers, and slaves. The city was, in a certain degree, the head of Bœotia, and was the leading power in a confederacy composed of several Bœotian cities. Public affairs were discussed by the four councils of the four districts into which Bœotia was divided, and which, together, chose eleven

Bœotarchs, and decided in a general council composed of delegates from each town. The latter assembly convened at Thebes. The city had its own senate: the command, in war, and the administration of justice, were intrusted to the Bœotarchs and polemarchs, who were chosen annually. Merchants and mechanics could become citizens, but could not hold office. Children who could not be supported by their parents were not, as in other Grecian cities, exposed, but sold to some wealthy citizen as slaves. The Bœotian cities often attempted to dissolve their connexion with Thebes, and render themselves independent, but rarely with success.

THEFT. See *Larceny*.

THEISM. See *Deism*.

THELLUSON, Peter; a native of Geneva, descended from an ancient family of French Protestants, who settled as a merchant in London, and acquired an immense fortune. He died at his seat at Plastow, in Kent, July 21, 1797. The testamentary disposition which he made of his property was not a little extraordinary. To his widow and children, three sons and three daughters, he bequeathed about £100,000, and the remainder, amounting to more than £600,000, he left to trustees, to accumulate during the lives of his three sons, and the lives of their sons; then the estates directed to be purchased with the produce of the accumulating fund, to be conveyed to the eldest male descendant of his three sons, with benefit of survivorship. This singular will, being contested by the heirs at law, was finally established by a decision of the house of lords, June 25, 1805. It, however, occasioned the passing of the act of parliament of the 39th and 40th of George III., cap. 98, restraining the power of devising property, for the purpose of accumulation, to twenty-one years after the death of the testator. In case there should be no such heir as the devisee described in the will, the accumulated property is to be added to the sinking fund.

THEME, in music, is a series of notes which is taken as the text of a new composition.

THEMIS, goddess of order among the Greeks, was the daughter of Cœlus and Terra (Heaven and Earth); according to some, of Helios, or the Sun. Jupiter was inflamed by her charms; and, although she for a long time avoided his embraces, her footsteps finally betrayed her near Ichnæ, in Macedonia, and she became the wife of the god of gods. She bore him the Hours and the Fates (Parcæ); and her daughter Dikè (see *Hours*), the goddess of justice, is often confounded with her. According to Homer, she dwelt in Olympus, and attended to the just distribution of food at meals, and to every thing relating to the preservation of order. Orpheus (Hymn lxxviii.) sings of her: the black-eyed goddess first presided over the Delphic oracle, and delivered oracles to the gods: she taught Apollo right and justice: she instructed mortals in the holy rites of Bacchus: from her come all the mysteries and divine worship. It was Themis who warned Jupiter and Neptune not to marry Thetis. According to Homer, she sits by the side of Jupiter, and converses with him.

THEMISTO. See *Athamas*.

THEMISTOCLES, a Grecian commander, was born at Athens (B. C. 514), and early displayed a remarkable energy of mind. He paid little regard to morals and to the fine arts, which formed the chief objects of attention in the education of the Athenians, but eagerly studied the political sciences. Love of glory was his ruling passion. After the victory at Marathon, he was observed to be peculiarly thoughtful; and, on being asked the reason, he replied, "The trophies of Miltiades will not let me sleep." His conduct was marked by many extravagances and excesses; and, in order to acquire notoriety, he exhibited public spectacles, and exceeded his means in his expenditures. The Athenians were at that time divided into two parties, the aristocratical and the democratical. Themistocles courted the favour of the latter, while Aristides (q. v.) was connected with the former. His suppleness, and his ability in the administration of public affairs, soon gained him great reputation; but his fame was less pure than that of Aristides, and his patriotism was weaker than his ambition. Although the Persians had been repulsed by their defeat at Marathon, Themistocles foresaw that they would, nevertheless, renew the war; and he prevailed upon the Athenians to apply the product of their silver mines, which had previously been distributed among the citizens, to the augmentation of their navy. During the exile of Aristides, Themistocles enjoyed the greatest influence in Athens. Three years afterwards, Xerxes renewed the preparations for the subjugation of Greece, and summoned the Greeks to submit to him. According to Plutarch, Themistocles instigated the Athenians to put to death the Grecian interpreter who bore this message; but, according to Herodotus, it was at the time of the first Persian invasion, that an act of this kind was committed. Themistocles exhorted the Greeks to forget their domestic divisions, and to unite in opposition to the common enemy. He prevailed upon Epicydes, whose nomination to the post of commander-in-chief had been procured by intrigue, to resign that place for a sum of money, and obtained his own appointment to the command. His advice to occupy the pass of Thermopylæ (see *Thermopylæ*, and *Leonidas*) was, however, neglected, and Bœotia was soon entirely overrun by the enemy, who immediately began to advance upon Athens. In this emergency, Themistocles, supported by the reply of the Delphic oracle, which had been consulted at his suggestion, proposed that the Athenians should convey their women and children to places of security, abandon their city to the Persians, and that all who were capable of bearing arms should take to their ships. This proposition was acceded to, and all the exiles, among whom was Aristides, were recalled. The latter now gave his support to his former rival. The command of the allied fleet, though consisting chiefly of Athenian ships, was intrusted to Eurybiades, a Spartan. The latter, rendered insolent by his elevation, threatened to strike Themistocles, in consequence of some expression which fell from him, while consulting concerning the plan of operations: "Strike, but hear," replied Themistocles, calmly; and Eurybiades listened to his arguments, and adopted his proposition. The consequence of this measure was the battle of Salamis (B. C. 480), in which the Persian fleet was almost totally destroyed, and Greece was saved. The chief glory of this victory is due to Themistocles, who, before and during the battle, displayed not less valour than prudence and genius for command. He now advised the allies to sail to the Hellespont, and destroy the bridge of boats which Xerxes had constructed there, in order to intercept the retreat of

the Persians. His advice was not followed, from fear of the consequences of driving an enemy, still formidable by his numbers, to despair. Themistocles, however, sent word to Xerxes that the Greeks meditated the destruction of the bridge, and thus hastened his retreat out of Greece. Artifice and cunning, which now too often displayed themselves in acts of injustice, were leading traits in his character. While he besieged Andros, he extorted contributions of money from the neighbouring islands, by threats of invasion, and applied it to his own purposes. Another time, while he lay with a fleet at Pegasa, in Magnesia, he announced to the Athenians that he had a proposition to make to them, the execution of which would be highly advantageous to the state, but that he could not deliver it in public. Aristides was therefore sent to receive it in private. He declared to the citizens that the project of Themistocles was in the highest degree advantageous, but equally unjust; and it was therefore voted not to adopt it. The plan of Themistocles was to burn all the ships of the fleet except those of the Athenians, and thus to give Athens the dominion of the sea. The victory of Salamis had raised the fame of Themistocles throughout all Greece to the highest pitch; and his services were acknowledged and rewarded, not only by his native city, but by the other states. After Athens was rebuilt, Themistocles proposed that all the citizens should be admitted to participate in the government, and that the archons should be chosen from the whole body of the people without distinction. This proposition was adopted; but his plan of fortifying Athens, so as to render it secure against surprise, although received with favour by the Athenians, aroused the jealousy of the Lacedæmonians. They accordingly opposed the design, under the pretext that, if it should again fall into the hands of the Persians, it would serve as a strong-hold from which they would be able to conquer all the other Grecian states. Themistocles was sent to Sparta to conduct the negotiations on this matter. By various delays and artful evasions, he contrived to protract the final decision so long, that the Athenians were enabled, by great exertions, to complete their walls before the Spartans were aware of it. He then broke off the negotiations, and maintained that whatever was advantageous to one's country was just. It was by his influence, also, that the Piræus, the principal port of Athens, was constructed, and connected with the city by the Long Walls. While Themistocles was thus acquiring the gratitude of his country, he drew upon himself the hatred of the Spartans, not only on account of the deception which he had practised upon them, but also by his obstructing their project to place themselves at the head of the Grecian states. They had proposed that all of those states which had not taken part in the Persian war should be excluded from the Amphictyonic council. Themistocles perceived that this measure, by excluding Thebes, Argos, and other powerful cities, from the Grecian confederacy, would give Sparta the ascendency. He succeeded in preventing its adoption; and the Lacedæmonians therefore leagued themselves with his enemies in Athens, to effect his overthrow. His own manners were by no means calculated to conciliate his enemies, and he was banished from Athens (B. C. 471) by the ostracism. While in exile at Argos, Pausanias, the Spartan, communicated to him a plot against the freedom of Greece, in the hope that Themistocles, under existing circumstances, would be induced to favour it. But he rejected the proposition, without, however, betraying Pausanias, after whose death the letters of Themistocles were found, which proved that the subject had been discussed between them. The Lacedæmonians accordingly accused him to the Athenians of being an accomplice in the conspiracy; and he was summoned by the latter to answer for his conduct in presence of the Grecian states. Fearing the result of such an investigation, Themistocles retired to Corcyra, to the inhabitants of which he had rendered important services. Not feeling secure here, he withdrew to Epirus, and afterwards sought the protection of Admetus, king of the Molossians, whom he had formerly offended. To assure himself a friendly reception, he seized an opportunity to throw himself upon his knees before the household gods of Admetus, with the king's son in his arms. But the vengeance of the Spartans pursued him even here. They threatened to make war upon Admetus, if he should continue to protect the traitor, as they termed Themistocles. Admetus therefore supplied him with money, and sent him to a port on the Ægean sea, whence, after several adventures, he reached Asia in safety, and finally arrived at the Persian court. A price of 200 talents had been set on his head by the king Artaxerxes Longimanus; but he procured access to Artaxerxes, and received himself the 200 talents which had been offered for his head, with the promise of greater rewards, in case he would give information concerning the state of Greece. The discourse which he is said to have addressed to the king on this occasion, and the letter to Artaxerxes, which is attributed to him, are undoubtedly spurious. He asked for time to learn the Persian language; and, in the space of a year, he was able to appear at the royal court like a native. His address and talents gained him the favour of Artaxerxes, and he was treated with the greatest distinction. The close of his life is enveloped in obscurity. Plutarch relates that, an insurrection having been excited in Egypt against the Persian government, by the intrigues of the Athenians, Artaxerxes prepared to send an army against Greece, and called upon Themistocles to fulfil his previous promises of assistance; and that, to avoid bearing arms against his country, Themistocles, after having sacrificed to the gods, and bade his friends farewell, took poison at Magnesia (B. C. 449), in the sixty-fifth year of his age. Thucydides merely says that he died of a disease. Plutarch and Cornelius Nepos have each left us a life of him. The twenty-one letters which are ascribed to him (edited by Schötten, 1710, and by Bremer, 1776) are proved by Bentley, in his Dissertation on the Letters of Phalaris, to be spurious.

THEOBALD, Louis, a miscellaneous writer, was the author of various works, critical, poetical and dramatic, but merits remembrance only as a commentator on Shakspeare, being the first who properly referred to the books and learning of that great dramatist's time. After publishing, in 1726, a work entitled Shakspeare Restored, he gave an edition of that author, which immediately followed the publication of that of Pope, from whom, although in correspondence with him, he concealed his design; hence his place as the hero of the Dunciad. Besides twenty dramatic pieces written by himself, he produced on the stage, in 1720, a tragedy entitled the Double Falsehood, which he at-

tributed to Shakspeare, but which, in the opinion of doctor Farmer, belongs to Shirley. He died in 1744.

THEOCRACY (from θεος, God, and κρατος, power) is that government of which the chief is, or is believed to be, God himself, and the laws the commandments of God. The priests, in such a government, are the promulgators and expounders of the divine commands, the representatives of the invisible Ruler, who, however, can also call other persons to this dignity. (See *Hebrews*, and *Moses*.) In early periods, in which belief predominates over the spirit of investigation, theocracy will often enjoy more authority than other forms of government. The human and divine are yet mixed, and the law is considered as sent from above.

THEOCRITUS, the chief of pastoral poets, was born at Syracuse, and flourished about B. C. 280. Having gone to Egypt, he was treated with much distinction by Ptolemy Lagus and Ptolemy Philadelphus, but afterwards returned to Syracuse, where he is said to have been put to death by Hiero II., on account of some offensive expressions. We have under his name thirty idyls, or pastoral poems, of which, however, several are probably by other authors. Although he is one of the oldest idyllic poets whose works are known to us, he is not to be considered the first who wrote in this manner, which originated, and was carried to perfection, in Sicily. Most of his idyls have a dramatic form, and consist of the alternate responses of musical shepherds. Writing in the Doric dialect, which is peculiarly adapted to the simplicity of rural life, his language is strong and harmonious. The best editions of his works (which are usually joined with those of Moschus and Bion) are Reiske's (Leipsic, 1765), Warton's (Oxford, 1770, 2 vols., 4to.), Valkenaer's (Leyden, 1773, 1779, 1781 or 1810), Kiessling's (Leipsic, 1819), Scheefer's (1809—1812). Elton's Specimens of the Classic Poets (3 vols., 8vo., 1814) contains translations from Theocritus in English verse.

THEODICÆA (from θεος, God, and δικαιω, I acknowledge as right, vindicate); a vindication of the Deity in respect to the organization of the world, and the freedom of the human will. The word is not happy, as God does not need a defence: a theodicæa is rather a defence of theism against atheism, which Leibnitz first undertook on a broad scale, by publishing, in French, in 1710, his *Essai de Theodicée* (Essay towards a Theodicæa), respecting the Goodness of God, the Liberty of Man, and the Origin of the Bible. In this work Leibnitz maintained the notion that God had chosen, among all possible worlds, the most perfect. This was called *optimism*, and gave rise to much discussion until the second half of the eighteenth century. Voltaire attacked it with the weapons of wit in his *Candide*. Plato, St Augustine, Thomas Aquinas, and, among later writers, particularly Campanella, have attempted to reconcile human liberty and evil with the power and holiness of God. J. J. Wagner has published a new Theodicæa (Bamberg, 1809). Every theodicæa must lead to teleology. (q. v.)

THEODOLITE. This instrument serves to measure angles between heavenly bodies, as well as objects on the earth, with great accuracy. The theodolite consists of two concentric horizontal circles, the inner of which has, at the ends of one of its diameters, two perpendicular columns, on which rests the horizontal axis of a small meridian telescope. The vernier of the inner circle is made fast to an arbitrary division line of the outer one, and both circles are moved together with the telescope, until the object sought for appears in its field. The outer circle is now fixed, and the inner one is turned round, until the telescope strikes the second object, whose angular distance from the first is to be measured. The inner circle is now fastened to the outer, and, by means of the micrometer screw, the thread of the telescope is brought exactly upon the object. The arc which the vernier of the inner circle has described on the outer one, now measures the angle which the two objects make at the common centre of the two circles. Of late, several improvements have been made in this instrument.

THEODORA; empress of the East, the wife of Justinian, famous for her beauty, intrigues, ambition, and talents. Her father was the keeper of the beasts for public spectacles at Constantinople, and she herself was a dancer at the theatre, and a courtesan notorious for her contempt of decency, before her elevation to the throne. Justinian saw her on the stage, and made her his mistress during the reign of his uncle Justin, whose consent he at length obtained for his marriage with Theodora; and a Roman law, which prohibited the marriage of the great officers of the empire with actresses, was repealed in her favour. She was crowned with Justinian in 527; and the death of Justin shortly after left her in possession of sovereign authority, through the blind partiality and weakness of her imperial consort. She made use of the power she had attained to raise from obscurity her friends and favourites, and to avenge herself on her enemies. According to Procopius, she continued to indulge herself in the most degrading sensuality after she became empress; and if the disgusting detail which he gives of her crimes is to be believed, seldom, indeed, has a brothel been disgraced by scenes of more infamous profligacy than those exhibited in the palace of Theodora. With all her faults, however, this woman displayed courage and presence of mind in circumstances of difficulty and danger; for in the alarming sedition at Constantinople, in 532, her counsels animated Justinian, and induced him to forego his inglorious design of fleeing before the rebels, who were subsequently reduced to subjection by Belisarius. Theodora died of a cancer, in 548, much regretted by her husband. See Gibbon's *Decline and Fall*, ch. xl.

THEODORE, king of Corsica. See *Neuhof*.

THEODORIC, king of the Ostrogoths, surnamed the Great, descended of the royal Gothic race of the Amali, was born near Vienna, in the year 455. His father, Theodomir, was one of the three brothers who jointly ruled the Ostrogoths settled in Pannonia; and he sent him, when only eight years of age, to Constantinople as a hostage, to secure the conditions of a treaty between the Goths and the emperor Leo. After residing two years with that emperor, he was restored to his father, then sole monarch of the Ostrogoths, under whom he gave various indications of his warlike spirit and ability for command. On the death of Theodomir, in 475, he succeeded to the crown, and commenced a course which, after menacing the safety of the Greek empire, and Constantinople itself, terminated in an expedition against Odoacer, who had assumed the title of king of Italy. After several bloody engagements, the latter was finally induced to yield, on condition that he and Theodoric should govern Italy with equal authority. The murder of Odoacer at a banquet soon followed this agreement; on which Theodoric caused himself to

be proclaimed king of Italy—a title that the emperor Anastasius was reluctantly obliged to sanction. However indefensibly he acquired dominion, he governed with extraordinary vigour and ability. He attached his soldiers by assigning them a third part of the lands of Italy, on the tenure of military service; while, among his Italian subjects, he encouraged industry and the arts of peace. He even improved the administration of justice, and, though a Goth, was so far from delighting in the destruction of public monuments, that he issued edicts to protect them at Rome and elsewhere, and assigned revenues for the repair of the public edifices. Able in peace, and victorious in war, he maintained the balance of the West until it was overthrown by the ambition of Clovis, who slew Alaric, the Visigoth king, the remains of whose family and property were saved by Theodoric, who also checked the victorious Franks in their further career. Like his ancestors, he was an Arian, but was indifferent to controversy, and never violated the peace or privileges of the Catholic church. The particulars of the government of this memorable prince, who shed a short-lived lustre on the Gothic name, are recorded in twelve books, by his secretary, the senator Cassiodorus, a man of learning, who induced his illiterate master to become a patron of letters. Towards the close of his reign, an intolerant edict of the Byzantine court against the Arians in its dominions, induced Theodoric, against his usual policy, to meditate a retaliation against the Catholics of Italy, which, however, was prevented from taking place by his death. It is to be lamented that an act of tyranny against two exemplary characters, Boethius (q. v.), and Symmachus, his father-in-law, closed his career. These senators were both put to death, on the mere suspicion of an intrigue between a senatorial party and the imperial court. This cruel act had no sooner been perpetrated, than Theodoric was seized with remorse; and a fever ensued, which terminated his life in three days, in 526, the seventy-second year of his age, and fifty-second of his reign. The ordinary residence of this king was at Ravenna, above which city his daughter Amalasuntha (left regent of Italy until the majority of one of her nephews) erected a splendid monument to his memory. See Gibbon's *Decline and Fall*, ch. xxxix, and the article *Goths*.

THEODOSIUS, surnamed the Great, a Roman emperor, was the son of a distinguished general of the same name, who was executed for the alleged crime of treason, at Carthage, in 376. He was born about 346, at Canca, in Galicia, or, according to some accounts, at Italica, near Seville. At a very early age, he obtained separate command; but, on the execution of his father, he sought retirement, until selected by the emperor Gratian, in 379, for his partner in the empire. To his care were submitted Thrace and the eastern provinces, which he delivered from an invasion of the Goths. This emperor distinguished himself by his zeal for orthodoxy and intolerance of Arianism, which he put down throughout the whole of his dominions. In the space of fifteen years, he promulgated the same number of edicts against heretics; and the office of inquisitors of the faith was first instituted in his reign. He liberated the provinces from the barbarians with great prudence and diligence, and, in the various warlike and other proceedings of his reign, showed himself an able and equitable monarch, except when under the influence of resentment or religious zeal. On the defeat and death of Maximus, he became the sole head of the empire, although he administered the affairs of the West in the name of Valentinian, the son of Gratian, then a minor. He passed three years in Italy, during which period the Roman senate, which still chiefly adhered to the old religion, begged permission to restore the altar of victory—a request which he at first was inclined to grant, until prevented by St Ambrose, who also induced him to pardon some zealots for having burned a Jewish synagogue. In 390, a sedition took place in Thessalonica, the result of which has branded the name of Theodosius with great odium. The origin of the catastrophe was in itself very trivial, being simply the imprisonment of a favourite charioteer of the circus. This provocation, added to some former disputes, so inflamed the populace, that they murdered their governor and several of his officers, and dragged their mangled bodies through the mire. The resentment of Theodosius was natural and merited; but the manner in which he displayed it was in the highest degree detestable and inhuman. An invitation was given in the emperor's name, to the people of Thessalonica, to an exhibition at the circus, and when a great concourse of spectators had assembled, they were massacred by a body of barbarian soldiery, to the number, according to the lowest computation, of 7000, and to the highest, of 15,000. For this atrocious proceeding, Ambrose, with great courage and propriety, refused him communion for eight months; and the docile, and, it is to be hoped, repentant Theodosius humbly submitted. About this time, the pious emperor crowned his merits, as a foe to paganism, by demolishing the celebrated temple of Serapis, and all the other heathen temples of Egypt; and he also issued a final edict, prohibiting the ancient worship altogether. On the murder of Valentinian by Arbogastes, and the advancement of Eugenius in his place, the emperor carried on a war against the latter, which finally terminated in his defeat and death. Theodosius did not long survive this success; but after investing his sons, Arcadius and Honorius, with the Eastern and Western empire, he was carried off, at Milan, by a dropsical disorder, in January, 395, in the fiftieth year of his age, and sixteenth of his reign. He died possessed of a distinguished reputation, which was much confirmed by his services to orthodoxy and his docility towards the priesthood. He was doubtless a man of considerable abilities, and possessed many public and private virtues, which, however, will scarcely excuse the fierceness of his intolerance, or the barbarity of his anger and revenge. See Gibbon's *Decline and Fall*, ch. xxvi, xxvii, and xxviii.

THEOGNIS of Megara lived between 560 and 470 B. C., at a time when the popular party had gained the ascendency in his native town. He and many others of the aristocratic party were in consequence banished. During his banishment, which he spent partly in Sparta, partly in Sicily, partly in Thebes, or immediately after his return to Megara, he wrote his maxims and moral precepts in elegiac verse. Their aristocratic tendency is explained by the circumstances of his life. They are among the most valuable remains of the gnomic poetry of the Greeks, and have recently been arranged and illustrated in the edition of Welcker (1826), in a new and ingenious way.

THEOGONY is the doctrine of the generation and descent of the gods, as drawn from the ancient

mythuses. The most ancient Greek theogony known to us is that of Hesiod.

THEOLOGY (from θεὸς *God*, and λόγος *doctrine*) the doctrine which God has communicated; or, λόγος περὶ τοῦ Θεοῦ, the doctrine concerning God and divine things. It is the science which treats of the existence of God, his attributes, the relations in which he stands to us, our state and history as spiritual and moral beings, and the divine will regarding our actions, present condition, and ultimate destiny, and other subjects connected with these. The term theology was first used by the heathens, and applied by them to the productions of their theogonists; and of those who speculated on the nature, government, and worship of God. Orpheus, Musæus, Hesiod, &c., were called theologians, and Plato was more deservedly honoured with the same title. Aristotle gave the name of theology to metaphysics, dividing theoretical philosophy into three parts, *physical*, *mathematical*, and *theological*. Plato mentions two kinds of theology, the symbolic, and the philosophic; the former exhibiting its doctrines under material *emblems*, the latter giving *explanations* of things spiritual and divine. Varro, as quoted by Augustine, gave a threefold division: according to him there was the *mythic* theology, or that of the poets; the *political*, or that of the priests and common people; and the *physical*, or that which was taught in the schools of the philosophers.

This word is not used in the bible. To express the idea we attach to it, the sacred writers employ such expressions as "the wisdom of God in a mystery,' 1 Cor. ii. 7; "the form of sound words," 2 Tim. i. 13; "the truth which is after godliness," Tit. i. 1; and "sound doctrine," Tit. i. 9. We have also in scripture the words of which this term is compounded; as τὰ λόγια τοῦ Θεοῦ, *the oracles of God*; and λόγος τοῦ Θεοῦ, *the word of God*, Mark vii. 13; Rom. iii. 2; Heb. v. 12; I Pet. iv. 10. The fathers of the church applied it peculiarly to that part of Christian doctrine which treats of the divinity of Christ. Hence the apostle John, in the title which from early times has been prefixed to the book of Revelation, is called "the divine," or *theologian*, because he insists on that doctrine more than any other inspired writer; and Gregory Nazianzen was greeted with the same epithet, because of his orations on that subject. Hence, also, they made a distinction between *Theology* and *Economy*; referring the former to the *divinity*, and the latter to the *incarnation* of the Saviour: and with them, Θεολογεῖν Ἰησοῦν, signifies to treat of the divine nature of Jesus. (Euseb. lib. v. c. 28.; Basil. con. Eunom. lib. ii. Nazianz. Orat. 42 et 49.) They spoke, in like manner, of the Theology of the Trinity. Yet the more extended application of the word was not unknown among them, denoting the whole system of divine truth, or the holy Scriptures themselves in which it is contained. It must be theology limited in such a way as we have mentioned, and viewed chiefly as the knowledge of God's existence, nature, mode of subsistence, perfections, and purposes, to which some more modern divines have referred, in certain nice distinctions they have stated regarding it. For example, they tell us that it is to be considered, first as *archetypal*, secondly as *ectypal*. Archetypal theology is the knowledge which God has of himself; ectypal is the same knowledge as it is, in some degree, communicated to others. This latter again is subjected to a threefold distinction; first, as communicated to Christ, by means of the hypostatical union; secondly, as to angels and men in heaven, by means of their vision and fruition of God; and, thirdly, as to men in this world, by means of revelation. Now it must be confessed, that no part of God's knowledge has been derived from any external source; that such as it is, such as it shall at any time be, such from eternity it has been, without the possibility either of diminution or of increase; and that it is by knowing himself, and his plans and purposes which are not really distinct from himself, he foreknew all that should happen, and knows what at any time is taking place. But, at the same time, a little reflection must convince any one, that of much of our theological knowledge, God is not the immediate and proximate object; he is its object only remotely and ultimately.

In reference to the sources whence it is derived, theology is distinguished into *natural* and *supernatural*. The source of the former is the light of nature; we obtain it by the unassisted powers of our own minds,—by the exercise of reason, and the suggestions of conscience. The source of the latter is revelation: it embraces what we may have learned otherwise, states it more definitely, and establishes it by additional and higher evidence; it makes known what it would not have entered into the heart of man to conceive; and it verifies what, but for it, man could not rationally have believed, because, but for it, he could have had no proof that it was true. These two sciences, though thus distinguished from each other, are not in opposition: they differ in respect of the sources whence they are derived, the extent of knowledge they convey, the kind of evidence by which they are confirmed, and their importance to man in his present fallen condition; but they must be in perfect harmony. Right reason rejects no advantage that is proffered to man, for it knows itself to be the gift of God, seeks not proudly to be independent of Him who gave it its being, nor blasphemously boasts itself to be the crowning boon, in addition to which there can be nothing in all the treasury of the All-sufficient, which we may desire and He may confer. Nor does supernatural theology contradict right reason, or divest it of any office which legitimately belongs to it. A single absurdity, any thing that can be denounced as unreasonable, would show it to be not theology, but an imposture bearing its revered name. God speaks to us "in divers manners,"—by reason, which is his minister, and by revelation, which is his own voice; but always as the God of truth. The superior dignity of one thing does not necessarily diminish the inferior dignity of another: it is only envy in the heart of man that teaches him to think otherwise. There is not, and there cannot be, any attainment or endowment in the creature, which cannot be enlarged or exalted, or any combination of advantages to which an addition is impossible: between him and absolute perfection there will still be an infinite distance.

NATURAL THEOLOGY teaches the existence of God; that he is possessed of certain perfections, the signatures of which are perceptible upon his works; that he governs the world; that it is our duty to honour and please him, by the practice of piety, justice, and benevolence; that the soul of man is immortal; and that there is a future state, in which the righteous will be rewarded and the wicked punished. If these are not its only doctrines, they are, at least, those which reason has shown itself most capable of demonstrating and defending, and

in which the consciences of men have most generally acquiesced. Our natural knowledge of these things has by many been supposed to originate in some innate idea or ideas, such as that of the existence of God; some notion or notions common to all mankind: and even the bible has been appealed to as asserting this. (Acts xiv. 15, 16, 17, and xvii. 23; Rom. i. 19. and ii. 14.) Little as we might have expected it, considering the theological systems of the different parties, this view was long held by the doctors of the Reformed churches, in opposition to the Socinians, and the greater number of the Arminians. (Alting. Theol. Elenct. Loc. i.; Turrett. Theol. Loc. i. 9, 3; Socini Prælect. c. ii; Ostorod. Instit. c. iii; Vorst. Exeg. Apolog.) Among philosophers, too, it has had many defenders. But while the scriptures referred to are altogether guiltless of deciding either one way or another on this point, it is certain that there are now few or no believers in the existence of innate ideas of any kind, and that if not nations, yet individuals, have been found in a savage state, who had no notion either of the existence of Deity, or the excellence or obligation of a single religious duty.

When we look at the natural theologian employed in his vocation, we see him deducing arguments from the works of God, and by these establishing the doctrines of his system; but it has been much disputed, whether these doctrines are inferences to which he would have been led by his unassisted reason thus employed, or whether they are truths which he must first know, before he would ever think of demonstrating them in this way. Reason, it is said, can prove, but never could have discovered them; and certainly it is unspeakably easier to find out proofs of a truth already suggested to us, than by a slow induction of particulars to discover it while it is unknown. The suggestion, it is insisted, came from revelation, though the demonstration from what we are, and from what is and happens around us, is to be ascribed to reason, except in so far as revelation has fitted us by its illumination for conducting our arguments with greater success. On the other hand, it is maintained that reason can both make the discovery and produce the demonstration; and a third party hold that it can do neither the one nor the other, and that natural theology, if not an entire delusion, is yet altogether unsatisfactory. This last sentiment is held not only by the enemies of all religion, but also by some who thus seek to exalt the honour of the word of God. To attempt here a discussion of the whole question would be out of place. Reason, we may remark, signifies, in relation to this subject, the intellect of man, under the guidance and influence of his moral faculties, exercised, without any supernatural assistance, in the investigation of religion. Still further, reason thus defined may be understood in two senses, and what is true of it in the one, may be false in the other. First, it may signify the intellectual ability with which man was endowed at his creation, and which we may conceive to have been as sufficient to direct him in his original state, as instinct is to direct the lower animals, both being perfect in their kind. Secondly, reason may signify the intellectual powers of man in his present state, when he feels the effects of the fall in all his faculties, and both his mind and conscience are defiled. It is evidently with reason in this latter sense of the term, that we have at present to do: it is therefore vain to argue from what reason, abstractly considered, may be presumed to be able to accomplish; it is vain to tell us, that reason being the gift of God must be perfectly sufficient to direct men in all the parts of their duty, and that we cannot be responsible, if God does not give the means of acquiring the knowledge of it; and it is equally vain to suppose that revelation, as a supplementary means, is a reflection upon the wisdom of God, as if he had not adapted man to his situation, and had to devise a new expedient for correcting the error. The question is not what reason might or may have been, and what, in given circumstances, it might be able to accomplish; but what it is able to do, as it is enfeebled, enslaved by man's sinfulness. Such a question, sound philosophy tells us, is not to be settled by general reasonings, but by matter of fact: in one word, what reason can do in theological discovery, can be satisfactorily determined only by inquiring what it has actually done; its power must be judged of by its effects, and its excellence tested by experience. A large induction of particulars has been made to prove the insufficiency of reason to discover the principles of natural theology, and may be found in the treatises which have been composed on this subject. Nor should it be overlooked, that the solitary strength of reason has never been tried: men, we may assert, have never been without revelation, for though it was in a great measure lost among the nations of the world, some fragments of it still remained, and tradition has always been supplementary to reason. Besides, when we trace natural religion to the early periods of its history, we find it wholly traditional. It "was not disputative till it came into Greece: the ancient professors had no controversies about it; they received what was handed down to them, and out of the treasure of their traditions imparted to others; and the principles they went upon to teach or to learn by, were not to search into the nature of things, or to consider what they could find by philosophical examinations, but *Ask and it shall be told you; search the records of antiquity, and you shall find what you inquire after:* these were the maxims and directions of their studies." (Shuckford, vol. i, Preface 47. 48.) It is also undeniable, that the more that philosophers had the means of intercourse with those countries on which the light of revelation had once shone, and the more it can be shown to have been possible that any of them may have derived knowledge from that people to whom were committed the written oracles of God; the more purely, extensively, and powerfully are they found to exhibit the truths of religion and morality. Not only do we seem to be indebted to revelation for our knowledge of the doctrines of natural theology, but also for much of our ability to establish them by argument. Notwithstanding all that Gentile philosophers may have accomplished, the most triumphant demonstrations are to be found only in the writings of those who have had direct access to the word of God. Ignorance and error obstructed the path of the former, along its whole course. The existence of God could be but inconsistently demonstrated by those who believed in the eternity of matter; the immortality of the soul, by those who never dreamed but that it was material.

Natural theology is altogether inadequate for those purposes for which such knowledge is needed by man. To oppose this statement, some have ranked among its tenets that God will forgive those who repent. But whence can reason infer this, and how can it demonstrate it? Do we see the

evil consequences of sins ceasing to afflict a man because he is penitent? Is he delivered from these consequences even when he refrains from repeating the transgressions by which they have been entailed upon him? If then we have, in the present life, no certain indication that pardon is granted, have we any testimony from reason about the world to come, to assure us that the blessed effects of forgiveness will be enjoyed there? That world is beyond the sphere of man's unaided speculations. Besides, the adequacy of any theological system must be tested chiefly by the morality which may be evolved from its doctrines, and the righteousness of life to which it effectually guides and excites. Now we must here again make our appeal to experience. It will not do to put us off with vague generalities about what the theology of nature must be capable of effecting. The proper question is a simple one: what has it done? In the moral systems of the philosophers, some duties of great importance are omitted, and some things which they call virtues turn out to be vices. According to Cicero, virtue proposes glory as its end, and looks for no other reward. Zeno maintained that all crimes are equal, and that a person, who has offended or injured us, should never be forgiven. It was his opinion, as well as that of other philosophers, that the crime against nature is a matter of indifference. The Cynics held that there was nothing shameful in committing acts of lewdness in public. Aristippus affirmed, that as pleasure was the *summum bonum*, a man might practise theft, sacrilege, or adultery, as he had opportunity. Besides their morality, imperfect as it was, wanted authority; it had little or no power over the conscience; and the motives by which it was enforced, were not of sufficient efficacy to counteract the innate propensity to evil, and to overcome the strong temptations to which men are daily exposed. Hence a general depravity of manners prevailed, of which, corrupt as Christian countries are, we can hardly form a conception: a depravity which extended not only to the lower and uneducated classes, but to the higher and better informed, and even to the very men who professed to be teachers of wisdom. We are apt to impose upon ourselves, or to be imposed on by others, when we are thinking of the heathen philosophers. We look upon them as sages, who spent their days in the study and practice of virtue. But the particulars of their history which have come down to us, and the testimony of some of their own order, will correct this mistake, and show us that they were unprincipled declaimers, whose infamous conduct daily gave the lie to their eloquent harangues. Suspicion rests upon the most celebrated names; and with respect even to Socrates, the visit which he paid to an Athenian courtezan, to see her beauty, and to teach her more perfectly the arts of seduction, and the profane oaths with which his conversation was interlarded, with some other particulars in his history, place him at an immense distance from the lowest member of a Christian church. Were this wisest of men according to the oracle, this pattern of every excellence according to the nonsensical panegyrics of pedants and fools, now to appear among us, no man with correct ideas of piety and morality, would choose to be seen in his company. (Dick's Lectures, vol. i. pp. 22, 23.)

Supernatural Theology is altogether founded on divine revelation, or information supernaturally communicated to us; not merely information concerning truths which lie beyond the range of reason, but also the publication, with new evidence and lustre, of such truths as are within its reach, but of which, in its present corrupt state, it had not been able to form distinct conceptions. The extent of this theology must therefore have been, at all times, exactly commensurate with the extent of revelation vouchsafed by God. It never could go beyond this without ceasing to be supernatural. Nor does this show it to have been necessarily very limited in the number of its doctrines even in the earliest periods of its history. Of that history we have but an imperfect sketch. For example, from the few particulars respecting the Antediluvians which Moses has transmitted, we could not have inferred that the doctrine of a general judgment formed part of their religious knowledge; yet it is as certain as any part of the Mosaic history, that the second coming of Christ, the judgment of the world by him, and something of the terrible sublimity with which this is to be attended, were articles of the faith of the people of God among them. "Enoch the seventh from Adam prophesied, saying, Behold, the Lord cometh with ten thousand of his saints, to execute judgment upon all, and to convince all that are ungodly among them, of all their ungodly deeds which they have ungodly committed, and of all their hard speeches which ungodly sinners have spoken against him." (Jude 14, 15.) Substantially the same system of doctrine which we at present profess, was made known to our first parents after the fall, and has been received and acted upon by the people of God in every subsequent age. Yet there has been a gradual developement of what is implied in this system. The full evolution of the human body, from the seminal principle in the womb of the parent, is the work of years, and so is the growth of plants and trees. Light increases slowly, from the faint dawn in the east to the full splendour of noon-day. Religious knowledge has advanced to its present state by a similar process. At first it was like the seed which the husbandman throws into the soil, which although containing the germ of the future plant, gave no promise to the eye of what it would become; but under the care, and by the renewed influences of Heaven, it has waxed greater and greater, and now it is presented to us in all its luxuriance and beauty. It is a body of doctrine which it is necessary for us to know. Natural religion is not suited to our circumstances, for it holds out no hope to the guilty, and in the present enfeebled and corrupt state of our moral powers, its duties are absolutely impracticable.

Supernatural theology, as a science, may be viewed in various aspects. He that is ignorant of the endless and subtle disputes which have arisen concerning almost every article of faith, takes up his bible as the word of God, and by a short and easy process, acquires that measure of knowledge, which, through the teaching of the divine Spirit, makes him wise unto salvation. Man may in various ways unfit himself for discovering what the scriptures really teach, and may delude himself into the belief that he finds in them those doctrines which he wishes to be true, but the fault is in himself; the word of God remains the same as ever it was, —a revelation made to the most simple, as well as to the most learned, and to honest and humble inquirers quite and easily intelligible on every subject which it is absolutely necessary and most important for us to know. But the deep things of God

are not to be left unexplored; the errors, mistaken interpretations, and false reasonings of men are not to be allowed to remain unmolested; and hence theological science embraces a wide range, and breaks forth both on the right hand and on the left.

The primary work of a theologian must be the consideration of the evidences of Christianity. He must ascertain what revelation is, and where it is to be found. For this purpose he must ascertain that the books of the Old and New Testaments are genuine and authentic. He must ascertain that they are *genuine*, that is, that they are really the composition of the authors whose names they bear; for, it is only on the supposition of this, that we can believe the report of supernatural facts in them to be true, and that it was not rejected by those who were cognizant of these reported facts; and that what are exhibited as predictions, were written prior to the events which they profess to foretell. He must also ascertain their *authenticity*, that is, that what they give forth as a statement of facts, is really such. To this he must add the whole body of arguments, by which the system of truth contained in them is proved to be divine; he must elucidate the nature and characteristics of inspiration itself; and he must satisfactorily determine what the particular books are, in which the dictates of inspiration may be found. When he has done all this, he has before him the source whence all his doctrines are to be derived; the authority by which they are all sanctioned; and the basis on which his belief of each of them is to rest. Here what is strictly and properly theology commences, and we may now give some account of the various aspects in which it may be contemplated, and the different parts of which it may be regarded as composed.

Exegetical Theology is first in natural order: it is also, in many respects, first in point of importance: it consists in the interpretation and explanation of the scriptures. If revelation is the only source of theological doctrines, and the standard to which they are to be conformed, too high a value cannot be set upon accurate exegesis, or the correct and certain evolution of the sense of its different announcements; and since many passages of the bible have long had different meanings attached to them, by different classes of persons, and since there is thus the mist of preconceived opinions, and, it may be also, the distorting medium of inveterate prejudice, thrown between us and the exhibitions of truth in the scriptures, it is evident that the true interpretation may often be very far from being satisfactory to us. For this reason, and for various others which may easily be conceived, exegetical theology must have something by which to find its way, and something to which to appeal in vindication of the results of its labours. For these purposes it makes use of hermeneutics, or the science of interpretation, which comprises and exhibits the principles and rules according to which the meaning of an author may be judiciously, accurately, and satisfactorily ascertained. Thus exegetical theology, when properly conducted, is nothing more than the practical application, to the scriptures, of the theory and precepts of sacred hermeneutics. The Christian church is becoming extensively alive to the truth of this remark, and nothing can augur better for its peace,—that peace which is the result of the triumph of sound doctrine, and the destruction of those errors which deface her beauty and mar her prosperity. For this consummation we must look to the labours of wise, learned, candid men, in this department of the sacred science, and not to the mere repetition of ancient glosses, or the production of new and ingenious comments, or the profound reasonings of the metaphysician, or the subtle arts of the logician. The history of this important branch of theology is in many respects truly humiliating, and fraught with lessons of admonition and caution. Even in the first century, though the generality of those who performed the office of interpreters, studied above all things plainness and perspicuity, yet several adopted the absurd and corrupt custom used among the Jews, of darkening the plain words of holy scripture, by insipid and forced allegories, and of drawing them violently from their proper and natural signification, in order to extort from them certain mysteries and hidden meanings. The epistle of Barnabas, which is yet extant, and which certainly belongs to the first century, whoever may have been its author, is a proof of this. So rapid was the declension thus begun, that of the commentators of the second century, of whom we have any account, there was not one who did not attribute a double sense to the words of scripture: the one sense obvious and literal; the other hidden and mysterious, which lay concealed, as it were, under the veil of the outward letter. The former they treated with the utmost neglect, and turned the whole force of their genius and application to unfold the latter. In other words, they were more studious to darken the holy scriptures with their idle fictions, than to investigate their true and natural sense. Some of them also forced the expressions of sacred writ out of their obvious meaning, to apply them to the support of their philosophical systems; a custom most pernicious, which has much prevailed, and of which Clemens of Alexandria is said to have given the first example. The critical principles, if such they deserve to be called, of those who were not content with the literal meaning of scripture, were, in the third century, reduced into a system by the celebrated Origen. In his Stromata, book x., he says, "The source of many evils lies in adhering to the carnal or external part of scripture. Those who do so, shall not attain to the kingdom of God. Let us, therefore, seek after the spirit and the substantial fruit of the word, which are hidden and mysterious." And again, "The scriptures are of little use to those who understand them as they are written." The hidden sense he divided into moral and mystical. "The moral sense of scripture displays those doctrines that relate to the inward state of the soul, and the conduct of life. The mystical, or spiritual sense, represents the nature, the laws, and the history of the spiritual or mystical world. We are not yet at the end of the labyrinth: for he subdivided this mystical world of his own creation into two distinct regions, the one of which he called the superior, i. e. heaven; by the other, or inferior, he meant the church. This led to a division of the mystical sense, into an earthly or allegorical sense, adapted to the inferior world, and a celestial or anagogical one, adapted to the superior region." (Mosheim, Cent. 3, ch. 3.) Not widely different from this is the system of the Schoolmen, as expressed in the following verses,

"Litera gesta docet, quid credas allegoria,
Moralis quid agas, quo tendas anagogia."

Origen's method of interpretation was that which came to be almost universally followed. Among the commentators there were, indeed, not a few

honourable exceptions: even in the fourth century we not only find some following the natural signification of the words, but also Augustine and Tychonius attempting to establish plain and wise rules for the interpretation of scripture; but the multitude of them followed the path of absurdity, and all of them found it easy to attribute the whole of their own foolish fancies to one or other of the senses of the bible, till at last in the dark ages they ceased and feared to invent new fancies for themselves, and contented themselves with retailing and venerating the follies of those who had gone before them. The expositions of scripture which in these and in various other corrupt ways, may have obtained a place in the church, may possibly be very numerous; the only prospect of their detection and extirpation, the only preventive of new unwarranted interpretations, and thus the purification of our religious knowledge, and the pacification of the contending parties in the Christian world, mainly depend on the successful cultivation of exegetical theology. Every opinion should be brought to the test of God's word; and every proof brought from thence for its confirmation, should be justified by the common principles of interpretation, as applicable to the inspired records: thus the truth of God will shine forth in its own unclouded brightness; and the voice of the divine oracle distinctly heard, will hush the clamours of contention, and relieve the doubting mind from its fears and anxieties.

Didactic Theology, which has been also called *dogmatic*, has, for its province, to state and explain the several doctrines of religion, and to point out their proofs. Thus it may be considered as that which gathers up and exhibits the results of the labours of the exegetical theologian; for it should derive all its doctrines from the scriptures, and establish their truth by showing whence it has taken them. It is true that there are those who would reduce theology to the standard of reason, and try every doctrine by its test; but it is one thing to say, that religion cannot contradict reason, and another thing to say, that it cannot go beyond and rise above it, and that reason must be supreme judge in all that pertains to it. How is it possible to reconcile naked *Rationalism* with a sincere belief of the inspiration of the scriptures? Can any man consistently say, God has certainly spoken this, but I must yet judge for myself, whether it is true or false? With mere Rationalists we should not reason out of the scriptures, for our labour will be in vain: they need first of all to be instructed and convinced in respect of the divine origin of our religion, and the claim which the announcement of the divine will has to the unwavering assent of the whole mind and heart. Some of them may be ignorant of the length to which their favourite principle should lead them; but the more acute are well aware of it, and probably the greater part of them, at the present day, are nothing more than *naturalists*, that is, they reject every thing supernatural in religion: not only the mysteries in its doctrine, but also the miracles by which it has been attested are at once swept away, and the inspiration of scripture either denied, or so explained as to mean nothing. Thus in Germany, Socinianism under the name of *Neology*, has unreservedly thrown aside its mask and its borrowed garments, and displayed to view its real features and its true dimensions, but still insisting on being reckoned genuine Christianity. "Many of the Neologists are mere Materialists, Deists, or Pantheists, who regard all revelation as nothing but a mass of superstition, imposture, and delusion. Others admit the principal facts contained in the scriptures, but endeavour to account for many of them from natural causes. They deny every thing supernatural or miraculous, and regard our Saviour merely as a divine messenger, sent like Socrates, Plato, Luther, &c., to teach and improve mankind. The design of Christianity, according to them, was the introduction of a system of religion comprehensible by human reason, and corroborative of its principles as already existing. They treat the Bible precisely as they would any other book of antiquity, not believing in its divine inspiration and authority, and rejecting its books at pleasure. The doctrines of Christ and his apostles they consider as strongly tinctured with Jewish prejudices; and they ascribe the extraordinary displays of knowledge and wisdom in our Saviour, to the precocity of his understanding. Some of them deny that he actually died when on the cross; and others maintain that he never ascended into heaven, but continued on the earth, made himself known to Saul of Tarsus, &c. They ascribe the great change which took place in the disciple of Gamaliel, to mortified pride; his Jewish brethren having turned their backs upon him, on account of his acceptance of the privilege of Roman citizenship. To be revenged upon them, he set himself strenuously to oppose their narrow and contracted notions, and to establish an universal religion, to which he found the doctrines of Christ were favourable." They hold, says Dr Tholuck, that what Jesus of Nazareth really taught, can now no more be known with certainty; that his originally simple doctrine has been greatly corrupted by Paul, who engrafted upon it the important articles of original sin and redemption, which he had borrowed from his own Jewish theology; and that these came afterwards to be regarded as Christian doctrines, though nothing can be more contrary than they are to the understanding. (Menzies' Tholuck on Romans, Preface, p. 9.) Fearfully as these men have erred, miserable as is their system of theology, they are yet not very inconsistent Rationalists: but not so those, who admitting the inspiration of the scriptures, yet reject every thing which their reason cannot grapple with and master. Is there nothing that will necessarily be mysterious to us, in the nature of things, and more especially in the nature and purposes of the infinite God? When he condescends to instruct us, is it not reasonable to expect that we shall be taught some things which we cannot discover for ourselves, or perfectly comprehend? Is it of no use to know the existence of a thing, and the purposes to which it is applied, unless we can also adequately comprehend its nature? Surely the authority of God is sufficient to prove the truth and establish the importance of any statement, however dark or mysterious it may be, and the true theologian assents to it with reverence, and places it among the doctrines of his system. Yet he will not act thus with any absurdity, and any thing that is an outrage on right reason: neither of these will be admit; not, however, because he allows reason the place of supreme judge, but because neither of these can possibly be found in a revelation from God. Either of them occurring in what he had supposed to be a revelation from God, would make him ponder well whether he was not mistaking its meaning, and would then send him to re-consider the pretended evidences of its inspiration by which he must have been imposed upon.

Do we then say that the exercise of reason is to be wholly discarded in reference to all that pertains to supernatural theology? No: there is nothing that calls it into more vigorous or more delightful exercise. Yet it is allowed only a servant's place, and is called to perform only a servant's work: the inadequate manner in which it frequently does this, should teach us to rejoice that there is One above it to control and assist it, even in its humble sphere. What purposes then does it serve? Its *first* office is to judge of the evidence of the truth of religion; the external evidences and the internal evidences that the bible is an inspired book, that all the parts of it are inspired, and that therefore our religion is from God. This work can be performed by no other, and reason is sufficient for it, for here there is nothing mysterious, nothing which is not as plain to a common understanding, as the subjects which the mind is called upon to consider in the common course of affairs. Its *second* office is to examine the contents of revelation, to ascertain the sense of the words and phrases in which it is expressed, to bring to the illustration of it our previous knowledge of subjects connected with it, to trace the relation of its parts, and to draw out in regular order the system of doctrines and duties which it teaches. The communication of a revelation to us implies such an exercise of reason on our part; and but for this it might as well have been addressed to the beasts which perish. Its *third* office is to compare opinions with scripture; if they agree with it, to approve them; and if they are contrary to it, to refute them. It is not the weight that is used in the balances of the sanctuary, and according to which doctrines are found to be sufficient or wanting; but it is the hand which uses the balances, and the eye that detects the result. Its *fourth* and last office is to deduce inferences from the plain announcements of scripture, either as these are viewed individually, or as two or more of them are taken in connection. On this we shall make some remarks immediately. Meantime, it is evident, from what has been said, that reason is not exiled from the regions of theology, and that the purposes it serves are most important. Still even in using it for these purposes, instead of complaining that the sphere of its activity is too limited, we need to bear in mind the apostolic caution, "Beware lest any man spoil you through philosophy and vain deceit, after the tradition of men, after the rudiments of the world, and not after Christ."

We have said that it is one of the legitimate offices of reason to draw inferences from the plain announcements of scripture. This is an important remark in relation to didactic theology, for it is acted on to a very considerable extent. Its justness has been frequently denied and much declaimed against. Nothing, it has been said, can be admitted as a doctrine of supernatural theology, except what is expressly stated in scripture, and to elevate to an equality with that, those things which we think proper to infer from it, is to endanger the purity of sacred truth, and grant to reason an authority tantamount to that of the word of God. In this there is some appearance of reasonableness and prudence, but there is only the appearance of these. "Nothing is more plain than that, when a proposition is laid down from which certain inferences naturally arise, it is the office of the understanding to draw the conclusions, and to rest in them with equal confidence, as in the premises from which they are deduced. This is the mode of procedure of all intelligent creatures, in the matters to which they turn their attention. Human knowledge would be exceedingly circumscribed and imperfect, if our views were strictly confined to facts, and there would be of little use, if we were not permitted to deduce from them observations and maxims for the regulation of our conduct. Had every thing which it is useful for us to know, been delivered in express terms in the scriptures, the bible would have been too voluminous for common use; and besides, such minuteness was not necessary. God speaks in it to men who are capable of reasoning on the ordinary affairs of life, and who can use this power in matters of religion." We may also remark, that a moral precept is in reality a doctrine expressed in an imperative form. The commandment "Thou shalt not kill," is just a certain way of expressing the abstract truth, that it is contrary to the will of God and the eternal rule of righteousness, that a man should kill, and that his doing so shall involve him in the guilt and punishment of a heinous sin. Now is it not true that the more minute precepts of the law, the application of even the greatest of them to particular cases, and the greater number of the rules of Christian prudence, are to be obtained from scripture, only as inferences more immediate or remote. A multitude of precepts are included in some general one; the motive by which we should be actuated is pointed out, and we are left to learn from it the duties to which we should be excited by it; and a prohibition is given as being also the hint concerning the opposite duty which is incumbent on us. But we have seen that precepts and doctrines are not essentially different, and experience tells us that we may err as grievously in attempting to infer a point of sin or duty, as in attempting to deduce abstract truths. Finally, the principle that inferences from scripture are not admissible in theology, goes a great deal farther than its patrons seem to be aware of, or are prepared to follow out in their practice. It necessarily forbids us either to write or speak about religion, except in the very words of scripture; it tells us that it is not divine truth we have in our minds, except in so far as it is present to our thoughts, clothed in the precise language of the bible; it would banish from the world every religious book but the bible, for unless we merely retail its words, we violate the principle of these men. What is every attempt to explain it but a deduction of inferences? Nay, what is an attempt at even the most rigidly literal translation but in a great degree the same exercise of reason? Neither Christ nor his apostles abstained from exhibiting the deductions which may be made from the facts and doctrines recorded in the inspired record; and though we cannot be perfect as they were, yet we have not the most distant hint that in this respect they were not an example to us.

Popish divines find another source of theological doctrine in the writings of the Fathers and the traditions preserved in the church. Scripture of itself is not sufficient for them, and the reason is obvious: they hold many doctrines of which not the least vestige is to be found in it; nay, they hold doctrines which are in direct opposition to it. Strenuously as they deny this, they have not been ashamed to confess it among themselves. The bishops met at Bononia, to consult for restoring the dignity of the Roman see, addressed the following advice to Pope Julius the Third: "Among all the counsels which we can give at this time, we

have reserved the most weighty to the last. You must strive with all your might, that as little of the gospel as possible, especially in the vulgar tongue, may be read in the cities under your jurisdiction; the little which is in the mass ought to be sufficient; neither should it be permitted to any mortal to read more; for as long as men were contented with that little, all things went well with them, but quite otherwise since more was commonly read. This book, above all others, has raised the storms and tempests with which we are carried away. And truly, if any man diligently examine it, and then consider the things which are practised in our churches, he will see that they differ very much from one another, and that our doctrine is altogether different from it, and often contrary. These documents are therefore to be concealed with great caution and diligence, lest we should be involved in greater troubles and tumults." (Consil. de Stabil. Rom. Sede, p. 6.)

Systematic Theology arranges methodically the great truths of religion, so as to enable us to contemplate them in their natural connexion, and to perceive both the mutual dependence of the parts and the symmetry of the whole. As didactic theology gathers up and exhibits the labours of the exegetical theologian as these bear on any given point, so systematic theology collects into one connected form the whole of the doctrines which didactic theology, in its more desultory labours, may have established. The principles of every science may be arranged according to a variety of methods; but that one is generally to be preferred which follows the order of nature; and not only leads us on from one degree of knowledge to another, but also at each step presupposes nothing which is to be explained or proved afterwards. There are, however, not a few who exclaim against every thing like the reduction of theological truth into a system: it is viewed as a disparagement to the word of God, which does not proceed in this artificial way, and it is accused of being the parent of many errors, over-nice distinctions, and subtle and fallacious reasonings, and also of that slavishness of mind which we often perceive hindering men from freely acquiescing in the plain dictates of reason and scripture. However true these things may be in respect of some systems, they form no valid objection to systematic theology as it should be. It is reasonable to object to a system that is improperly arranged, too technical in its form, or encumbered with a multiplicity of useless distinctions: it would be our duty to protest against any system that would pretend to be one unbroken, indissoluble chain of reasoning, such as a system of mathematical truth is, every doctrine of which depends for demonstration on those doctrines which precede it; for no point in theology is to be believed because it harmonizes with what precedes it in the system, and seems necessarily to flow from it, but because in express terms, or by implication, it has a place in the word of God. Yet many advantages are derived from systematizing in theology. Indeed, it is impossible to avoid it even in a considerable degree. In the mind of every intelligent reader of the scriptures, a system, or various partial systems, are formed, whether he will or not, and the different parts of these, by their union, reflect new light on each other. Since the work is thus begun, it is certainly best that it should be carefully perfected; if in this unfinished form it is useful, it must be more so when completed. Besides, there is certainly an approach to systematizing in some parts of the Bible, particularly in the epistle to the Romans; but though this were not the case, it would be no objection against holy writ on the one hand, or against systematic theology on the other. It is no objection against holy writ, because to one who considers attentively the whole plan of providence regarding the redemption and final restoration of man, it will be evident that in order to the perfecting of the whole, the parts must have been unveiled successively, and by degrees, as the scheme advanced towards completion. And if the doctrines to be believed are delivered there with sufficient clearness, we have no reason to complain, nor is it for us to prescribe rules to infinite wisdom. Again, it is no objection to systematic theology, that doctrines are not thus methodically digested in the bible. Holy writ has been given us, that it may be used for our spiritual instruction and improvement; reason is given us, to enable us to make the proper use of both the temporal and spiritual mercies which God has seen meet to bestow. In respect of both classes of mercies, he confers liberally the material or means of enjoyment; he gives the capacity of using them; and he requires the exertion of that capacity, for turning to the best account the benefits he has conferred. It is, then, our duty to arrange the doctrines of holy writ in the way most useful for assisting us to understand and remember them. He must be an inconsiderate man who denies that religion is systematic. The scriptures are not an assemblage of writings which have no other relation to each other but juxta-position, or collocation in the same volume: they are a continued revelation of his eternal counsels. There is an arrangement here, as well as in his other works, although it may require time and patience to discover it. Religion has first principles, and secondary truths dependent on these principles, and precepts founded on both. And surely if it is an advantage to have other sciences methodically arranged, the understanding and memory of man should not be deprived of it in this one, which is the highest and best. The study of the scriptures cannot be recommended to us, that we may load our memories with a multitude of unconnected ideas, but that we may bring together and combine the truths which are scattered up and down in them, and thus "understand what the mind of the Lord is." Though the spirit of system may have led to serious evils, this only teaches us to watch over our hearts and the operations of our minds: because what is good is abused, we are not on that account to deprive ourselves of the legitimate use of it.—The earliest works that, in the strict sense of the term, can be called systems of theology, were, in the third century, the work of Origen, concerning principles, and in the fourth century, the Catechetical Discourses of Cyril of Jerusalem, and the Enchiridion of Augustine; the first two among the Greeks, and the third among the Latins. But these would now be reckoned very defective as systematic exhibitions of sacred knowledge. In the middle ages there were writers who were more than systematic enough; but, as we shall have occasion afterwards to mention, religion has been little indebted to their labours. It was at the era of the Reformation that systematic works began to appear, which were at once full, and calculated to be truly useful. Clearness of method, scripturalness of doctrine, reverence for the word of God, as the alone source

of true theology, and also, in many cases, the requirements of good taste, began to be regarded. "The Institutes of Calvin, though not the first in order of time, carried off the palm from all its predecessors, and has not yet been surpassed by any competitor. Diversity of opinion may exist respecting some of his positions, but while profound piety, masculine energy of mind, acuteness and strength of argument, perspicuity of statement, and purity of language, continue to be respected among men, the Christian Institutes of John Calvin will secure for their author immortal honour." Yet even not a few of the Reformers, while they rejected the foolish speculations, impious doctrines, and captious modes of reasoning, which had characterised the schoolmen of the preceding ages, yet proceeded to systematize in a method void of all taste, and strictly accommodated to the logic which had long prevailed and still maintained its place. It may be amusing to the reader to know something of the method which these men pursued, and certainly it was awkward and cumbrous enough, though far superior to what it was in the hands of their predecessors. For this purpose we may instance the system of Dr Henry Alting, a Dutch professor in the former part of the seventeenth century. On every question, as far as circumstances would permit, he follows out the same process. Having directed attention to his subject, he first of all mentions the calumnies with which the orthodox had been assailed in respect to it, and gives a particular answer to each of them. Next he specifies the logomachies to which it had given rise, and furnishes a minute elucidation of each. Being thus prepared he produces the orthodox doctrine, and perhaps branches it out into several propositions, to each of which as much attention is given as to the doctrine when considered, as sometimes it is, in its general form. He takes the doctrine, or the proposition, and confirms it by arguments drawn, first, from the nature of the *subject*, and, secondly, from the nature of the *predicate*. Then the opposite heterodox opinion is produced, the arguments which have been advanced in its favour, both from the nature of the subject, and from the nature of the predicate, are refuted, and latterly, it is assailed and demolished by these two kinds of argument. Thus he proceeds from proposition to proposition till the subject is exhausted, and all the arguments, whether deduced from reason or scripture, are stated in the syllogistic form. Every subject is treated according to the rule and square of the dialectics of the schools, and even the very quotations from scripture can scarcely be discerned amidst the rubbish of logical forms and terms.

Elenchtic or Polemic Theology, so called from the two Greek words signifying *refutation* and *war*, has for its province to defend what is taught by the didactic theologian, against the objections of adversaries, and to detect and refute the opposite errors. It is said that the epithet *polemic* was first given to it by Friedman Beckmann, a theologian of Jena, in the seventeenth century. By many it is held in great disrepute, and some have even proposed that the voice of the disputant should no longer be listened to in the Christian church. Doubtless, the sophistical arguments and the unhallowed arts which have sometimes been used in its service, are calculated to inspire with indignation and disgust; and so is also the *odium theologicum*, the virulent acrimony which has too often characterised religious debates. But the peace of the churches must never be purchased at the expense of the truth. Let them cast forth from their armoury every weapon which God does not approve; but let not the truth be left undefended, or error unassailed. As we have already said, the progress that may be made in establishing sound principles of criticism, and in the skilful application of these to the explanation of scripture, will be the surest omen of the approaching termination of theological warfare.

Practical Theology has its way prepared by all the departments of the science to which we have already referred; on these it depends; and at the same time it is that which crowns the whole. It consists of an exhibition, first, of precepts or directions; and, secondly, of the motives by which we should be excited to comply with these; and how these rules and these motives may be either found expressly revealed in scripture, or they may be inferences from what it teaches. Some would attach to this part of theology an undue importance, maintain it to be that which alone is worthy of our attention, and deny that articles of faith are of any great moment. Others, again, can see nothing in it but a cold system of morality, and reserve all their admiration for the mysteries of faith, and the animating discoveries of the love and glory of God. Both are in error. Religion is a barren thing when it is cherished merely as a system of abstract truth; it is weakness and inefficiency itself, when regarded merely as a system of injunctions and prohibitions. It is a system of truths, but it uniformly contemplates practical results. It is a system of rules, but these depend for all their power on the doctrines upon which they are based. *Casuistry* is evidently a part of practical theology, and when skilfully and faithfully treated, a most important part of it: it applies itself to what is called cases of conscience; it decides difficulties arising about what a man may lawfully do, or not do; what is sin or not sin; and what a man is obliged to do in order to discharge his duty, and what he may leave undone without a breach of it. As far as casuistry adheres stedfastly to the word of God, its labours must be of great use: all men more or less need its guidance, but especially those who are not accustomed to think much or closely, and whose consciences nevertheless are tender about sin and duty. But the Romish casuists, and pre-eminently among them the Jesuits, have reared up, under the name of casuistical theology, a monstrous fabric, the motley materials of which have been derived from scripture, natural equity, canon law, councils, fathers, and, in short, from every source whence either sense or nonsense could be got to answer their sinister purposes. Such casuistry has been most justly called "the art of quibbling with God." The aim of these men was certainly to render morality altogether uncertain, and to obtain for the priesthood, by means of the confessional, a complete lordship over the consciences of men.

Thus we have exhibited the various aspects according to which true theology may be contemplated, and the various departments of the labours of the Christian divine. None of these departments is independent of the others, or can be successfully cultivated as separated from them. They form one grand whole, all the parts of which are intimately connected and mutually dependent.

The history of theological speculation presents us with much of "science falsely so called." There were, in ancient times, especially three great systems of corrupt theology, which are the more interesting

to us, as they have their counterparts in the present day. The *scholastic* theology attempted to clear and discuss all questions by reason and argument. It substituted the principles of the philosophy that happened to be approved of at the time, in place of the principles of the oracles of God; it laid aside the study of the scriptures, and adopted the arts of the subtle dialectician. During the dark ages its champions acquired great celebrity, and were honoured with the high sounding titles of Angelic, Seraphic Doctors, &c. Their speculations are now almost forgotten, and their works, the products of genius of the highest order, are seldom or never read. Contempt, or utter oblivion, has been their merited portion. But the spirit of their theology still survives, and presents itself in the Rationalism of the present age, the philosophy of which is indeed of a more liberal character, but which is still found demanding that religion should behold in it its creator and lord.—The *mystical* theology referred almost every thing to the intellectual light, and the secret emotions which in various ways, and more especially by contemplation and an austere discipline, might be excited and cherished in the human heart. The adherents of this system, by their violent explications, forced the word of God into a conformity with their visionary doctrines, their enthusiastic feelings, and the system of discipline they had drawn from the excursions of their irregular fancies. The avowal of their principles may now be rare, but it is scarcely possible but that in every age they shall have followers. A man under the influence of feelings, which apparently are those of piety, and may to a certain extent be such, will ever be ready to trust to these, and to suppose that religion must necessarily be conformed to them, except he is preserved from this error by an enlightened understanding, a humble heart, and the Spirit of God.—The *patristic*, or as it has been also called *positive* theology, leaned on human authority. Its votaries cared not to ask how the word of God decided any question, but what was the opinion of the ancient fathers. Even their commentators were mere compilers of the comments of their predecessors. Multitudes, both learned and ignorant, still seem to lean to this system, which has "a show of humility." These are not to be found merely in the church of Rome, which professedly sets a value on this slavish system. How much reason is there to fear, that while confessions of faith are maintained by Protestants to be only subordinate standards, not a few are practically giving them a higher place? The enlightened Christian will ever remember that these are fallible and of no authority except as the convenient external bonds of union adopted by ecclesiastial communities. In deciding on truth and error, he will not appeal to them, but to the word of God, and will be ready to follow it, whithersoever it may lead. Yet while he feels himself thus subjected to the sole authority of the word of God, he will not neglect to take advantage of the labours of the wise and good, nor imagine that these may not help us to understand it; but still he will "prove all things, and hold fast that which is good." Nothing can be more pitiful than the attempts of some writers to dissuade us from making use of these human aids. "I have little doubt, that nothing would be more mortifying to them, than our adopting their advice in its full extent, and treating their own writings with as little regard as they wish us to express for the writings of others."

THEOMANCY (from Θεος, God, and μαντεια, prophecy) was that species of prophecy in which a god himself was believed to reveal futurity. Oracles were considered as public institutions for prophesying at distinct places and periods; but the communications embraced under the head of theomancy were extraordinary predictions, not limited by any such restrictions. There were three classes of persons who considered themselves as particularly the subjects of such communications: 1. the possessed, i. e. such as believed themselves possessed by some dæmon (q. v.); 2. enthusiasts (*enthusiastæ*, *theopneustæ*), who pretended to be seized by a certain enthusiasm with which a god had inspired them; 3. ecstatics, i. e. such as fell into ecstasies. They lay as if in a trance, and, when they recovered their consciousness, spoke of having witnessed the strangest things, which were considered as indicating that the soul, during the trance, had left the body, and gone into another world, to visit the abodes of the gods or the departed. Such fanatics or impostors have appeared, not only among the Greeks, but among all uncultivated nations, of whatever religion.

THEOPHANE; a daughter of Bisaltus, whom Neptune changed into a sheep to remove her from her numerous suitors. The god afterwards assumed the shape of a ram, and under this form had by the nymph a ram with a golden fleece, which carried Phryxus to Colchis.

THEOPHANY (from Θεος, God, and φαινομαι, I appear); a festival at Delphi, celebrated on the anniversary of the day when Apollo had revealed himself to the Delphians. At a later period, revelations and appearances of deities to particular individuals were so called, and, finally, the general manifestation of revelation in the world. See *Epiphany*.

THEOPHILANTHROPISTS (from Θεος, God, φιλος, friend, and ανθρωπος, man); friends of God and man; the title assumed by a religious society formed at Paris during the French revolution. The object of its founders was to revive public religious ceremonies, which had altogether ceased during the reign of terror, without returning to the doctrines and rites of Christianity, which were incompatible with the deism professed by the Theophilanthropists. In 1796, five heads of families—Chemin, Mareau, Janes, Haüy (brother of the celebrated philosopher), and Mandar—associated themselves, and, December 16, held their first meeting for the purposes of divine worship and moral instruction, according to the dictates of natural religion. These assemblies were held weekly: the exercises consisted of prayer, moral discourses, and singing, and the numbers of the society rapidly increased. The directory granted them the use of the ten parish churches of Paris, in which their services were performed at first on *Decadi*, and afterwards on Sunday, at the hour of noon. The temples were appropriately fitted up, and adorned with religious and moral inscriptions, an ancient altar, with a basket containing flowers, as an offering to the Supreme Being, a pulpit, and allegorical paintings, and banners, with inscriptions and emblematic devices. The Theophilanthropists had no peculiar spiritual order; but the officers of the society were an overseer, a president of the temple, a reader and an orator, who wore a long white robe over a blue dress, with a sash or girdle of various colours, during the performance of divine worship, but who enjoyed no privileges and received no pay. Their dogmas consisted solely of a belief in the existence of God, and in the immortality of

the soul; their doctrine was pure deism, chiefly derived from the Scriptures, and containing a practical morality, which differed from that of Christianity chiefly from leaning to eudæmonism. (q. v.) Their liturgy was simple and touching: the pardon of sins was implored of God; but Jesus Christ was considered only as a man of extraordinary wisdom, and not as a saviour. The writings of the Theophilanthropists, which proceeded chiefly from Chemin, dwelt principally upon the moral duties. The festivals of nature, of love of country, of conjugal fidelity, &c. (see *Festivals*), were scrupulously observed. Instead of baptism, a sort of consecration or initiation by exhortations to the parents and godparents was solemnized; for confirmation was substituted a reception into the society with vows, and in place of marriage, a symbolical union with rings and bands, wound round the hands of the wedded couple; these were the only ceremonies. Distinct schools were established for the instruction of youth in theophilanthropism. The expenses of public worship were paid by means of collections and the contributions of the members, and the directory also granted small sums. The example of the Paris Theophilanthropists was followed in many of the provincial cities of France, and some attempts were made to introduce their principles into other countries, but without success. The revival of the Catholic religion, and particularly the concordate with Pius VII., hastened the decline of the society, which had already lost many of its members, when the consuls, in 1802, prohibited them from holding their meetings in the churches; and from this time, they no longer appear as a body. See *Revellière-Lépaux*, end of vol. x.

THEOPHRASTUS, a native of Eresus, in the island of Lesbos, was the son of a fuller, and became famous as a naturalist and philosopher. He was born 371 B. C., and studied at Athens, in the school of Plato, and afterwards under his rival Aristotle, of whom he was the favourite pupil and successor. His original name was Tyrtamus, which his master, in admiration of his genius and eloquence exchanged for that of Euphrastus, or the fine speaker, and afterwards for that of Theophrastus, or the divine orator, by which he is familiarly known. On the departure of Aristotle from Athens, after the judicial murder of Socrates, he became the head of the Peripatetic school of philosophy, where two thousand students are said to have attended his lectures. His fame extended to foreign countries: kings and princes solicited his friendship; and he was treated with particular attention by Cassander, the sovereign of Macedon, and Ptolemy Lagos, the king of Egypt. Theophrastus composed a multitude of books—dialectic, moral, metaphysical and physical—the titles of 200 being specified by Diogenes Laertius. About twenty of these have escaped the ravages of time, among which are his Natural History of Stones, of Plants, of the Winds, &c.; and his Characters, or Ethic Portraits, by far the most celebrated of all his productions, and the model of numerous imitators, including the moral satirist La Bruyère. Some of his moral sentences are striking: e. g. "Respect yourself, and you will have no occasion to blush before others." He died about 286 B. C., and consequently, if the preceding date of his birth be correct, he must have been but eighty-five at the time of his decease, though some state him to have survived to the age of a hundred and seven. To his care we are indebted for the preservation of the writings of Aristotle, who, when dying, entrusted them to the keeping of his favourite disciple. The works of Theophrastus were published collectively by Dan. Heinsius (Leyden, 1613, folio), and by Schneider (Leipsic, 1818–1821, 5 vols., with a Latin translation); and among the numerous editions of his Characters may be noticed those of Needham (Cambridge, 1712, 8vo. of Fischer (Coburg, 1763, 8vo.), and the recent English translations, with notes, and the Greek text, by Mr F. Howell.

THEOPHRASTUS PARACELSUS. See *Paracelsus*.

THEORBO (*tiorba*); an instrument, no longer in use, similar to the lute, at least in regard to the body and the neck, which is, however, longer. It has fourteen to sixteen strings, of which the eight large ones in the bass are twice as long and as thick as those of the lute. It was principally used for accompaniment. The system of the theorbo has five lines with proper notes: that of the lute has six lines with letters.

THEORY (from the Greek θεωρία, contemplation) originally signified the investigation and knowledge of supernatural subjects by means of contemplation. The most common significations of the word at present are,—1. speculation; a doctrine which terminates in speculation or contemplation without a view to practice. Here it is taken in an unfavourable sense, as implying something visionary. 2. An exposition of the general principles of any science, as the theory of music. 3. The science distinguished from the art; e. g. the theory of medicine as distinguished from the practice. 4. The philosophical explanation of phenomena, either physical or moral, as Lavoisier's theory of combustion, Smith's theory of moral sentiments. *Theory* is distinguished from *hypothesis* thus:—A theory is founded on inferences drawn from principles which have been established on independent evidence; a hypothesis is a proposition assumed to account for certain phenomena, and has no other evidence of truth than that it affords a satisfactory explanation of those phenomena.

THEOSOPHY (from θεός, God, and σοφία, wisdom); according to its etymology, the science of divine things. But the name of *theosophists* has generally been applied to persons who, in their inquiries respecting God, have run into mysticism, as Jacob Böhme, Swedenborg, St Martin, and others.

THERAMENES; an Athenian philosopher and general in the age of Alcibiades. He was one of the thirty tyrants at Athens, but had no share in the cruelties and oppression which disgraced their administration. He was accused by Critias, one of his colleagues, because he opposed their views, and was condemned to drink hemlock, though innocent, and defended by Socrates. He drank the poison with great composure, and poured some of it on the ground, with the sarcastical exclamation of "This is to the health of Critias," about 403 B. C.

THERAPEUTÆ. See *Essenes*.

THERAPEUTICS (from θεραπεύειν, to attend to the sick) is that part of medicine which teaches the way of curing diseases. It treats of the symptoms of disease, and the conclusions to be drawn from them, of the power of nature, and how far it may be relied on, of the mode of cure to be adopted, and the different systems which have acquired reputation.

THERESA, St.; a religious enthusiast, born at Avila in Spain, in 1515. At an early age, the perusal of the Lives of the Saints inspired her with

the desire to become a martyr; and she eloped from home to seek death at the hands of the Moors. Being brought back, she erected a hermitage in her father's garden for retirement and devotion. She took the veil among the Carmelites, at Avila, at the age of twenty-two. Her rapturous piety and religious zeal inspired general admiration; and, being dissatisfied at the relaxation of discipline which she noticed in the order to which she belonged, she undertook to restore the original severity of the institute. She founded the first convent of reformed Carmelite nuns at Avila, in 1562, and a monastery of friars, in 1568, at Dorvello, where originated the order of Barefooted Carmelites. (See *Carmel.*) She lived to witness the foundation of thirty convents for her followers: and members of the order subsequently obtained settlements in most Catholic countries. She died at Alba, in October, 1582, and was canonized by pope Gregory XV. Her life, by herself, is curious.

THERIACA; a celebrated antidote against poison, in the form of an electuary, formerly in great repute, the composition of which is attributed to Andromachus of Crete, physician to the emperor Nero. (See *Poison.*) That physician has described its composition in a poem, which has been preserved by Galen (*De Antidotis I.* c. 6.) This theriaca is composed of about seventy ingredients, some of which are altogether inoperative, and some counteract each other's effects. It, however, preserved its reputation till modern times; and it is not long since the apothecaries in Venice, France, and other places, were obliged to compound it, with great solemnity, in the presence of magistrates.

THERMÆ (from the Greek Θερμαι, signifying originally warm or hot springs); properly warm baths, but also applied generally to the baths of the ancients. (See *Bath.*) During the Roman empire, the buildings for this purpose were constructed with great splendour, and adorned with paintings, statuary, libraries, gymnasia, and public walks. The baths of Nero, Titus, Caracalla, and Diocletian, were distinguished for the magnificence and luxury displayed in their construction.

THERMIDOR. See *Calendar.*

THERMIDOR, 9TH, year II. (July 27, 1794); celebrated, in the French revolution, for the overthrow of Robespierre and the Mountain party, which put an end to the reign of terror. Tallien (q. v.) was the first to denounce Robespierre and his adherents, St Just, Couthon, Henrion, who were arrested by order of the convention (9th Thermidor), and executed on the following day. See *France*, division *History.*

THERMO-ELECTRO-MAGNETISM; the phenomena arising out of a flow of electro-magnetism, occasioned by disturbing merely the equilibrium of temperature. The apparatus for exciting it is composed of three bars of bismuth and three of antimony, soldered alternately together, so as to form a hexagon, which includes three elements, or three pairs. The length of the bars is about 4·7 inches, their breadth 0·6 of an inch, and their thickness 0·16 of an inch. This circuit is put upon two supports, and in a horizontal position, observing to give to one of the sides of the hexagon the direction of the magnetic needle, which is placed below the side, and as near it as possible. On heating one of the solderings with the flame of a lamp, a very sensible effect on the needle is produced. On heating two solderings, not contiguous, the deviation becomes considerably greater; and, on heating the three alternate ones, a still greater effect is produced. By resorting to an inverse process, i. e. by reducing to 32° Fahr. by melting ice, the temperature of one or more solderings of the circuit—the solderings not cooled being regarded as heated in reference to others—and by combining the action of the ice with that of the flame, viz. by heating three solderings and cooling the other three, the deviation of the needle amounts to 60°.

THERMOLAMPE; the name given by Lebon to his apparatus for illuminating by gas. See *Gas.*

THERMOMETER; an instrument for measuring heat, founded on the principle that the expansions of matter are proportional to the augmentations of temperature. With regard to aeriform bodies, this principle is probably well founded; and hence our common thermometers may be rendered just by reducing their indications to those of an air thermometer. Solids, and still more liquids, expand unequally, by equal increments of heat, or intervals of temperature. With regard to water, alcohol, and oils, this inequality is so considerable as to occasion their rejection for purposes of exact thermometry. But mercury approaches more to solids than ordinary liquids in its rate of expansion, and hence, as well as from its remaining liquid through a long range of temperature, is justly preferred to the above substances for thermometric purposes. A common thermometer, therefore, is merely a vessel in which very minute expansions of mercury may be rendered perceptible, and, by certain rules of graduation, be compared with expansions made on the same liquid by other observers. The first condition is fulfilled by connecting a narrow glass tube with a bulb of considerable capacity filled with mercury. As this fluid metal expands one sixty-third by being heated in glass vessels, from the melting point of ice to the boiling point of water, if ten inches of the tube have a capacity equal to one sixty-third of that of the bulb it is evident that, should the liquid stand at the beginning of the tube at 32°, it will rise up and occupy ten inches of it at 212°. Hence, if the tube be uniform in its calibre, and the above space be divided into equal parts by an attached scale, then we shall have a centigrade or Fahrenheit's thermometer, according as the divisions are 100 or 180 in number. Such are the general principles of the construction of thermometers. The tubes drawn at glass-houses, for making thermometers, are all more or less irregular in the bore. Hence, if equal apparent expansions of the included mercury be taken to represent equal thermometric intervals, these equal expansions will occupy unequal spaces in an irregular tube. The attached scale should, therefore, correspond exactly to these tubular inequalities; or, if the scale be uniform in its divisions, we must be certain that the tube is absolutely uniform in its calibre. The first step in the formation of this instrument, therefore, is to graduate the tube into spaces of equal capacity. A small caoutchouc bag, with a stop-cock and nozzle, capable of admitting the end of the glass tube when it is wrapped round with a few folds of tissue paper, must be provided, as also pure mercury, and a sensible balance. Having expelled a little air from the bag, we dip the end of the attached glass tube into the mercury, and by the elastic expansion of the caoutchouc, we cause a small portion of the liquid to rise into the bore. We then shut the stop-cock, place the tube in a horizontal direction, and remove it from the

bag. The column of mercury should not exceed half an inch in length. By gently inclining the tube, and tapping it with the finger, we bring the mercury to about a couple of inches from the end where we mean to make the bulb, and, with a file or diamond, mark there the initial line of the scale. The slip of ivory, brass or paper, destined to receive the graduations, being laid on a table, we apply the tube to it so that the bottom of the column of mercury coincides with its lower edge. With a fine point, we then mark on the scale the other extremity of the mercurial column. Inclining the tube gently, and tapping it, we cause the liquid to flow along till its lower end is placed where the upper previously stood. We apply the tube to the scale, taking care to make its initial line correspond to the edge, as before. A new point for measuring equal capacity is now obtained. We thus proceed till the requisite length be graduated, and we then weigh the mercury with minute precision. The bulb is next formed at the enameller's blow-pipe, in the usual way. One of a cylindrical or conical shape is preferable to a sphere, both for strength and sensibility. We now ascertain and note down its weight. A tubular coil of paper is to be tied to the mouth of the tube, rising in a funnel-form an inch or two above it. Into this we pour recently boiled mercury, and, applying the gentle heat of a lamp to the bulb, we expel a portion of the air. On allowing the bulb to cool, a portion of the mercury will descend into it, corresponding to the quantity of air previously expelled. The bulb is now to be heated over the lamp till the included mercury boil briskly for some time. On removing it, the quicksilver will descend from the paper funnel, and completely fill the bulb and stem. Should any portion of air appear, the process of heating or boiling must be repeated, with the precaution of keeping a column of superincumbent mercury in the paper funnel. When the temperature of the bulb has sunk to nearly that of boiling water, it may be immersed in ice-water. The funnel and its mercury are then to be removed, and the bulb is to be plunged into boiling water. About one sixty-third of the mercury will now be expelled. On cooling the instrument again in melting ice, the zero point of the centigrade scale, corresponding to 32° of Fahrenheit, will be indicated by the top of the mercurial column. This point must be noted with a scratch on the glass, or else by a mark on the prepared scale. We then weigh the whole. We have now sufficient data for completing the graduation of the instrument from one fixed point; and, in hot climates, and other situations, where ice, for example, cannot be conveniently procured, this facility of forming an exact thermometer is important. We know the weight of the whole included mercury, and that of each *gradus* of the stem. And, as from 32° to 212° Fahr., or from 0° to 100° cent., corresponds to a mercurial expansion in glass of one sixty-third, we can easily compute how many of our graduating spaces are contained in the range of temperature between freezing and boiling water. Thus supposing the mercurial contents to be 378 grains, one sixty-third of that quantity, or six grains, correspond to 180 of Fahrenheit's degrees. Now, if the initial measuring column were 0·6 of a grain, then ten of these spaces would comprehend the range between freezing and boiling water. Hence, if we know the boiling point, we can set off the freezing point; or, from the temperature of the living body, 98° Fahr., we can set off both the freezing and boiling points of water. In the present case, we must divide each space on our prepared scale into eighteen equal parts, which would constitute degrees of Fahrenheit; or into ten equal parts, which would constitute centigrade degrees; or into eight, which would form Réaumur's degrees. When we have ice and boiling water at hand, however, we may dispense with the weighing processes. By plunging the instrument into melting ice, and then into boiling water, we find how many of our initial spaces on the stem correspond to that interval of temperature, and we subdivide them accordingly. If the tube be very unequal, we must accommodate even our subdivisions to its irregularities, for which purpose the eye is a sufficient guide. Thermometers are used for two different purposes, each of which requires peculiar adaptation. Those employed in meteorology, or for indicating atmospherical temperature, are wholly plunged in the fluid; and hence the stem and the bulb are equally affected by the calorific energy. But when the chemist wishes to ascertain the temperature of corrosive liquids, or bland liquids highly heated, he can immerse merely the bulb and the naked part of the stem under the scale. The portion of the tube corresponding to the scale is not influenced by the heat, as in the former case; and hence one sixty-third part of the mercury, which, at 32° Fahr., was acted on, has, at 212°, escaped from its influence. Hence a meteorological and a chemical thermometer ought to be graduated under the peculiar conditions in which they are afterwards to be used. The former should have its stem surrounded with the steam of boiling water, while its bulb is immersed an inch or two beneath the surface of that liquid, the barometer having at the time an altitude of thirty inches. A thermometer for chemical experiment should have its boiling point determined by immersion only of the bulb, and the naked portion of its stem below the scale, in boiling water. The water, of course, must be pure; and it ought to be contained in a metallic vessel. Before sealing up the end of the tube, we should draw it into a capillary point, and heat the bulb till the mercury occupy the whole of the stem. A touch of the blow-pipe flame on the capillary glass will instantly close it, and exclude the air from re-entering when the bulb becomes cool. If this has been skilfully executed, the column of mercury will move rapidly from one end of the tube to the other when it is inverted with a jerk. An ivory scale is the handsomest, but the most expensive. Those used in Paris consist of a narrow slip of paper enclosed in a glass tube, which is attached in a parallel direction to the thermometer stem. It is soldered to it above by the lamp, and hooked to it below by a ring of glass.

Like most other important discoveries, that of the thermometer has had several claimants, the respective merits of whom it seems nearly impossible at the present day definitively to determine. Though by some Galileo has been considered as the true inventor, and by others, Father Paul Sarpi the Venetian, this honour chiefly rests between Sanctorius, an Italian physician, and Drebbel, a Dutchman, both men of ingenuity and original minds. Many moderns support each of these claims, but Sanctorius (or Santorio,) has on the whole most in his favour, since, as Martine justly observes, no one but he demanded the honour of an inventor during his lifetime. His *Commentaries on Avicenna*, published in 1626, are very interest-

ing, since they contain descriptions and curious wood cuts of the various forms of the thermometer which he proposed for medical purposes; and the extent to which he carried it in other matters, is shown by his attempt described and figured at folio 22 of that work, to compare the heat of the sun's and moon's rays, an attempt which afterwards became one of the most delicate in natural philosophy. Perhaps Sanctorius and Drebbel invented much about the same time this instrument, a circumstance by no means improbable considering the then advancing state of physical science. Be this as it may, the instrument contrived by each was precisely similar, in which air was employed as the expanding substance, which, in several respects, is remarkably well fitted for this application.

The air thermometer, as shown in Plate LXXXIX. fig. 9, consisted of a ball of glass A, with a stem B, nearly filled with air, but having the lower part of the tube occupied by a coloured liquor, which, when the air in A was expanded, was forced into the recipient C, and hence a scale being applied to the stem, the dilatation of the inclosed air by heat was marked by the descent of the coloured fluid. In this form the instrument was obviously unfit for trying with any ease the temperature of fluids. Boyle, therefore, subsequently proposed to include both the air and the coloured fluid in one bulb, as shown at Fig. 10, where the tube AB, which is open at top, reaches below the surface of the fluid nearly to the bottom of the receptacle C, into the neck of which the tube is hermetically sealed. The same philosopher, however, demonstrated the grand defect of the air thermometer, that by a change of pressure in the atmosphere, as shown by the barometer, the elasticity of the inclosed air is altered independently of temperature, so as to render the indications of the same instrument not comparable at different times. The air thermometer was subsequently modified by the ingenious Hooke, in order to act as a barometer, which it obviously does, if the effects of temperature be corrected, and those of pressure alone shown, just as on the other hand, if the result of variable pressure were neutralised, that of temperature would be truly expressed. Hooke attached a mercurial thermometer to the original instrument, the temperature of which thus indicated gave the data for separating the influence of dilatation caused by heat, which was performed by means of a sliding scale. By this elegant modification, Hooke converted the air thermometer into a marine barometer, which, however, was soon abandoned, from the absorption that was found to take place of the excluded air by the coloured fluid. This defect has more lately been in a great measure remedied by the substitution of hydrogen gas instead of the common included air, by Mr Adie, who has revived this instrument under a very elegant and portable form, and under the name of the sympiesometer.

The defects of the air thermometer having been duly appreciated by the Florentine *Academia del Cimento*, that enterprising body published, in the first volume of their Transactions, a description of a new thermometer, in which spirit of wine was used as the expanding substance, which, as it might be hermetically sealed up in a glass tube or bulb, was free from any defect arising from pressure, as well as the possibility of any loss of fluid by evaporation. This instrument was constructed much in the same way as at present, the spirit being dilated till it filled the whole tube, when it was quickly sealed, and on cooling, the fluid retired, leaving nearly a vacuum above it. The great defect of the *Florentine weather glass*, as it was commonly called, was the want of any fixed scale of graduation, on which account no instrument, except those graduated by the original one of the academy, could be comparable with any other, the only direction being that the cold of ice and snow should make it stand at 20 deg. and the greatest summer heats at Florence, at 80 degrees. The spirit thermometer was faulty in several other respects, yet it cannot but be thought fortunate that this fluid, which is esteemed the second best for filling thermometers, should have been so early thought of.

We now come to mention the greatest improvement made upon the thermometer since the period of its invention,—the practical introduction of mercury as the expanding fluid. This practical discovery appears, as far as the testimony of contemporary writers can guide us, to be due to Olaus Römer, the ingenious discoverer of the progressive motion of light, who, according to Boerhaave, likewise proposed the scale now known under the name of Fahrenheit's, and so early as the year 1709, observed the mercury to sink by a natural cold to the zero of that scale; but it is more commonly conceived that Fahrenheit himself made that observation, and founded his scale upon it, which was contrived in the year 1720, and described to the Royal Society of London in 1724. From this period the thermometer became of scientific utility, and its indications being founded upon fixed principles, gave the assurance that all instruments made with equal care would be strictly comparable. There is even now, after the lapse of a century, no prospect of materially improving the plan of the simple thermometer, or of finding any substance fitter than mercury for forming a scale of heat. In fact, it unites the most important qualifications.

Mercurial thermometers are usually made in this country in a style resembling Fig. 12, the scale being of ivory, and sometimes the bulb and stem project below from the scale for the purpose of greater delicacy; the bulb, too, is then generally made elongated like the instrument of Fahrenheit. The scale adopted by this philosopher was rather an arbitrary one, and the motive of its adoption we have not been able quite satisfactorily to discover.

We shall now notice the principal modifications of the simple thermometer; the most interesting of these are termed *self-registering*, which, by inspection, denote the greatest heat or cold which has occurred since the last observation, or else are employed to note the temperature at any moment in the absence of the observer. Of the former kind, the first, though Bernouilli seems to have the merit of originating the idea, is the thermometer of lord Charles Cavendish. For description, see Phil. Trans., 1757.

The thermometer which succeeded those of Cavendish was that of Mr Six, described in the Philosophical Transactions for 1782.

This instrument is not a little complex in its parts, having two contacts of spirit and mercury, and two indices, all which are detrimental to the practical accuracy of the thermometer. On this account the instrument has usually been made on a large scale, to prevent derangement in working. Mr Six made the bulb no less than sixteen inches long, and half an inch diameter, while the tube had a bore of $\frac{1}{10}$ inch. But this enormously clumsy

instrument had, from its size, still greater defects for any delicate purposes, and has since been much reduced.

A register thermometer by Dr John Rutherford, is described in the Edinburgh Transactions, vol. iii., which, at least for the minimum, is decidedly superior to any other. That for showing the lowest temperature is shown in Plate LXXXIX. fig. 14. It is a spirit thermometer, in the fluid of which is placed a little thread of enamel, enlarged to a globule at each end, seen at *a*, and this constitutes the whole instrument. From the cohesive power of the spirit confined within the tube, it does not suffer this little index to pass it without a very considerable shock; it therefore carries it back to the lowest point of contraction, and there leaves it, marking the greatest cold, and by expansion the index is not carried forward. It is adjusted merely by inverting the instrument till the index runs down to the end of the column of spirit, where it stops. It is then laid in a horizontal position. The maximum thermometer, fig. 15, is exactly the reverse of this, the index A being pushed forward by a column of mercury, and left at the point of greatest expansion. The index was originally of ivory, but from the friction with the interior of the empty tube, it was found advisable to make it of steel, and adjust it with a magnet, like Six's. Even this, however, does not prevent the index from getting entangled with the mercury, and Mr Adie of Edinburgh has adopted the plan of placing naphtha above the mercury, in which the index floats. This has somewhat altered the character of the instrument for simplicity, though we suspect it to be almost a necessary evil.

A contrivance intermediate between Six's and Rutherford's has been proposed by Dr Trail. It is the minimum thermometer of Rutherford, with a short piece of mercury A (fig. 11.) introduced above the index *a*, and the spirit again covering the mercury contains another index *b*. It is manifest that the mercury, by pushing back and forward these indices, marks the two extremes; being of steel, gilded by means of galvanism, they are brought back by the magnet.

Mr Keith of Ravelstone has described a thermometer which, by a mechanical contrivance, registers for any given time, in a continuous form, the flux of atmospheric temperature. (See Edinburgh Transactions, vol. iv.) This mechanical invention is very elegant, but has never met with, and is not calculated for, general adoption.

Le Chevalier has proposed lately a plan of registration sufficiently simple in its idea. It is the adaptation of an index to the metallic thermometers which have been described in another part of this article. The difficulty, however, is to find a method sufficiently delicate not to impede the motion of these most susceptible instruments. No plan has been given for this.

Besides the registration of the greatest heat and cold, thermometers have been proposed to record the temperature at any given epoch. Mr Keith's answers this purpose, but one more specifically for this end has been proposed by Mr H. H. Blackadder. (Edin. Trans. vol. iv.) He has a thermometer A, fig. 16. constructed exactly similar to Cavendish's maximum, only that it contains mercury alone, and breaking the termination sharply over, fixes it into the case *b*, without bringing it to a capillary termination, which we think a manifest defect. When held with the bulb A lowest, the column of mercury may obviously be made continuous; but if by a piece of clock-work, the position be made horizontal, as shown in the figure, the column will be interrupted, and form a mark of the height of the mercury at that moment, when compared with the attached common thermometer B. But if the temperature were to rise after the given moment, the mercury would obviously be expelled from the end of the tube, to avoid which two hair pencils are contrived, at the moment of immersion, to drop an evaporable fluid on the bulbs, until they are observed, when by adding the degrees vacant in tube A*b* to the height of the thermometer B, we have the temperature required for the given epoch. By terminating the tube of the thermometer A, in the manner shown in fig. 6, it is obvious that the same effects will be obtained by a mere rotatory motion of the instrument, coinciding with the axis of the tube. The complexity of its construction—combining a double thermometer, a time piece, and an evaporating apparatus—is such as to prevent its adoption beyond a very confined sphere.

We must now say a word or two on a modification of the common thermometer in its most original form, which has been termed the *differential* thermometer. Professor Sturmius of Altdorf was the inventor of this modification of the thermometer. Professor Leslie and Count Rumford both revived it in 1804, under the titles of Differential Thermometer and Thermoscope, one form of which is shown in fig. 13. Its principle consists merely in showing the difference of temperature between two media, in which the balls A and B are placed, and these being filled with air, the excess of expansion of air in the one above the other is marked by the motion of the coloured fluid which fills the greater part of the bent stem, the height of which, *h*, is referred to a scale attached. As it *is* strictly a thermometer of differences, it refers merely to the relative elasticities of the air in the two balls, and being hermetically sealed, is free from the common defects of the air thermometer. The most important application of the differential thermometer to practical meteorology is the hygrometer invented by Sir John Leslie, on the Hottonian principle, of the difference between the temperature of a dry and moistened surface, a case exactly fitted for the interposition of the differential plan. The differential thermometer has been made the basis of several other instruments by professor Leslie, adapted to meteorology.

Comparative Scales of Thermometers. A fertile cause of error in estimating and comparing the statements of temperature, is the very different manner in which they are made by scientific men of different nations. Wherever the English language prevails, the graduation of Fahrenheit is generally preferred. By the German authors Réaumur is used; and the French have, within a few years, decided to adopt that of Celsius, a Swedish philosopher, calling it *thermomètre centigrade*. The Russians still use the graduation of De Lisle. The two remarkable temperatures of the boiling and the freezing of water are thus expressed by the several thermometers mentioned:

	Fahr.	Centig.	Reaum.	De Lisle.
Boiling point,	212°	100°	80°	0°
Freezing point,	32	0	0	150

So that the number of degrees of each, included between these two points in each, is 180° Fahr.,

100° centig., 80° Réaum., 150° De Lisle; and of course 9° Fahr.=5° centig.=4° Réaum.=7½ De Lisle. Fahrenheit's is, therefore, the smallest degree, and Réaumur's the largest. The 0° is called the *zero:* all degrees below this are called *minus*, and are prefixed by a dash, thus –20°. In the Réaumur and centigrade scales, the degrees above zero are also called *plus*, and marked thus, +20°, to prevent one kind being mistaken for another.—*Rules for changing the degrees of any one of the scales into equivalent degrees of another;—Fahrenheit into Réaumur.* Each degree of Fahrenheit is equal to four ninths of one of Réaumur. As Réaumur, however, reckons his degrees from the freezing point, and Fahrenheit 32° below this point, we must, when the number of Fahrenheit's degrees to be reduced indicates a temperature above the freezing point, first deduct thirty-two, and then multiply the remainder by four, and divide the product by nine. The quotient is the corresponding number of degrees on Réaumur's scale. If the temperature indicated was less than the freezing point, we must also be careful to take the actual number of degrees, reckoning from the freezing point. Thus four degrees above Fahrenheit's zero is twenty-eight below his freezing point; and this is the number to be reduced to Réaumur's scale.—*Réaumur into Fahrenheit.* Each degree of Réaumur is equal to 2¼ of one of Fahrenheit. Multiply the given number of degrees of Réaumur by nine, and divide the product by four. If the degrees of Réaumur were minus, the quotient must be deducted from thirty-two, and the remainder will be the equivalent degrees of Fahrenheit. If the given degrees were not minus, the quotient must be added to thirty-two degrees, and the sum will be the equivalent sought.—*Fahrenheit into Centigrade.* Each degree of Fahrenheit is equal to five ninths of one of the centigrade. Proceed as in the case of Fahrenheit into Réaumur, multiplying, however, by five and dividing by nine.—*Centigrade into Fahrenheit.* Proceed as in Reaumur into Fahrenheit, multiplying by nine and dividing by five.—*Réaumur into Centigrade.* Each degree of Réaumur is equal to 1¼ of the centigrade. Multiply the given number of degrees of Réaumur by five, and divide the product by four; the quotient will be the equivalent number of degrees on the centigrade scale.—*Centigrade into Réaumur.* Each degree of the centigrade is equal to ⅘ of Réaumur. Multiply the given number of degrees of the centigrade by four, and divide the product by five; the quotient will be the equivalent number of degrees on Réaumur's scale. Extensive tables of the correspondence of these thermometrical scales, and of some of the most remarkable temperatures, may be found in the *Treatise on the Thermometer and Pyrometer*, in the Library of Useful Knowledge. See our article *Pyrometer*.

THERMOPYLÆ; a narrow defile in Greece, leading from Thessaly into Locris and Phocis; between mount Æta and the sea; 40 miles north of Thebes. It is five or six miles long, but was only fifty or sixty paces (in the narrowest part only twenty-feet) wide, in the time of the Greeks; it is now nearly double, from the retiring of the sea. The cliffs overhanging the pass are, in general, from 400 to 600 feet high. It is celebrated for a desperate resistance against the Persian army, made by 300 Spartans, under Leonidas. (q. v.) It was called by the Greeks simply *Pylæ* (gates), or *Thermopylæ*, from the warm springs (*thermæ*) hard by. In Strabo's time, the pass was still adorned by the monument erected in honour of Leonidas and his followers, on which was this simple inscription: "Stranger, tell the Lacedæmonians that we lie here in obedience to their laws." Thermopylæ now forms a part of the north-eastern frontier of Greece, as determined by the protocol of February 3, 1830.

THEROIGNE DE MERICOURT, called the revolutionary Amazon, was born near Luxemburg, and previous to the revolution of 1789, had been a prostitute in Paris. She was no less remarkable for her oratorical powers than for her beauty; and she took an active part in some of the tumults of that period. She is said to have been at Versailles on the fifth of October, and to have been employed in distributing money and haranguing the mob. In 1790, having accompanied the secret agents who were sent to excite insurrections in Liege, she was taken prisoner by the Austrians, and carried to Vienna, but soon after released. In 1792, we find her again at Paris, the champion of constitutional principles. She appeared in public armed with a pike, or sabre and pistols, at the head of a troop of furious Amazons. It was she who caused Suleau and five others, who had been arrested on suspicion, to be murdered, August 10, 1792. She soon after proved to be insane, and was confined in a mad-house until her death, in 1817.

THERSITES; a Grecian at the siege of Troy, who is described by Homer as the most deformed of the Greeks, squinting, lame, hunch-backed and bald-headed. He was noted for his malice, and was continually provoking his fellow-soldiers, particularly Agamemnon, Ulysses and Achille by his taunts and sarcasms. He is said to have been killed by Achilles.

THESEUS; king of Athens, and son of Ægeus by Æthra, the daughter of Pittheus; one of the most celebrated of the heroes of antiquity. He was educated at Troezone, at the house of Pittheus, and passed for the son of Neptune. When he came to years of maturity, he was sent by his mother to his father, and a sword was given him, by which he might make himself known to Ægeus, in a private manner. (See *Ægeus.*) His journey to Athens was not across the sea, as was usual with travellers; for he determined to signalize himself in going by land, and encountering difficulties. The road which led from Troezene to Athens was infested with robbers and wild beasts; but these obstacles were removed by his courage. He destroyed Corynetes, Sinnis, Sciron, Procrustes, Cercyon and Phæa. At Athens, however, his reception was not cordial. Medea lived there with Ægeus; and as she knew that her influence would fall to the ground if Theseus was received in his father's house, she attempted to destroy him before his arrival was made public. Ægeus was to give the cup of poison to the stranger; but at the sight of his sword on the side of Theseus, he knew him to be his son. The Pallantides, who expected to succeed their uncle Ægeus on the throne, as he had no children, attempted to assassinate Theseus; but they failed in the attempt, and were all put to death by the young prince. The bull of Marathon next engaged the attention of Theseus. He caught the animal alive, and, after he had led it through the streets of Athens, sacrificed it to Minerva or the god of Delphi. After this, Theseus went to Crete among the seven chosen youths whom the Athenians yearly sent to be devoured by the Minotaur. The wish to deliver his country from so dreadful a

tribute engaged him to undertake this expedition. He was successful, by means of Ariadne, the daughter of Minos, who was enamoured of him; and, after he had escaped from the labyrinth with a clew of thread, and killed the Minotaur (see *Minotaurus*), he sailed from Crete with the six boys and seven maidens whom his victory had redeemed from death. In the island of Naxos, whither he was driven by the winds, he had the meanness to abandon Ariadne, to whom he was indebted for his safety. The rejoicings which his return might have occasioned at Athens, were interrupted by the death of Ægeus, who threw himself into the sea; when he saw his son's ship return with black sails, which was the signal of ill success. He succeeded his father. The Athenians were governed with mildness, and Theseus made new regulations, and enacted new laws. The number of the inhabitants of Athens was increased; a court was instituted, which had the care of all civil affairs; and Theseus made the government democratical, while he reserved for himself only the command of the armies. (See *Attica*.) The fame which he had gained by his victories and policy made his alliance courted; but Pirithoüs, king of the Lapithæ, alone wished to gain his friendship, by meeting him in the field of battle. He invaded the territories of Attica; and, when Theseus marched out to meet him, the two enemies, struck at the sight of each other, cordially embraced; and from that time began the most sincere friendship, which has become proverbial. Theseus was present at the nuptials of his friend; and he was the most courageous of the Lapithæ, in the defence of Hippodamia, and her female attendants, against the attempts of the Centaurs. When Pirithoüs (q. v.) had lost Hippodamia, he agreed with Theseus, whose wife was also dead, to carry away some of the daughters of the gods. Their first attempt was upon Helen. After they had obtained the prize, they cast lots, and she became the property of Theseus; but the resentment of Castor and Pollux soon obliged him to restore her into their hands. Theseus assisted his friend in procuring a wife, and they descended into the infernal regions to carry away Proserpine. Pluto, apprized of their intentions, stopped them; and Pirithoüs was placed on his father's wheel, and Theseus was tied to a huge stone, on which he had sat to rest himself. Virgil represents him in this state of punishment; but others declare, that he was not long detained in hell. When Hercules came to steal the dog Cerberus, he tore him away from the stone, but with such violence, that his skin was left behind. During the captivity of Theseus in the kingdom of Pluto (see *Phædra*), Mnestheus, one of the descendants of Erechtheus, ingratiated himself into the favour of the people of Athens, and obtained the crown. Theseus attempted to eject the usurper, but to no purpose. The Athenians had forgotten his services; and he retired to the court of Lycomedes, king of Scyros, who, either jealous of his fame, or bribed by Mnestheus, threw him down a deep precipice. Some suppose that Theseus inadvertently fell down this precipice, and that he was crushed to death. The children of Theseus, after the death of Mnestheus, recovered the Athenian throne, brought his remains from Scyros, and gave them a magnificent burial. They also raised statues and a temple; and festivals and games were publicly instituted to commemorate his actions. These festivals were still celebrated in the age of Pausanias and Plutarch, about 1200 years after the death of Theseus. The historians disagree with the poets in their accounts of the hero; and they all suppose, that, instead of attempting to carry away the wife of Pluto, the two friends wished to seduce a daughter of Aidoneus, king of the Molossi. This daughter, as they say, bore the name of Proserpine; and the dog which kept the gates of the palace was called Cerberus; and hence arises the fiction of the poets. Pirithoüs was torn to pieces by the dog; but Theseus was confined in prison, from whence he made his escape some time after, by the assistance of Hercules. Some authors place Theseus and his friend in the number of the Argonauts; but they were both detained, either in the infernal regions, or in the country of the Molossi, at the time of Jason's expedition to Colchis.

THESIS (θέσις, position, formed from τίθημι, I put or lay down); in the schools, a general proposition which a person advances and offers to maintain. In logic, every proposition may be divided into thesis and hypothesis. Thesis contains the thing affirmed or denied, and hypothesis the conditions of the affirmation or negation. Thus, "if a triangle and parallelogram have equal basis and altitudes (hypothesis), the first is half of the second" (thesis). For arsis and thesis, see *Rhythm*.

THESMOPHORUS. See *Ceres*.

THESPIS, a native of a village near Athens, lived in the time of Solon, in the first half of the sixth century B. C., and is considered the inventor of tragedy, as he added to the dithyrambic chorus of the feasts of Bacchus a character, which, while the chorus was silent, generally recited a mythical story. He received for his trouble a he goat (τράγος); and this gave occasion to the name *tragedy*. Thespis used a wagon for his stage. See *Drama*.

THESSALONICA. See *Salonica*.

THESSALY, THESSALIA; the northern part of ancient Greece Proper, bounded on the east by the Thermaic gulf, separated from Bœotia on the south by mount Œta, from Epirus on the west by mount Pindus, and from Macedonia on the north by mount Olympus. It is a fruitful and picturesque country, in which beautiful and rich plains interchange with elevated districts, and watered by numerous streams, among which the Peneus was the most celebrated, for its vale of Tempe. Its cornfields and vineyards were not less productive than its meadows, and it was famous for its breed of horses. The Thessalians were considered the best horsemen among the Greeks, and the invention of equitation has been attributed to them. The Hæmones (from whom the country was also called *Hæmonia*) were considered the original inhabitants. The Pelasgians and Hellenes, the latter under Deucalion, in the sixteenth century B. C., afterwards settled in this region, in which dwelt also the Centaurs and Lapithæ, mountaineers residing on Olympus and Ossa. The eastern promontory, which stretched far out into the Ægean sea, was formed by mount Pelion, which the giants piled upon Ossa in their attempt to storm heaven. Upon the summit of Pelion (now *Petra*) is a celebrated cavern, in which the Centaur Chiron, the tutor of Achilles, was said to have lived. In Thessaly, Achæus, Æolus, and Dorus, the founders of the tribes which bore their name, are first discovered, and several small states successively rose here. Among them was Iolchos, the dominion of Æson, father of Jason, the leader of the Argonauts; Phthia, where Peleus, father of Achilles, ruled over the Myrmidons; and Phere, which at a

later period became a powerful kingdom. Here reigned Admetus, husband of Alceste, and Alexander the tyrant. At Anthela, near Thermopylæ, were held the autumnal sessions of the Amphictyons. Philip of Macedon made himself master of all Thessaly, and it remained under the Macedonian dominion until it became a Roman province. It now forms, under the name of *Janiah*, or *Janna*, a part of European Turkey, the boundary line of Greece, as fixed by the protocol of February 3, 1830, running to the south of it. The old geographers divide the country into Thessaliotis, Phthiotis, Pelasgiotis, and Hestiæotis; or, instead of the two last, into Magnesia and Perrhæbia. The most remarkable mountains of Thessaly are the Pindus, Œta, Ossa, Pelion, and particularly the seat of the gods, Olympus, on the frontiers of Macedonia. Among the rivers, besides the Peneus, are the Apidanus, Achelous, Asopus, and Sperchius; among the towns, besides those already named, Hellas, Trachis or Heraclea, Pharsalus, and Larissa, now the chief town in this part of the country. Achilles, Jason, Philoctetes, Patroclus, and Pirithoüs were Thessalians. Thessaly had also the reputation of producing the most powerful sorceresses; and the Thessalian women were so famous for their skill in magical arts, that *Thessalis* was sometimes used to signify a *sorceress* or *witch*.

THETIS; a daughter of Nereus and Doris, therefore one of the Nereids. She aided Jupiter against the Titans, who attempted to bind him, and called in Briareus to his assistance. Jupiter and Neptune became enamoured of her, according to Pindar, and sought her in marriage; but Themis or Prometheus forewarned them that she would bear a son greater and more powerful than his father. She was therefore destined, by the gods, to become the bride of Peleus, king of the Myrmidons, in Thessaly. She changed herself into a thousand forms to avoid his embraces; but Peleus finally obtained the same power of transformation, by the instructions of Proteus or Chiron, and she was at length obliged to yield. The nuptials were celebrated on mount Pelion, and were honoured by the presence of all the gods. She bore to Peleus seven children, all of whom she placed in the fire while her husband slept, in order to consume whatever was mortal in them. But they had too little of the immortal nature; and all perished except Achilles, whom Peleus snatched from the flames. Irritated at this act, Thetis abandoned her husband, and returned to the Nereids, her sisters. She still, however, took an interest in the fate of her son, dipped him in the Styx to render him invulnerable, and sent him, in a female dress, to the court of Lycomedes, at Scyros, to prevent him from taking part in the Trojan war. After the death of Achilles (q. v.), Thetis clothed his body with celestial garments, and caused the most magnificent funeral games to be performed in honour of him. Thetis was a symbol of water in the old cosmogonies; and hence the fable of her being able to transform herself into a variety of shapes, since water, as the primitive element of all things, assumed all forms. Thetis was likewise the chief divinity of Phthiotis, the kingdom of Peleus; and the numerous fables concerning her were probably invented in compliment to him.

THEURDANK; a German poem, written in the first part of the sixteenth century, and celebrating the exploits and adventures of Maximilian I., emperor of Germany (Nuremberg, 1517.)

THEURGY; the name which the ancients gave to that part of magic which we sometimes call *white magic*, or the *white art*. The word is formed from θεος (God) and εργον (work), as denoting the art of doing divine things, or things which God alone can do. Accordingly, those who have written of magic, in general divide it into three parts: *theurgy*, which operates by divine or celestial means; *natural magic*, performed by the powers of nature; and *necromancy*, which proceeds by invoking demons. Theurgy probably originated with the Chaldæans (q. v.), or Persians, among whom the magi chiefly occupied themselves with it. The Egyptians also pretended to great proficiency in the art. The former considered Zoroaster its author; the latter, Hermes Trismegistus. It is a branch of magic. (q.v.)

THEVENOT, MELCHIZEDEC, a distinguished traveller, was born at Paris, in 1621, and had scarcely finished his studies, when he determined to gratify his inclination to visit foreign countries. Having travelled in different parts of Europe, he devoted himself entirely to study, and to the promotion of literature, by collecting books and manuscripts, and by carrying on a correspondence with the learned in various parts of the world. The office of royal librarian (1684) facilitated his researches, and he contributed much to the improvement of the establishment under his care. He died in 1692. He published *Relations de divers Voyages curieux qui n'ont point été publiés* (Paris, 1663—72, 4 parts, in 2 vols., fol.), and *Recueil de Voyages* (1681, 8vo.).

THEVENOT, JOHN DE, born at Paris, in 1633, was the nephew of the preceding, with whom he has sometimes been confounded. He received his education at the college of Navarre, and, in 1652, commenced a journey through England, Holland, Germany, and Italy; after which he resolved to visit the East. In 1655, he embarked at Civita Vecchia, and, after touching at Sicily and Malta, went to Constantinople, Natolia, Egypt, Tunis, and Carthage, and returned to France, after an absence of seven years. In 1663, he again left Paris to commence a second Oriental tour. After visiting Syria and Persia, he went to the East Indies, and, on his return through Persia, died near Tauris, in 1667. An account of his first expedition was published by himself, under the title of *Voyage de Levant* (1664, 4to.); which was followed by *Suite du même Voyage* (4to.), and *Voyage contenant la Relation de l'Indostan* (1684, 4to.). This traveller is said to have introduced into France the use of coffee.

THIBAUT, count of Champagne, and king of Navarre, distinguished among the early French poets, was the son of the count of Champagne, by a daughter of Sancho, king of Navarre. After having been educated at the court of Philip Augustus, king of France, he was enabled, through the influence of that monarch, to obtain the counties of Champagne and Brie, in 1221. On the death of his maternal uncle, in 1234, he became king of Navarre; and, in 1239, he embarked for the East, to engage in a crusade against the infidels. After an absence of two years, he returned to his own dominions, and died at Pampelona, July 10, 1253. Thibaut was deeply engaged in the intrigues and civil dissensions which took place in France during the minority of St Louis. His poetical talents procured him the title of the *song-maker*,

Love was the theme of his muse. M. Levesque de la Ravaliere published, with a glossary and dissertations, the songs of the king of Navarre (Paris, 1742, 2 vols., 12mo.)

THIBET, or TIBET; a country of Asia, forming a part of Independent Tartary, lying between lon. 74° and 100° east, and lat. 26° and 35° north, and extending from the sources of the Indus to the frontiers of China, and from Hindoostan to the desert of Cobi, comprising a superficial area of about 400,000 square miles. The natives call the land *Pue*, or *Puekachim*, signifying the *Northern Land of Snow*—a designation plainly alluding to the severity of the climate, the inclemency of which is owing to the elevated situation of the surface, Thibet being the most lofty part of the continent. Here rises the great Himalaya range, the highest in the world, the summits of which are visible for more than 200 miles. (See *Himalaya Mountains.*) The Dhawala-giri (White mountain) is 28,015 feet high, and therefore more lofty than Chimborazo, formerly considered the highest mountain on the face of the earth. Hence issue all those mountainous chains which extend into Tartary, to China, &c.; and here rise the largest rivers of Asia, the Ganges, the Burrampooter, the Irrawaddy, the Meeon, the Yang-Tse-Kiang, &c. To travellers who enter the country for the first time, it seems a land forgotten by Heaven. Immense rocks and mountains, without any appearance of vegetation, alternate with dry and infertile plains. The wheat, peas, barley, which grow on the latter, in many parts, never ripen, and serve only as fodder for cattle, when grass fails. At regular intervals rain occurs, and a short grass springs up, which stops growing as soon as the rain ceases, and is immediately so parched by the dryness of the atmosphere, as to become entirely white, and can be reduced to powder by rubbing it between the fingers. Yet it affords pasture to large herds of cattle, and is superior, in its nutritious properties, to the best grass. On the approach of winter, the Thibetans water the lower meadows, by means of large masses of ice, to prevent the dry soil from being carried away by the wind. The temperature and alternation of the seasons are remarkably regular in Thibet. From March to May, rain, thunder, and storms prevail. From June to September, there is a succession of violent rains; all the streams are full, and threaten to inundate Bengal. From October to March, the air is almost always clear and pure, and the sky is seldom overcast. During three months, the cold is more severe than in any part of Europe, particularly in the southern portion of the country, along the mountainous ridge which separates Thibet from Assam, Bootan, and Nepaul, and which lies between lat. 26° and 27° north. The inhabitants during that period retire to the lower valleys, or into the caves of the rocks. From Phari to Nanee, a distance of nearly fifty miles, the whole country is then a mere wilderness; and the cold is so great that meat keeps fresh till March. But notwithstanding the inclemency of the climate, there is here a great abundance of wild and tame beasts. A peculiar race of cattle, called the *Yak of Tartary*, with a hunch upon the shoulders, is found in great numbers. The body is covered with a long, thick, and soft hair, and the tail, which is likewise formed of long, glossy hairs, thickly set, is much used in the East to drive away flies. This animal is very wild, and lives in the coldest parts of the country, in summer upon the mountains, and in winter in the valleys. It constitutes the wealth of the wandering Tartars, who procure from it food and clothing, and make use of it as a beast of burden, for which purpose it is more suitable than for agricultural labours. In the highest mountains the musk deer is found: it is about as large as a middling-sized dog; the musk is contained in a small bag, lying near the navel, and is found only in the male. The Cashmere goat, wild horses, which are too swift to be taken alive, the sheep, with broad fat tails; and another small species, with black head and legs, often used to carry burdens,—are also among the animals of Thibet. Notwithstanding the poverty of the soil, all the wants of the inhabitants are richly supplied by the animal and mineral wealth of the country. Native gold is found, in abundance, in the sands of the rivers; cinnabar, lead, and copper abound in mines; the iron mines are little worked, on account of the deficiency of fuel, for which dung is much used; tincal, from which borax is prepared, and rock-salt, are found in great quantities. Trade is almost entirely a monopoly of the ruler: that with China is carried on chiefly through Silling, or Sinning, a town on the eastern frontier. The religion, according to Turner's conjecture, is a corrupt form of Braminism, which first sprang up in the southern part of the country, on the borders of India, where was, accordingly, the original seat of the dalai-lama. See Hüllman's *Critical Enquiry into the Religion of the Lama* (in German, Berlin, 1796). The principles of the religion of the Hindoos, though with many deviations, are found to prevail through Lamaism. The places which the Hindoos esteem holy (Allahabad, Benares, Juggeen, Juggernaut, Gaya, and Sangor) are also visited as such by the Thibetans, in their pilgrimages. But there are many ceremonies peculiar to the Thibetans. The people assemble in large chapels, and sing to the sound of the same species of instruments of great size, like those which are found in India and China, as *trumpets*, drums, flutes, conchs, and cymbals. There are no traces of the division into castes, and the inhabitants eat with foreigners without reserve or distinction. The dalai-lama (see *Lama*) is the temporal as well as spiritual head of the country: he is considered as the vicegerent of God, invested with the power of dispensing the divine blessings to whom he will, not only directly, but mediately, through the numerous under lamas, monks, &c. But our accounts of the state of the religion, as well as of the country in general, are exceedingly imperfect and uncertain. The manners and mode of life are rude: the houses of the peasants are merely piles of stone, with holes to let in air and light. Among the diseases prevalent here is the goitre, or swelled throat, common in other mountainous regions. A rude mode of printing, with immovable letters, has been introduced from China: the characters used are derived from the Sanscrit. There are twelve colleges in Thibet, which are frequented not only by the Thibetans, but by the Tartars of the surrounding country: philosophy, astronomy, medicine, and theology are taught in these seminaries, and Turner observed, when he was here in 1783, that the satellites of Jupiter, and the ring of Saturn, were not unknown to the learned, and that the physicians were acquainted with the use of mercury in syphilitic diseases. There are also schools of magic, in which the art of exorcising, &c., is taught. Thibet is subject to China: some internal trouble

having occurred in 1720, the Chinese seized the opportunity to obtain an ascendency in the country. In 1793, it was invaded by the Nepaulese, who were, however, repulsed by the Chinese; and the power of the latter has, since that time, been on the increase. A Chinese functionary is always stationed at the residence of the dalai-lama, who transmits information to, and receives instructions from Pekin. Whether the statement, that there is another lama, called the *Bogdo lama*, who reigns in Bootan, be correct or not, our imperfect knowledge of the country does not enable us to decide. A Chinese description of Thibet has been translated into Russian, by the Russian archimandrite Hyacinth, and a German version of the Russian translation has been published at St Petersburg (1828).

THIRD ESTATE. See *Tiers Etat*.

THIRST; the sensation which attends the desire to drink. During the operations of the animal functions, a great quantity of moisture is consumed, the loss of which must be supplied. Thirst, and the feeling of languor by which it is accompanied, are the voice of nature, calling upon the animal to supply the place of the lost moisture by drinking. The sensation of thirst is not always equally strong; but it depends partly upon the food and the prevailing temperature. In summer, when the process of perspiration is active, and the consumption of moisture consequently great, all animals drink more than in winter. Cold-blooded and inactive animals bear thirst much longer than warm-blooded and lively animals. Madness, and the consequent lassitude and exhaustion, are produced by long and excessive thirst no less than by hunger. Plants also suffer from thirst, and wither under its influence. An outward application of moisture is found to diminish thirst; and sailors have preserved their lives by bathing in the sea. The vicious habit of frequently drinking, and the desire of tasting some liquids, such as brandy, wine, &c., cause the development of a morbid feeling, which is mistaken for thirst, to which it has a great analogy.

THIRTY TYRANTS. See *Attica*, and *Peloponnesian War*.

THIRTY YEARS' WAR (from 1618 to 1648). The remote causes of this war are to be found in the reformation of the sixteenth century, and in the "religious peace" of Augsburg, 1555. The Catholics and Protestants in Germany had long viewed each other with equal jealousy: nothing but mutual fear had prevented them from breaking out into open hostilities. By the union of the Protestant princes, formed in 1608, in opposition to which the Catholics established their league in 1609, the fire already kindled, and smouldering beneath the ashes, received fresh strength, till it at last burst into a flame in Bohemia. Here the Protestant doctrines, which had gradually spread even through the hereditary states of Austria, had obtained greater freedom and privileges by the *Majestätsbrief*, an edict extorted from Rodolph II., in 1609. By virtue of this edict, the towns and the nobles had the right of building churches and schools. In the little town of Klostergrab, therefore, and in Braunau, the Protestant vassals, contrary to the wishes of their feudal lords, built churches in the reign of Matthias, at whose command the church in Klostergrab was demolished, and that in Braunau was shut up. The Protestants remonstrated with the emperor, but were answered with threats. A report was spread that this answer was composed in Prague, and that the emperor knew nothing of it. May 23, when the imperial council were assembled at the castle in Prague, deputies from the Protestant estates crowded into the hall, armed, and demanded whether any of the counsellors had a part in the composition of the imperial ordinance. Two of the counsellors, already odious to the Protestants (Von Martinitz and Slawata, with the secretary Fabricius), giving sharp answers to the deputies, were thrown into the dry moat of the castle, but escaped nearly unhurt. The Protestants then took possession of the castle, drove away the Jesuits, who were accused, by the Bohemians, as the authors of the oppressions complained of, and took up arms under the ambitious count of Thurn. The Union sent an auxiliary corps into Bohemia, under the command of the brave Ernest, count of Mansfeld. The emperor gave orders for his army to invade Bohemia. In the midst of these troubles Matthias died (March 10, 1619). He was succeeded by Ferdinand II., who was chosen emperor, August 28, 1619. The Bohemians, knowing his hostility to Protestantism, had already (August 17) declared his title to the Bohemian crown void, and conferred it upon the palatine, Frederic V., who, after some hesitation, finally accepted it, chiefly through the urgent persuasion of his ambitious wife, the daughter of James I., of England. But the very next year, the great victory of the troops of the League, on the Weissenburg, near Prague (November 3, 1620), which was followed by the flight of the new king, put an end to the Bohemian rebellion, and crushed the Protestant cause in that quarter. Ferdinand now declared Frederic V. under the ban of the empire; and the ruin of that prince became inevitable, when, in consequence of the treaty of Ulm (July 3, 1620), the Union was dissolved. The Palatinate was conquered by the Spanish and Bavarian troops, although count Ernest of Mansfeld, and duke Christian of Brunswick, hastened to its assistance with their troops, who supported themselves by plunder. But the bestowing of the dignity of elector palatine on Maximilian of Bavaria (1623), a partisan of the emperor, by which the Catholics gained the ascendency in the electoral college, and the advance of the Bavarian general Tilly to the frontiers of the circle of Lower Saxony (where he still kept his army, though, in 1624, there was no enemy in the field, deprived the Protestants of their churches, drove away the Lutherans, and committed other acts of violence), at last awakened the Protestant princes of this circle from their slumber. They entered into a confederacy with the king of Denmark, and Christian IV., duke of Holstein. On the other hand, the imperial forces were considerably augmented by the army of Wallenstein, afterwards duke of Friedland, raised at his own cost, which marked its course with the most frightful devastation. The king of Denmark was entirely defeated by Tilly, at Lutter, on the Barenberg, in 1626, and, at the disgraceful peace of Lübeck, 1629, compelled to promise that he would never again interfere in the affairs of the German empire. The emperor was now more powerful than ever, and the Protestant cause was in extreme jeopardy. A proof of this was the edict of restitution of 1629, by which the Protestants were to give up all the church estates, which they had confiscated since the religious peace of 1555. At this crisis appeared Gustavus Adolphus, king of Sweden, to whom Stralsund had applied for protection, in 1628,

when besieged by an army of 100,000 men under Wallenstein, and from whom the alarmed Protestants now sought assistance. Full of zeal for his religion, exasperated by various injuries received from the emperor, this prince landed in Pomerania, June 24, 1630, with an army of 30,000 men. He drove the imperial troops before him wherever he appeared. He was unable, indeed, to prevent the capture and destruction of Magdeburg, by Tilly, in 1631; but, having increased his strength by an alliance with France and several German princes, some of whom were compelled to accede to it, as the princes of Brandenburg and Saxony, and having destroyed Tilly's army in the battle at Leipsic (September 7, 1631), he reduced the emperor and his allies to great straits, by his rapid movements, aided by the victories of his generals and confederates in Westphalia and Lower Saxony, and by the invasion of Bohemia by the Saxons. Gustavus delivered the Protestants in Franconia from the imperial army, conquered Mentz, made himself master of the Palatinate, and pushed into Bavaria. At the same time, the elector of Saxony had captured Prague. The emperor feared that Vienna itself would be besieged. Tilly had died in Bavaria. Such was the situation of the Protestant affairs in Germany. But when Wallenstein (who, at the urgent instance of the diet assembled at Ratisbon, had been dismissed for his acts of extortion and plunder) again appeared on the stage, with a formidable army and high military renown, Gustavus found himself under the necessity of evacuating Bavaria. The two armies met at Nuremberg; but Wallenstein, not finding it expedient to risk a battle, remained in his intrenchments, on which an ineffectual assault was made by Gustavus. They at last came to a bloody battle at Lützen, in Saxony (November 6, 1632), in which the king gained the victory at the expense of his life. His death would have been attended with the most disastrous consequences to the Protestants, had not his high-chancellor, Oxenstiern, by his skilful negotiations, effected the alliance of Heilbronn among the German princes, while the brave duke Bernard of Weimar and Gustavus Horn made the Swedish arms triumphant through almost all Germany—a result not a little promoted by the ambiguous behaviour of Wallenstein, who, having retired to Bohemia in 1634, was charged with treason and put to death by emissaries of the emperor. But the aspect of things suddenly changed again at the bloody battle of Nördlingen, in 1634. The elector of Saxony united himself, at the peace of Prague, in 1635, with the emperor against Sweden (on which occasion Saxony was indemnified with the possession of Lusatia). Several states of the empire concurred in this peace, so that the Swedes were obliged to seek protection in a closer union with France. By the successes of Bernard of Weimar on the Upper Rhine, and of Baner, who, in 1638, had invaded Bohemia, they again became formidable. Torstenson, with astonishing rapidity, marched from one end of Germany to the other, made Austria tremble, humbled the king of Denmark, and filled up the measure of Swedish glory, which Wrangel continued to maintain till the end of the war. It was not till after the death of Bernard, duke of Weimar (1639), that France took a serious part in this war; and, though at first her armies had done but little, and met with a severe defeat at Duttlingen, in 1643, they afterwards gained brilliant victories, under Condé and Turenne, over the imperial and Bavarian troops. At length, the conquest of Prague by the Swedish general Königsmark (in 1648), compelled Ferdinand III. (Ferdinand had before died, in 1637) to conclude the peace which, after seven years' negotiation, at Münster and Osnabrück, in Westphalia, was signed October 24, 1648. (See *Westphalia, Peace of*, and *Germany*.) For more information, see Schiller's *History of the Thirty Years' War*: Wattmann's *History of the Peace of Westphalia* (2 vols. 8vo), a continuation of Schiller. A good history of the war is yet a desideratum. It spread from one end of Germany to the other; and, after its close, that country, wasted by fire, sword and plague, was a scene of desolation and disorder. A bad currency and a deficiency of labourers brought on great scarcity. The art of war was the only thing that gained any thing, principally by the great Gustavus Adolphus, who made an era in military tactics, and was the first who had a train of artillery in his army.

THISBE; a beautiful Babylonian maiden, whose memory has been preserved by her unhappy passion for Pyramus. The parents of the lovers opposed their mutual wishes; and they were able to keep up a communication with each other only by conversing through a hole in the wall, which separated the contiguous houses of their parents. One night, however, they agreed to meet at the tomb of Ninus, without the city. Thisbe arrived first, but was terrified at the unexpected sight of a lioness, and hid herself in a neighbouring cave. In her haste, she dropped her mantle, which was rent by the lioness. Pyramus now reached the spot, and, convinced, by the appearance of the torn garment, that Thisbe had fallen a prey to the monster, he threw himself in despair upon his sword. Thisbe, on returning, and finding her lover weltering in his blood, stabbed herself with the same sword. Both were interred in the same grave, at the foot of a mulberry tree, whose white berries became red.—This Thisbe must not be confounded with the nymph *Thisbe*, from whom the town of the same name, in Bœotia, was called.

THISTLE (*cnicus*). These rough, spiny plants are conspicuous objects in northern climates. The stem is thick and herbaceous; the leaves more or less pinnated, and toothed, and beset with spines. It belongs to the *compositæ*; and the flowers are disposed in large, dense heads, surrounded with a close, scaly, and usually spiny *involucre*, and are of a purple colour, with a few exceptions.

THISTLE, KNIGHTS OF, OR KNIGHTS OF ST ANDREW; according to *some writers*, instituted by Achaius, king of Scots, in memory of the appearance in the heavens of a bright cross, resembling that whereon St Andrew *suffered martyrdom*, seen by Achaius, the night before he gained a victory over Athelstan, king of England. This order, after having much declined, was revived by James II. of England, in 1687, and again by queen Anne in 1703. The motto is "*Nemo me impune lacessit*."

THISTLEWOOD, ARTHUR, memorable for his concern in the political commotions which disturbed England during the ascendancy of lord Castlereagh, was the son of a farmer in *Lincolnshire*, and was born in 1772. He obtained a lieutenant's commission in the supplementary militia in 1795, and, soon after, married a young lady with a considerable fortune. He then resided at Bawtry, in Yorkshire; but, his wife dying in about eighteen months, he went to Lincoln, where he abandoned

himself to dissipation, and, having squandered his property at the gaming table, was obliged, at length, to take refuge in London. There he remained some time, making, however, occasional voyages to America and France. In the latter country he connected himself with the partisans of anarchy and revolution, and probably contracted that spirit of discontent which influenced his future conduct. After the peace of Amiens, he returned to England, and improved his circumstances by a second marriage. But he had now become a gambler by profession; and, having associated himself with other persons of desperate character, he engaged in schemes which drew on him the notice of government. When the riots in Spa fields took place, he was arrested, with Watson and others; and the proceedings against him on that occasion only served to irritate his passions, and prompt him to such outrageous behaviour towards lord Sidmouth, then secretary of state, as occasioned his subsequent detention in prison for a considerable time. On his liberation, he gave way to the suggestions of rage and despair, and became the principal agent in the memorable Cato street conspiracy, the object of which was to murder several members of the administration at a cabinet dinner, and excite an insurrection in the city of London. This absurd scheme was betrayed by a man employed as a spy by the ministry, and the insane projectors were arrested, just as they were about to proceed to the execution of their purpose. Being tried and condemned as a traitor, Thistlewood, with his coadjutors, suffered the sentence of the law, May 1, 1820.

THOMAS AQUINAS. See *Aquinas.*

THOMÆANS. See *Christians of St Thomas.*

THOMAS A KEMPIS; that is, *Thomas of Kempen*, or *Kampen*, a small town in the archbishopric of Cologne, where he was born in 1388, though, according to some accounts, Kampen in Overyssel was his birthplace. His family name was Hamerken or Hämmerlein (Malleolus, or Hammer). His parents, who were poor, designed him, from an early age, for the church; and he received instruction and assistance from Florentius, prior of a monastery of regular canons, at Deventer, in Overyssel. With such an example and such lessons, the youth was led to devote himself to the rigorous observance of monastic practices; and, at the age of twenty, he retired, with a strong inclination for the monastic life, to the Augustine convent on mount St Agnes, near Zwoll, where, after five years of probation, he took the vows. Here, distinguished for the apostolical simplicity of his character, and Christian purity of his life, he died in 1471, superior of the convent. His works, some of which have not yet been printed, were first published in 1494 (folio). The best edition is that of the Jesuit Sommel (1600, 4to.), which is not, however, complete. His printed works are all in Latin, and consist of sermons, discourses, exhortations, and other ascetic treatises, hymns, prayers, and some lives. His *Soliloquia Animæ*, his *Hortulus Rosarum*, and his sermons, have always held an honourable rank among the mystical writers. His *De Imitatione Christi Libri IV.*, the most celebrated of his works, has been translated into all modern languages, and has been republished more than a thousand times. It penetrates so deeply into the genuine spirit of Christianity, that it has been received with equal favour by the most opposite sects.

THOMAS, ANTOINE LEONARD, an ingenious French writer, born at Clermont, in Auvergne, in 1732, was placed, in his tenth year, at the college of Duplessis in Paris, where he soon distinguished himself, and, at the age of fifteen, obtained a prize. Although designed for the law, his inclinations led him to the cultivation of polite literature, and he became professor at the college of Beauvais. In 1776, he was employed as secretary to the duke of Praslin, minister of foreign affairs, afterwards held the same post in the service of the duke of Orleans, and died at Chateau d'Oullins, in 1785. Thomas was a man of generous and elevated feelings, and an excellent writer. The best known of his works are his *Eloges*, or Eulogies of Distinguished Men, several of which obtained the prize of the academy. They are in general characterized by vigorous eloquence, boldness of thought, and a warm zeal for the interests of humanity, virtue and knowledge; but they are not always free from exaggeration of style and expression, and too great an effort after effect. The best of his eulogies are those on Descartes, Sully, marshal Saxe, and the dauphin. His *Essai sur les Eloges* (2 vols., 1773) acquired him much reputation, on account of its brilliant imagery, strong and just thought, and interesting views of ancient and modern orators. His *Essai sur les Femmes* is less esteemed. Among his poems, the best are his *Epître au Peuple*, *Ode sur le Temps*, and *Poëme de Jumonville.*

THOMAS, CHRISTIANS OF ST. See *Christians of St Thomas.*

THOMAS, ST, also called *Didymus* (the former being the Hebrew, the latter the Greek word, signifying *twin*), one of the twelve disciples, was born in Galilee, of a family of fishermen. He followed Jesus with the most devoted attachment, during the three last years of his ministry; and the scene with his master, after the resurrection, is well known. He is said to have preached the gospel among the Parthians; but the particulars of his life are unknown. Tradition relates that he suffered martyrdom at Calamine, which Tillemont conjectures to be Calamone in Arabia. There are some writings attributed to him, but they are spurious.

THOMAS, ST; one of the group called the Virgin isles, in the West Indies, belonging to Denmark; lon 64° 55′ W.; lat. 18° 22′ N. It is twelve miles long, and 2½ broad; population in 1828. 7000; whites, 500; free blacks, 1500; slaves, 5000 It abounds with potatoes, millet, manioc, fruits, sugar and tobacco. It has a safe and commodious harbour. The town consists chiefly of one long street, at the end of which is the Danish factory. Most of the houses are of brick, being built and tiled in the Dutch fashion, yet but of one story. The trade of this small island, particularly in time of peace, is very considerable.

THOMAS, ST; an island in the Atlantic, near the coast of Guinea, situated near the equinoctial line, about thirty miles long, and eighteen broad; lat. 1′ to 25′ N.; lon. 6° 25′ E The climate is hot, moist, and unwholesome to Europeans. The soil is fertile, and produces the fruits of the climate in great abundance. The island is well watered. In the centre is a high mountain, covered with wood and fruit trees, and wrapped in almost perpetual clouds, from which descend a number of rivulets, which water the sugar-cane plantations in the valleys at the bottom. The ecclesiastical government is in the hands of the bishop, a suffragan to the archbishop of Lisbon. Chief town, Santo Thome. Pop, Portuguese and blacks, about 18,000.

THOMASIUS, or THOMASIUS, CHRISTIAN, a distinguished German philosopher and critic, was born at Leipsic, in 1655, studied at Frankfort on the Oder, and, returning to Leipsic in 1679, delivered philosophical and law lectures there. But his innovations on established usages (to the general astonishment, he wrote the programs of his lectures in 1689 in the vernacular tongue), and his freedom of thinking, raised him many enemies, and he was finally obliged to leave the country. In 1690, he went to Halle, where he took an active part in establishing the university, in which he became professor of law, and, afterwards, head of the university, and remained there till his death, in 1728. Thomasius was the first to use the German language in university lectures; and he exerted his influence to procure the abolition of torture, of trials for witch-craft, and of restraints upon freedom of thought. He contributed to introduce a more rational and philosophical criticism; and his services, in shaking the doctrines of the Aristotelian scholastics, were of the highest importance. Among his works, the principal are Free Thoughts, or Monthly Dialogues; History of Wisdom and Folly; and Rational and Christian Thoughts on Various Subjects of Philosophy and Jurisprudence, which involved him in numerous controversies with men of narrow and bigoted minds. Luden has written a life of Thomasius (Berlin, 1805).

THOMISTS. See *Aquinas*, and *Scholastics*.

THOMPSON, BENJAMIN. See *Rumford*.

THOMPSON, CHARLES, secretary of the American revolutionary congress, was born in Ireland, in November, 1729, and was about eleven years of age when he arrived in America. He left his native country with his father and three elder brothers: the former died on the passage, and the youths were turned ashore by the captain, at New Castle, with but very slender means of providing for themselves in a strange land. Charles, however, was furnished by one of his brothers with money enough to enter a school in Maryland. At this seminary, he obtained a knowledge of the Greek and Latin languages, mathematics, and other branches of study, which enabled him, whilst a very young man, to keep the Friends' academy in Philadelphia. He afterwards married, and went into business in that city. His principles were early of a most republican cast; and it is even asserted, that he began the opposition to the stamp act in Pennsylvania. Immediately after the first congress had assembled in Philadelphia, he was chosen their secretary. The duties of this office he continued to discharge with great reputation to himself and advantage to the cause, until the close of the war. His well-known integrity procured implicit credit for every thing published with his name. After the adoption of the new constitution, he assisted at the organization of the new government, and was the person deputed to inform Washington of his nomination to the presidency. Washington wished much to retain him in its service, but, in his own words, "the suitable hour for his retirement was now come." During that retirement, he published a translation of the Bible, and a synopsis of the New Testament. His death occurred in 1824. His disposition was remarkably good and cheerful. He possessed a great share of natural sagacity. He was a zealous republican of the old school, and strictly moral and religious. The Indians, into one of whose tribes he was adopted, gave him a name signifying "the man of truth."

THOMSON, JAMES, a distinguished British poet, was born in 1700, at Ednam, near Kelso, in Scotland, being one of the nine children of the minister of that place. He was sent to the school of Jedburgh, where he early discovered a propensity to poetry, which drew the attention of the neighbouring gentry. He was removed to the university of Edinburgh, and induced by the wishes of his friends to study divinity; but he soon gave up theological studies, and paid an exclusive attention to literature. After acting sometime as a private tutor to Lord Binning, he quitted the university, and went to London, where his Winter was purchased by Millar for a very trifling consideration, and published in 1726 with a dedication to Sir Spencer Compton. Its merits, however, were not discovered until it accidentally caught the eye of Mr Whately, who brought it into general notice. It led to the author's introduction to Pope. In 1727, he published his Summer, which he addressed to Bubb Doddington, his Poem to the Memory of Sir Isaac Newton, his Britannia, and, in 1728, his Spring, and in 1730, his Autumn. He had previously brought on the stage his tragedy of Sophonisba, and not long after, he was selected as the travelling associate of Mr Talbot, with whom he visited the continent. On his return he was rewarded with the post of secretary of briefs by the lord chancellor Talbot, which was nearly a sinecure. About this time he published his poem of Liberty, with the cool reception of which he was much disappointed. Soon after, the death of lord chancellor Talbot vacated Thomson's office, and lord Hardwick, who succeeded to the seals, gave it to another. An introduction to Frederic, Prince of Wales, produced him a pension from that prince of £100 per annum. In 1738, he produced a second tragedy, entitled Agamemnon, which was coldly received, and a third, entitled Edward and Eleonora. In 1740, he composed the masque of Alfred, in conjunction with Mallet; but which of them wrote the song, since become national, of Rule Britannia, has not been ascertained. In 1745, his most successful tragedy, entitled Tancred and Sigismunda, was brought out and warmly applauded. The following year produced his Castle of Indolence. He now obtained the place of surveyor-general of the Leeward islands, but soon after (1748) died of a cold caught on the Thames, in the forty-eighth year of his age. He was buried at Richmond, and a monument was erected to him in Westminster Abbey in 1762, with the profits of an edition of his works. He left a tragedy entitled Coriolanus, which was acted for the benefit of his relatives; to whom, during the course of his life, he had given substantial proofs of a steady attachment. Thomson was large and ungainly in person, and somewhat heavy in deportment, except among intimate friends, by whom he was much beloved for the kindness of his heart. His Seasons abounds in sensibility and beauty of natural description. His diction, although occasionally cumbrous and laboured, is always energetic and expressive. His Castle of Indolence is the most spirited and beautiful of all the imitations of Spenser, both for moral, poetical, and descriptive power. His tragedies possess little dramatic interest.

THOMSONITE; a mineral, which, until lately, was regarded as a variety of mesotype, from which, however, it differs essentially in respect to cleavage, the form of its crystals, and its chemical composition. It occurs generally in masses of a radiating structure, in the cavities of which, crystals are or

casionally observed, whose form is that of a right square prism. It is colourless and translucent in the mass; but small fragments are transparent. It possesses considerable lustre, approaching to pearly, is brittle, and scratches fluor. Its crystals do not cleave parallel to the terminating planes of the prism. It consists of

Silex,	26 80
Alumine,	31 26
Lime,	15 40
Magnesia,	0 20
Peroxide of iron,	0 60
Water,	13·00

Before the blow-pipe, it swells, curls, and becomes snow-white and opaque, but does not melt. When exposed to a red heat, it becomes opaque, very white, and shining like enamel: the edges are rounded, but it does not altogether lose its shape, but loses 13 per cent. It occurs at Kilpatrick, near Dumbarton, Scotland, also in Nova Scotia, in trap.

THOR, or TIR; the Jupiter of the Germans: the God of thunder. He was represented as an old man with a long beard, a crown with diverging rays, dressed in a long garment, holding in his right hand a sceptre with a lily, and having around his head a circle of stars. Sacrifices were offered to him under oaks; hence the German name, *thunder-oak*. Boniface (q. v.) felled the Thor-oak near Geismar. *Thursday* (day of Thor) has its name from him.

THORA. See *Tora*.

THORIUM. In the year 1815, Berzelius supposed that he had discovered a new earth among the ingredients of the Gadolinite, to which he gave the name *thorina*; but he afterwards ascertained that this substance was a *phosphate of yttria*. In 1828, he received from professor Esmark of Christiania in Norway, a black mineral, like obsidian, and having a specific gravity of 4·63. To this mineral Berzelius gave the name of *thorite*. It was discovered in sienite, in the isle of Lör-ön, near Brevig, in Norway, and is very scarce. The mineral has the following composition:—

Thorina,	57·91
Lime,	3·58
Peroxide of iron,	3·40
Deutoxide of manganese,	3·20
Magnesia,	0·26
Peroxide of uranium,	1·61
Protoxide of lead,	0·80
Oxide of tin,	0.01
Silex,	18·26
Water,	9·80
Potash,	0·14
Soda,	0·10
Alumine,	0·06
Undecomposed matter,	1·70
	99·54

To obtain thorina from this mineral, it was reduced to powder and digested in muriatic acid. The muriatic solution, after the separation of the silex, was precipitated by caustic ammonia, which threw down the thorina, still contaminated by various impurities. By a variety of operations, it was separated from these, with the exception of a small quantity of oxide of manganese, which it was impossible to get rid of. When mixed with charcoal powder, and heated to redness in a porcelain tube, while a current of dry chlorine is made to pass over it, chloride of thorium is obtained. When this chloride is heated with potassium, a slight detonation takes place, and a dark-gray matter is obtained. When washed with water, a little hydrogen gas is given out, the chloride of potassium dissolves, and the thorium is left in a powder, having an iron-gray colour and metallic lustre. Like aluminum, it appears to be malleable. It is not oxidized by water, even when assisted by heat. When gently heated in the open air, it takes fire, and burns with very great splendour, being converted into thorina. The earth thus formed is snow-white, and exhibits no traces of fusion, notwithstanding the very high temperature during the combustion. When thorium is put into dilute sulphuric acid, a strong effervescence with the disengagement of hydrogen gas, takes place at first; but this soon stops, even though the liquid be heated. Nitric acid acts upon thorium with still less energy than sulphuric acid, but muriatic acid dissolves it rapidly, with the evolution of hydrogen gas. Thorium is not acted on by the caustic alkalies. The only compound which thorium seems capable of forming with oxygen is thorina. To obtain this substance in the state of a hydrate, we have only to add caustic potash to the solution of thorina in an acid. Hydrate of thorina is gelatinous, and contracts while drying. When moist, it dissolves readily in acids: but it is much less soluble when dry. The salts which it forms have a styptic taste. This hydrate is insoluble in the caustic alkalies; but it dissolves in the carbonates. It is more soluble in cold than in hot carbonate of ammonia. Thorina is distinguished from the other earths by the following property; its sulphate is precipitated from its solution by raising it to a boiling temperature, and dissolves again, though slowly, in cold water. The salts of thorina are not of sufficient importance to require description.

THORLACIUS (THORLAKSEN), SKULE and BÖRGE; father and son. *Skule Thordsen*, the former, was born in Iceland, in 1741, and died at Copenhagen, in 1815, where he was rector of the Latin school. Besides his participation in the *Heimskringla*, his preface to the first part of the Sæmundic Edda, and some short Essays upon Thor, two Runic stones, &c., he was the author of a valuable work entitled *Antiquitatum Borealium Observationes* (Copenhagen, 1778—99), and of commentaries upon the *Hákonar-Quida*, the *Grotta-Savngr*, the *Havstlavng*, &c. The son, born at Colburg, in 1775, professor of theology at Copenhagen, has also thrown much light on northern antiquities and literature, by several works; he likewise furnished the means of completing the publication of the *Heimskringla*, and of the Sæmundic Edda, which had been delayed for thirty years.

THORN; a town in the Prussian government of Marienwerder, province of West Prussia, on the Vistula, about 90 miles from its mouth; 100 miles north-west of Warsaw; lon. 23° 48′ E.; lat. 53° 1′ N.; population 9000. It consists of the old and new town, separated from each other by a wall and ditch; both surrounded by a mound and moat. Thorn was formerly considered a place of great strength. It contains one Lutheran and three Catholic churches, two convents, a Catholic gymnasium, and a military academy, and some manufactures; but its commerce is less than formerly, the Vistula having become more shallow, so that vessels of burden can no longer come up to the town. (See *Vistula*.) It was formerly distinguished among the Hanse towns. Copernicus was born here in 1472.

THORN APPLE. See *Stramonium*.

THORNTON, BONNELL, a miscellaneous writer of genuine humour, the son of an apothecary, was born in London, in 1724, and studied at Oxford. In 1750, he studied physic, but soon after united with the elder Colman in the establishment of the amusing periodical paper entitled the Connoisseur.

assuming literature as a profession, he was also a profuse contributor to magazines, newspapers and all the periodicals of the day, chiefly in the light and humorous way. He projected a ludicrous exhibition of sign paintings, which satirized temporary objects, events and persons, and amused for a season, and wrote a burlesque Ode for St Cecilia's Day. In 1766, in conjunction with Warner and Colman, he published two volumes of a translation of Plautus, afterwards completed in five. He died in his forty-seventh year.

THOROUGH BASS. Thorough bass is the art by which harmony is superadded to any proposed bass, and includes the fundamental rules of composition. This branch of the musical science is twofold, theoretical and practical. Theoretical thorough bass comprehends the knowledge of the connexion and disposition of all the several chords, harmonious and dissonant, and includes all the established laws by which they are formed and regulated. Practical thorough bass is conversant with the manner of taking the several chords on an instrument, as prescribed by the figures placed over or under the bass part of the composition, and supposes a familiar acquaintance with the powers of those figures, a facility in taking the chords they indicate, and judgment in the various applications and effects of those chords in accompaniment.

THOROUGHWORT. See *Boneset.*

THOTH. See *Egyptian Mythology*, in the article *Hieroglyphics;* also *Hermes Trismegistus.*

THOU, James Augustus de (in Latin, *Thuanus*), an eminent magistrate and historian, born at Paris in 1553, was the third son of a president of the parliament of Paris. At ten years of age, he was placed in the college of Burgundy, and designed for the church, but was afterwards sent to Orleans, for the study of the civil law, which he further cultivated under Cujacius at Valence. In 1573, he travelled into Italy; and, in 1576, his high character for prudence and ability induced the court to employ him to negotiate with marshal Montmorency for the purpose of preventing a civil war. On the death of his elder brother, in 1579, he dedicated himself to the law, in 1584 was made a master of requests, and, in 1587, having resigned all his previous ecclesiastical engagements, he married. On the revolt of Paris, produced by the violences of the league, he adhered to Henry III., and, after the assassination of the duke of Guise, was principally instrumental in reconciling Henry with the king of Navarre. On the death of Henry III., he hastened from Venice to support his lawful successor, Henry IV., who employed him in several important negotiations, and nominated him principal librarian to the king, on the death of Amyot. In 1594, he succeeded his uncle as *président-à-mortier*, and was afterwards one of the Catholic commissioners at the celebrated theological conference at Fontainebleau, between Du Perron and Du Plessis Mornai. In the regency of Mary de' Medici, he was appointed one of the directors-general of finance, and otherwise employed in nice and difficult matters, in which he rendered himself equally conspicuous by integrity and ability. These various occupations did not prevent him from an assiduous cultivation of literature; and being fond of composition in Latin verse, in 1584 he gave the world a descriptive poem on the subject of hawking, entitled *De Re accipitraria* (On Falconry). He afterwards published other pieces of Latin poetry; but his greatest literary labour was the composition, in the same language, of a voluminous History of his own Times (*Historia sui Temporis*), of which the first part was made public in 1604. To the great credit of Henry IV. this work was condemned, on submission to the influence of the Catholic leader, who were nettled at the freedom with which the historian did justice to the Huguenots, and censured the popes, the clergy, and the house of Guise. The history, when finished, consisted of one hundred and thirty-eight books, comprising the events from 1545 to 1607; and as few writers have undertaken a work of this extent with better qualifications for the task, it was accomplished in a manner which has secured the approbation of posterity. Accurately acquainted with the politics, revolutions, geography of modern Europe, the narrative of De Thou is at once copious and exact, while his strict candour and love of truth have ensured all the necessary freedom and impartiality. To this work he subjoined Commentaries, or Memoirs of his own Life, composed in the same spirit. In 1601, he lost his first wife, by whom he had no children, and married a second, who brought him three sons and three daughters. The loss of this lady in 1601, together with the calamities which befell the country after the assassination of Henry IV. is thought to have hastened his own death, which took place in 1617, at the age of sixty-four. The most complete edition of the History of De Thou is that published in London, in 1733, by Buckley, in seven volumes, folio.—See Chasles's *Discours sur De Thou* (1824), which divided the prize of the French academy.

His eldest son, *Francis Augustus*, born in 1607, inherited the virtues and intelligence of his father, and was made master of requests and grand master of the royal library. Cardinal Richelieu having discovered that he kept up a correspondence with the duchess de Chevreuse, studiously kept him out of all confidential employment, which, unhappily for himself, threw him into the party of Cinqmars. When that imprudent person therefore was detected in a secret correspondence with Spain, De Thou was apprehended on the charge of not revealing it, and, notwithstanding an able and eloquent defence, was condemned, and sentenced to lose his head. Resolved upon a signal sacrifice, the unrelenting minister resisted all entreaties in his favour, and the execution was irrevocably determined upon. Cinqmars, who was the cause of his ruin, humbled himself before him drowned in tears; but De Thou raised and embraced him, saying, "There is now nothing to be thought of but how to die well." He was beheaded at Lyons in 1642, at the age of thirty-five, universally lamented.

THOUSAND AND ONE NIGHTS. See *Arabian Nights.*

THOUSAND LEGS. See *Centiped.*

THOYRAS. See *Rapin de Thoyras.*

THRACE. At a remote period of history Thrace, among the Greeks, signified all the northern region beyond Macedonia, whose boundaries were not distinctly known, and which was usually conceived of as being a wild, mountainous land. In a narrower sense, Thrace signified the tract of country lying north of Macedonia, bounded east by the Black sea, south by the Ægean and the Propontis, and extending northwards to Mœsia and to Hæmus. The land was originally, before it was cultivated, in part wild, and inhabited by a fierce and warlike people, among whom were the Getæ; it was, therefore represented as the residence of

Boreas, and considered sacred to Mars. The Greeks early settled colonies there, and the country was not destitute of rich meadows and corn-lands: it abounded in mines, and the Thracian horses and riders rivalled those of Thessaly. The principal mountains of Thrace were the Hæmus (Balkan), Rhodope and Pangæus. Among the rivers, the largest and most celebrated was the Hebrus (now *Maritza*). The remarkable places were Abdera, notorious for the stupidity of its inhabitants, which, however, gave birth to Democritus and Protagoras; Sestos, on the Hellespont, celebrated in the story of Hero and Leander; and Byzantium, on the peninsula on which Constantinople now stands. The whole country is now included in the Turkish *ejalet*, or province, Rumelia, or Romania. It was formerly governed by several princes, then subject to Macedonia, and finally formed a Roman province. The tradition of the old Thracian bard, Orpheus, shows that music early flourished in Thrace; and if, as some writers suppose, the Greeks borrowed many of their religious ceremonies and notions from the Thracians, we must conclude that the early inhabitants of the country were not altogether so rude as the ancients often represent them.

THRALE. See *Piozzi*.

THRASIMENE, or TRASIMENUS (now *Perugia*); a lake of Italy, near Perusium, celebrated for a battle fought there between Hannibal and the Romans under Flaminius, in which the latter were defeated with great loss, B. C. 217. (See *Hannibal*.) "Such was the mutual animosity of the combatants," says Livy (xxii, 12), "that the earthquake, which overthrew many cities of Italy, turned the course of rapid rivers, and tore down mountains, was not heeded by them." See an interesting note (35) on the site of the battle, in *Childe Harold*, c. iv. st. 63.

THRASYBULUS; a noble Athenian, who rendered great service to his country, not only as a general in the Peloponnesian war, during which he repeatedly defeated the Spartans, but more particularly by delivering it from the dominion of the thirty tyrants, who, after the close of the war, had been imposed upon the city (B. C. 404) by the victorious Spartans. (See *Attica*.) Thrasybulus, with thirty of his fellow citizens, who, like him, were lovers of liberty, left the city, but did not remain an inactive spectator of the misfortunes of his country. Determined to seize the first opportunity to deliver Athens from the yoke, he occupied a strong place on the borders of Attica, and assembled a small body of forces, with which he bade defiance to the attacks of the tyrants, and even succeeded in capturing the Piræus. Encouraged by this success, the Athenians finally rose, after eight months of slavery, and chased their oppressors from the city. Thrasybulus then restored the old democratical constitution, and with it tranquillity. After having reduced Lesbos, and recovered Byzantium and Chalcis, he lost his life on an expedition against Rhodes, during an insurrection of the inhabitants of Aspendus. He was distinguished above all his countrymen by his ardent love of liberty, his pure patriotism, and his noble disinterestedness.

THREE. See *Triad*.

THREE KINGS, The, or THE THREE WISE MEN OF THE EAST. The magi spoken of in the New Testament, as guided by the star of Jesus to Bethlehem, and offering him gold, frankincense and myrrh, are called by the Catholic church *kings;* and the festival of Epiphany (q. v.) is called the *feast of the three holy kings*. Bede even gives their names—Gaspar, Melchior and Balthasar. Cologne boasts of possessing their bodies in the Cathedral of St Peter's, where their monument is shown in a chapel built by the elector Maximilian, whence they are called the *three kings of Cologne*. The legend relates that they were baptized after their return to their own country; that, 300 years afterwards, their bodies were transferred to Constantinople by the empress Helena, thence by Eustathius to Milan, and at last to Cologne by Renatus.

THREE RIVERS. See *Trois Rivières*.

THRENODY (from θρῆνος, grief, and ᾠδή, song); a song of lamentation, which, unlike the narrative, and therefore calmer elegy, may be the lyrical expression of the most violent grief or despair, without any soothing mixture.

THRUSH. The birds of this genus are hardly distinguishable from the warblers, except by their superior size. They are, however, more frugivorous, living on berries, insects and worms. The bill is strong, compressed at the sides, and the upper mandible is slightly notched near the point. Their colours, in general, are not brilliant, and many of them have spots on the breast. Several are distinguished for their powers of song, or for the delicacy of their flesh.

THUANUS. See *Thou, De*.

THUCYDIDES, the greatest of all the Greek historians, was born at Athens, B. C. 470. His father's name was Olorus; his mother's Hegesipyle. By the father's side he was connected with Miltiades, and by his mother's was descended from the stock of the kings of Thrace. He received his education at a time when Athens, having conquered her enemies, and acquired distinguished power, was occupied with zeal on the highest objects of human effort. The philosopher Anaxagoras, and the orator Antiphon, early imparted to his mind that manly tone which gives so high a value to his historical works. He was excited to devote himself to historical studies by the applause which the Greek people bestowed upon Herodotus, when he read his delightful narratives at Olympia. When the Peloponnesian war broke out, he was commissioned to raise soldiers for the service of his country. He lived, at that time, upon his estate on the borders of Thrace, and had the superintendence of the gold mines in the island of Thasos. The flame of war reached these lands, and the Spartan commander, Brasidas, besieged the city of Amphipolis, which was under the protection of the Athenians. When the Athenian commander saw that he could not hold out without assistance, he demanded aid of Thucydides, who, unfortunately, did not arrive till the night after the city was surrendered. The Athenians punished him by banishment. Thus the active mind of Thucydides obtained the leisure necessary for his historical masterpiece, which he wrote at Scaptesyla, in Thrace, the birth-place of his wife. While in exile, he dared to enter into connexion with the Spartans; not, however, to the injury of his country, but for the advantage of his historical work; for he maintained in their army certain persons, who gave him full and authentic information of all the events of the Peloponnesian war. Thus he was placed in a situation to compare reports, and, by a careful examination, to determine the truth. He was afterwards recalled to Athens, but returned again to Thrace, and died there, in his seventieth or eightieth year. Accord-

ing to Pausanias, he was assassinated in Athens. This, at least, seems to be certain, that a cenotaph was erected to him in Athens. The work which has made his name immortal bears the title Account of the War of the Peloponnesians and Athenians. It consists of eight books, of which only seven are finished: the eighth is to be considered only as a rough draught, which wants the last touches. These eight books, however, embrace only twenty-one years of this memorable war; the last six are wanting. This work is the production of a deep-searching, clear-sighted man, fully acquainted with the nature of history. As a work of art, it stands far higher than the agreeable narratives of Herodotus. While Herodotus gives more interesting accounts, he neither penetrates into the character of the persons of the action, nor seeks out the causes of events springing from the relations of the various states. Thucydides considers history in a higher point of view, treats the particular events as the result of necessity or choice, and by this means makes history a teacher, not merely of what has been, but of what will be. As politics attracted him particularly, his history has a limited character, but, as the political history of a state, is a model, and, as he himself calls it, a treasure for posterity. He first introduced dialogues into historical narratives, with a view of exhibiting the principles and motives of the leading agents. He made historical writing an art, for he not only skilfully united the different threads of the action, but investigated truth with a very critical spirit. Superior to selfishness and national prejudice, he dispenses praise and blame, reproves vices and praises virtue, with impartiality; and, as he spent a great part of his fortune in the collection of materials for his history, his accounts have great value on the score of credibility. As to his style, it justly deserves the praise which has been bestowed on it by all intelligent judges. It has the greatest dignity; every word has a meaning; and it possesses all the qualities upon which the perfection of writing depends. His pictures attract as well by the variety of the colouring as by the power and individuality of the figures. However, at times he is obscure. But the present text of Thucydides is full of the faults occasioned by ignorant transcribers. Among the editions, that of Duker (Amsterdam, 1731, folio), is the most complete. Next to this is the Bipont (1788, 1789, in 6 vols.), valuable on account of the Latin version. Thucydides has been translated into English by Smith.

THUGS; the name applied to a secret and widely-spread society among the Hindoos, whose main occupation is to waylay, assassinate, and rob all who do not belong to their own caste. It is only within these few years, that the existence of this appalling and wholesale system of *burking* came to light. As every month is adding new evidence to the subject, we leave its investigation to the Appendix.

THUILLERIES. See *Tuileries*.

THUISCON. See *Tuiscon*.

THULE. This name the ancients gave to the most northern country with which they were acquainted. Probably the word did not always denote the same country or island: many, in fact, may not have attached to it the idea of any precise country. Hence the many contradictory opinions of scholars respecting it. According to Pythias, it is an island, six days' journey to the north of Britannia. Some have imagined it to be one of the Scotch islands, but most the coast of Norway. Mannert and others believe it was Iceland.

THUMMEL, MAURICE AUGUSTUS VON, a distinguished German author, was born, in 1738, near Leipsic, where he studied. He subsequently entered the service of the duke of Saxe-Cobourg, whose privy counsellor and minister he became in 1768. From 1775 to 1777, he travelled in France and Italy. He died in 1817, near Cobourg. His chief work is called Travels in the Southern Provinces of France. It is a novel, interspersed with reminiscences of his travels. Ten volumes of it appeared from 1791 to 1805, which contain an abundance of observations and descriptions, sometimes characterized by deep and grave reflection, sometimes by the most unbridled humour. French ease and German feeling are beautifully united in this work. He also wrote some poems. A collection of his works appeared in 1821.

THUNBERG, CHARLES PETER, professor of botany in the university of Upsal, member of more than sixty societies, was born, November 11, 1743, at Jönköping, the capital of Smaland, and studied at Upsal. Linnæus, his great countryman, was his instructor in natural history, and said of him, "Never has any botanist afforded me more satisfaction and pleasure." In 1772, he went as a physician in the service of the Dutch East India company to the cape of Good Hope, where, during three years, he made journeys into the interior. In 1775, he went to Batavia, and afterwards to Japan, as physician to the embassy of the East India company to the emperor of Japan. Thunberg and Kämpfer are the only persons who have given us much authentic information respecting that country. In 1777, he visited Ceylon, and, in 1778, went again to the cape of Good Hope, in order to return to his own country. He subsequently presented his rich collections to the university of Upsal, having been appointed professor of botany in Upsal immediately on his return. In 1784, after the death of the younger Linnæus, he was made *professor ordinarius*. The royal academy chose him their president. At his request, Gustavus III. gave the ancient royal garden, as a botanical garden, to the university. The rich museum *Thunbergianum* is preserved there—the most costly collection of natural history ever presented to a European university. The most important works of this indefatigable inquirer are, 1. his Travels, in four vols. (it has been translated into English, German, Dutch, French, &c.); 2. *Flora Japonica*; 3. *Flora Capensis*; 4. *Icones Plantarum Japonicarum*; 5. Description of Swedish Mammalia; 6. *Museum naturalium Academiæ Upsaliensis*; 7. *Dissertationes Academicæ*; and a numerous collection of treatises, mostly in the Transactions of the academies of sciences at Stockholm and Petersburg, and those of the scientific society at Upsal. Peculiarly valuable are his *Kæmpferus illustratus*, and the notes respecting Japanese coins and language. He died, August 8, 1828, near Upsal.

THUNDER AND LIGHTNING.* It has been demonstrated, by the sagacity of doctor Franklin, that thunder and lightning is merely a case of electrical discharges from one portion of the atmosphere to another, or from one cloud to another. Air, and all gases, are non-conductors; but vapour and clouds, which are composed of it,

* This article is from Professor Thomson's Outlines of the Science of Heat and Electricity.

are conductors. Clouds consist of small hollow bladders of vapour, charged each with the same kind of electricity. It is this electric charge which prevents the vesicles from uniting together, and falling down in the form of rain. Even the vesicular form which the vapour assumes is probably owing to the particles being charged with electricity. The mutual repulsion of the electric particles may be considered as sufficient (since they are prevented from leaving the vesicle by the action of the surrounding air, and of the surrounding vesicles) to give the vapour the vesicular form. In what way these clouds come to be charged with electricity, it is not easy to say. But, as electricity is evolved during the act of evaporation,* the probability is, that clouds are always charged with electricity, and that they owe their existence, or at least their form, to that fluid. It is very probable that when two currents of dry air are moving different ways, the friction of the two surfaces may evolve electricity. Should these currents be of different temperatures, a portion of the vapour which they always contain will be deposited; the electricity evolved will be taken up by that vapour, and will cause it to assume the vesicular state, constituting a cloud. Thus we can see, in general, how clouds come to be formed, and how they contain electricity. This electricity may be either vitreous or resinous, according to circumstances. And it is conceivable, that by long continued opposite currents of air, the charge accumulated in a cloud may be considerable. Now, when two clouds, charged, the one with vitreous and the other with resinous electricity, happen to approach within a certain distance, the thickness of the coating of electricity increases on the two sides of the clouds which are nearest each other. This accumulation of thickness soon becomes so great as to overcome the pressure of the atmosphere, and a discharge takes place, which occasions the flash of lightning. The noise accompanying the discharge constitutes the thunder-clap, the long continuance of which partly depends on the reverberations from neighbouring objects. It is, therefore, loudest and largest, and most tremendous, in hilly countries. These electrical discharges obviously dissipate the electricity; the cloud condenses into water, and occasions the sudden and heavy rain which always terminates a thunder-storm. The previous motions of the clouds, which act like electrometers, indicate the electrical state of different parts of the atmosphere. Thunder, then, only takes place when the different strata of air are in different electrical states. The clouds interposed between these strata are also electrical, and owe their vesicular nature to that electricity. They are also conductors. Hence they interpose themselves between strata in different states, and arrange themselves in such a manner as to occasion the mutual discharge of the strata in opposite states. The equilibrium is restored; the clouds, deprived of their electricity, collapse into rain; and the thunder terminates. In thunder-storms, the discharges usually take place between two strata of air, very seldom between the air and the earth. But that they are sometimes also between clouds and the earth cannot be doubted. These discharges sometimes take place without any noise. In that case, the flashes are very bright; but they are single flashes, passing visibly from one cloud to another, and confined usually to a single quarter of the heavens. When they are accompanied by the noise which we call *thunder*, a number of simultaneous flashes of different colours, and constituting an interrupted zigzag line, may generally be observed stretching to an extent of several miles. These seem to be occasioned by a number of successive, or almost simultaneous discharges from one cloud to another, these intermediate clouds serving as intermediate conductors, or stepping-stones, for the electrical fluid. It is these simultaneous discharges which occasion the rattling noise which we call *thunder*. Though they are all made at the same time, yet, as their distances are different, they only reach our ear in succession, and thus occasion the lengthened rumbling noise, so different from the snap which accompanies the discharge of a Leyden jar. If the electricity were confined to the clouds, a single discharge, or a single flash of lightning, would restore the equilibrium. The cloud would collapse, and discharge itself in rain, and the serenity of the heavens would be restored; but this is seldom the case. I have witnessed the most vivid discharges of lightning from one cloud to another, which enlightened the whole horizon, continue for several hours, and amounting to a very considerable number, not fewer certainly than fifty, and terminating at last in a violent thunder-storm. We see that these discharges, though the quantity of electricity must have been immense, did not restore the equilibrium. It is obvious from this, that not only the clouds, but the strata of air themselves, must have been strongly charged with electricity. The clouds, being conductors, served the purpose of discharging the electricity with which they were loaded, when they came within the striking distance. But the electric stratum of air, with which the cloud was in contact, being a non-conductor, would not lose its electricity by the discharge of the cloud. It would immediately supply the cloud, with which it was in contact, with a new charge. And this repeated charging and discharging process would continue to go on till the different strata of excited air were brought to their natural state. From the atmospherical electric journal, kept by Mr Reed, at Knightsbridge, during two whole years, from May 9, 1789, to May 9, 1791, it appears that clouds, and rain, and hail, and snow, are always charged with electricity, sometimes with negative, but more frequently with positive electricity. When the sky is serene and cloudless, the strata of air are generally charged with positive electricity. In such cases, the thunder rod is charged by induction; the highest end acquiring the opposite state of electricity from the air, and the lowest end the same kind of electricity, while a portion of the rod towards the middle is neutral. During the first year, there occurred only seven days in which no electricity could be perceived; and during the second year, when the apparatus was much more complete, not a single day occurred which did not give indications of electricity in the atmosphere. During the first year, the electricity was vitreous or positive 241 times, and, during the second year, 423 times.

* M. Pouillet has lately published a set of experiments which seem to overturn Volta's theory of the evolution of electricity by evaporation. He has shown that no electricity is evolved by evaporation, unless some chemical combination takes place at the same time. But it follows from his experiments, that electricity is evolved abundantly during combustion; the burning body giving out resinous, and the oxygen vitreous electricity. In like manner, the carbonic acid emitted by vegetables is charged with resinous electricity, and the oxygen probably charged with vitreous electricity. These two sources are sufficiently abundant to account for the vast quantity of electricity so often accumulated in the clouds.

This difference was chiefly owing to the apparatus. During the first year, there occurred seventy-three days in which the signs of electricity were so weak that the kind could not be determined. In the second year, it was found that on days when the electricity is weak, it is always vitreous or positive. During the first year, the electricity was observed resinous or negative 156 times, and, during the second year, 157 times. During the first year, sparks could be drawn from the apparatus during ninety-eight days, and, in the second year, during 106 days. From these facts, the probability is, that the electrical state of the atmosphere did not differ much during each of the two years, during which the observations were kept. It would tend greatly to promote the progress of meteorology, which is obviously very much connected with electricity, if a register were kept in the torrid zone of the state of the electricity of the atmosphere during a whole year. The weather in these countries is so regular, and the transition from dry weather to rain so marked, that we have reason to expect corresponding changes in the state of the electricity of the atmosphere. The heaviness of the rain, and the large size of the drops in these countries, indicate that the clouds from which the rain comes are situated at a great height above the surface of the earth. If the accumulation of electricity should be at a corresponding height, this would render a greater height necessary for the rod, by means of which the electrical indications are determined.

THUNDERBOLT; a shaft of lightning; a brilliant stream of the electric fluid passing from one part of the heavens, and particularly from the clouds to the earth. See the preceding article.

THUNDERING LEGION. See *Legio Fulminatrix*.

THURGAU, or THURGOVIA; a canton of Switzerland, bounded north and north-east by lake Constance, south-east and south by St Gall, and south-west by Zürich and Schaffhausen. The chief town is Frauenfeld. It is divided into eight districts, and has a democratic constitution. The rivers are the Thur and Sitter. It is partly level, and partly hilly; but the elevations do not exceed 2500 feet above lake Constance. It is fertile and well cultivated, producing wheat, barley, oats, rye, flax, hemp, and vines, and has also good pasture. Cotton and silk are manufactured, but the staple article is linen. See *Switzerland*.

THURINGIA (in German, *Thüringen*); the former name of an extensive tract, in the central part of Germany, in Saxony, having Franconia on the west, and Meisen on the east. In the latter part of the fifth century, it was inhabited by the Thuringians, who are then first mentioned in history, and whom some consider as a Visigothic tribe, while others maintain that they are the same as the Hermunduri. The kingdom of Thuringia was conquered by the Frankish kings, in 530, who governed it by dukes. In the thirteenth century, it was annexed to Meisen, or Misnia. It was styled a landgraviate, and gave the title of landgrave to the elector of Saxony; but it was subdivided among many petty princes. The circle of Thuringia comprised the northern part. The name of *Thuringia* became gradually disused after the incorporation of the territory with other states. It is still, however, preserved, in a limited sense, in the *Thuringian forest*. The greatest part of the old Thuringia now belongs to Prussia.—See Hersog's *Geschichte des Thüringischen Volkes* (Hamburg, 182[illegible]; Galletti's *Geschichte Thüringens* (1781—[illegible] vols.).

THURINGIA, FOREST OF; a hilly and [illegible] tract, in the interior of Germany, comprising [illegible] of the ancient Hercynian forest, and [illegible] within the territories of Prussia, Gotha, W[illegible] Meiningen, Hildburghausen, and Coburg. [illegible] about seventy miles long, and from eight to [illegible] broad; population, about 188,000; square [illegible] about 1200. It is covered with wood; [illegible] peopled, containing only small villages; [illegible] in mines, particularly of iron. The highest [illegible] mit, Schneekopf, is about 3000 feet high. [illegible] berg, another summit, is nearly as high.

THURLOW, EDWARD, baron Thurlow, [illegible] high chancellor of Great Britain, was the [illegible] the rector of Ashfield, in Suffolk, where [illegible] born in 1732. He was educated at Caius [illegible] Cambridge; and after having been a student [illegible] Middle Temple, he was, in 1758, called [illegible] bar. He rose to eminence through the [illegible] his abilities in the famous Douglas cause; [illegible] soon after obtained a silk gown. In 1770, he [illegible] appointed solicitor-general, in the room of D[illegible] (lord Ashburton), and the following year he [illegible] ceeded lord Walsingham as attorney-general. [illegible] was now chosen member of parliament for [illegible] borough of Tamworth, and became a warm [illegible] powerful supporter of the ministry in the house [illegible] commons. He retired from office in 178[illegible] resumed it again on the dissolution of the [illegible] ministry, and continued to hold the seals under [illegible] premiership of Mr Pitt till 1792. His death [illegible] place in September, 1806. He was succeeded [illegible] the peerage by his nephew. He never married, [illegible] but left three illegitimate daughters.

THURN AND TAXIS (*De la Tour*, or *Della Torre*); a family of princes and counts in Germany, which originated in Milan. The first of the name, it is said, received the name *Della Torre* from St Ambrose, bishop of Milan (from 374 to 397), on account of his defence of the new gate against the Arian rebels. In 1313, Lamurald de la Tour took the surname of *Taxzis*, now *Taxis*. His great grandson, Roger I., count of Thurn and Taxis of Valsassina, went to Germany, where he established the first posts (q. v.) in Tyrol. The post establishment in the German empire became, at a subsequent period, a fief of the family, which, in Germany, as well as in several other countries, enjoyed great privileges, so that they became rich and powerful. Many important privileges have been continued to this family since the new organization of the German confederacy. The present head of the family has an income of about 800,000 guilders a year, and possesses about 260 square miles in various German countries, with 30,746 inhabitants. Besides the princely line, there are four lines of counts.

THURSDAY (in Latin, *dies Jovis*, whence the French *Jeudi*); the fifth day of the week, so called from the old Teutonic god of thunder, *Thor*, the northern Jupiter. (See *Thor*.) The German name for Thursday is *Donnerstag* (Thunder-day), thunder being the chief attribute of *Thor*. See *Maunday-Thursday*.) Ascension day is also called *Holy Thursday*.

THURSO; a sea-port town in the shire of Caithness, pleasantly situated on the north-west coast, at the head of a spacious bay, having a good harbour, formed by the estuary of the river Thurso

in which there is a valuable salmon-fishery. The old town is an ill-built irregular place, containing nothing worthy of observation, excepting the parish church, which is a venerable cruciform structure; but on the south side of it, as well as on the western, or opposite bank of the river, many handsome houses have lately been erected, upon a more uniform plan, with a new church, a town-house, an infirmary, markets, &c., and for the greater convenience of the trade of Caithness and the Orkneys, a branch of the bank of Scotland has been established here. This is a port of the custom-house, with a resident collector, comptroller, and inferior officers; the collector and supervisor of excise, and the distributor of stamps for the shire, also reside here. The chief exports are corn, meal, salmon, and white fish; and the imports consist of most of the necessaries of life, including coal for the consumption of the more opulent. Coarse linen is the principal manufacture of the place, and there are bleaching-grounds and a tannery in the vicinity. The parish of Thurso, which is bounded on the north by the Pentland Frith, extends around the town to the distance of about three miles, and contains about 4000 acres of arable land, which, for the most part is level, exhibiting a rich succession of well cultivated fields, interspersed with pretty villas; and near the town is Thurso castle, formerly the seat of the earls of Caithness, but more recently the family residence of Sir John Sinclair. Population of town and parish in 1841, 4,881.

THUSNELDA; wife of Arminius. (q. v.)

THYADES; the same as *Mænades*. (q. v.)

THYESTES; in fabulous history, son of Pelops and Hippodamia. Having seduced the wife of his brother Atreus, the latter, in revenge, served up to him the body of his own son at a feast. Thyestes, discovering the fact, fled to Sicyon with his daughter Pelopia, by whom he had a son, Ægisthus. An oracle had declared that the son and grandson of Thyestes should revenge the crime of Atreus; and when Ægisthus was grown up, he accordingly murdered his uncle, at the instigation of his father. Thyestes then ascended the vacant throne, but was afterwards expelled by Agamemnon and Menelaus, the sons of Atreus, and died in banishment on the island of Cythera. The tragedies of Sophocles and Euripides, on this subject, are lost; that of Seneca is yet extant.

THYME (*thymus vulgaris*); a small labiate plant, a native of the south of Europe, and frequently cultivated in gardens. The stems are branching, eight inches or a foot in height; the leaves simple and opposite; and the flowers disposed in whorls near the summits of the branches. All parts of the plant have a strong and penetrating odour, as is usual in this family. Its essential oil is extremely acrid and pungent, and is used for culinary purposes, but less so now than before the Oriental spices were common. Bees are very fond of this, as well as of other labiate plants, and the honey obtained is of superior quality. The thyme of mount Hymettus is celebrated.

THYRSUS (Greek θύρσος); one of the most ancient and common attributes of Bacchus and his followers. It consisted of a lance, the iron part of which was hidden in a cone of pine, in memory of the stratagem which the followers of Bacchus employed against the Indians, when they went to combat them with pikes, the iron of which was concealed by ivy leaves. It was used at all the festivals held in honour of the god of wine, and often enveloped with wreaths of ivy or bay, or with little fillets of other kinds. See *Bacchus*.

TIARA; originally, and with Herodotus, the cap of the Persian kings. The tiara of the pope is a high cap, surrounded by three crowns rising one above the other. These crowns are covered with precious stones, and ornamented with an orb, on which stands a cross, and on two sides of it a chain of precious stones. Originally, the popes wore a common bishop's mitre. (See *Infula*.) It has been said, but not proved, that Clovis, the Frankish king, in the fifth century, or Constantine the Great, in the beginning of the third century, presented the pope with a gold crown, which the latter united with the *infula*. According to Henke (Ecclesiastical History, in German, vol. ii.), the popes first wore the simple crown in the ninth century; Cicognara (*Storia della Scultura*, &c.), however, is of opinion, that only Alexander III., in the twelfth century, surrounded the mitre with a crown, as a sign of sovereignty. Boniface VIII. (who died in 1303) is said to have added the second, as a sign of power over spiritual and temporal things, and Urban V. (who died in 1370) the third, in order, as is believed, to indicate the power of the pope in the church, suffering, militant and triumphant (or in hell, on earth and in heaven.) Perhaps the three crowns were to indicate the three parts of the globe at that time known. At the consecration or coronation of the pope, the following words are pronounced: *Accipe tiaram tribus coronis ornatam, et scias te esse patrem, principem ac regem, rectorem orbis in terra, vicarium Salvatoris nostri Jesu Christi.* As the mitre is placed over the coat of arms of bishops, and the cardinal's hat over that of the cardinal's, so the tiara, with the two keys, is placed over the family coat of arms of the pope. On coins, &c., the tiara and two keys are often found alone.

TIBER; a river in Italy, which rises in the Apennine mountains, and, in its course of about 160 miles, receives several small rivers, as the Teverone, the Chiana, Puglia, Nera, &c., runs through Rome, and empties, at Ostia, into the Tuscan sea. It owes its fame to the Roman poets. In itself it is insignificant, and always muddy. The fishes in it are not healthy, and are bad tasted. It is navigable only for small craft. Its water is yellow and thick. It has been long believed that this river contains many antiquities—an opinion founded on its frequent inundations in former times; nay, it has been even said, that Gregory the Great, in his religious zeal, ordered the statues and monuments of heathen antiquity to be thrown into the Tiber. Fea, in his work *Novelle del Tevere* (Rome, 1819), maintains, on the contrary, that little would be gained by exploring the mud of the river; and the most recent undertaking of this kind (see *Excavations*) confirms his opinion. That part of Rome which is situated to the west of the Tiber, or on its left bank, is called *Trastevere*, and contains the Vatican, with several other important buildings. The inhabitants of this quarter are distinguished by many peculiarities from the other Romans, and are called *Trasteverini*. (See *Rome*.)—An insignificant creek in Washington, U. S. has been dignified with the name of *Tiber*.

TIBERIAS. See *Gencsareth*.

TIBERIUS, Claudius Nero, a Roman emperor, born B. C. 42, was the son of a father of the same name, of the ancient Claudian family, and of Livia Drusilla, the wife of Augustus. Rapidly raised to

authority by the influence of his mother, he displayed much ability in an expedition against some revolted Alpine tribes, in consequence of which, he was raised to the consulate in his twenty-eighth year. On the death of Agrippa, the gravity and austerity of Tiberius having gained the emperor's confidence, he chose him to supply the place of that minister, obliging him, at the same time, to divorce Vipsania, and wed his daughter Julia, whose flagitious conduct at length so disgusted him, that he retired, in a private capacity, to the isle of Rhodes. After experiencing much discountenance from Augustus, the deaths of the two Cæsars, Caius and Lucius, induced the emperor to take him again into favour and adopt him. (See *Augustus*.) During the remainder of the life of Augustus, he behaved with great prudence and ability, concluding a war with the Germans in such a manner as to merit a triumph. After the defeat of Varus and his legions, he was also sent to check the progress of the victorious Germans, and acted in that war with equal spirit and prudence. On the death of Augustus, he succeeded (A. D. 14), without opposition, to the sovereignty of the empire, which, however, with his characteristic dissimulation, he affected to decline, until repeatedly solicited by the servile senate. The new reign was disquieted by dangerous mutinies in the armies posted in Pannonia and on the Rhine, which were, however, suppressed by the exertions of the two princes, Germanicus and Drusus. The conduct of Tiberius, as a ruler, has formed a complete riddle for the student of history, uniting with an extreme jealousy of his own power the highest degree of affected respect for the privileges of the senate, and for the leading virtues of the ancient republican character. He also displayed great zeal for the due administration of justice, and was careful that, even in the provinces, the people should not be oppressed with imposts—a virtue which, according to Tacitus, he retained when he renounced every other. Tacitus records the events of this reign, including the suspicious death of Germanicus, the detestable administration of Sejanus, the poisoning of Drusus, with all the extraordinary mixture of tyranny with occasional wisdom and good sense, which distinguished the conduct of Tiberius, until his infamous and dissolute retirement (A. D. 26) to the isle of Capreæ, in the bay of Naples, never to return to Rome. On the death of Livia, in the year 29, the only restraint upon his actions, and those of the detestable Sejanus, was removed, and the destruction of the widow and family of Germanicus followed. (See *Agrippina*.) At length, the infamous favourite extending his views to the empire itself, Tiberius, informed of his machinations, prepared to encounter him with his favourite weapon, dissimulation. Although fully resolved upon his destruction, he accumulated honours upon him, declared him his partner in the consulate, and, after long playing with his credulity, and that of the senate, who thought him in greater favour than ever, he artfully prepared for his arrest. Sejanus fell deservedly and unpitied; but many innocent persons shared in his destruction, in consequence of the suspicion and cruelty of Tiberius, which now exceeded all limits. The remainder of the reign of this tyrant is little more than a disgusting narrative of servility on the one hand, and of despotic ferocity on the other. That he himself endured as much misery as he inflicted, is evident from the following commencement of one of his letters to the senate: "What I shall write to you, conscript fathers, or what I shall not write, or why I should write at all, may the gods and goddesses plague me more than I feel daily that they are doing, if I can tell." What mental torture, observes Tacitus, in reference to this passage, which could extort such a confession! In the midst, however, of all this tyranny, he often exhibited gleams of strong sense, and of a judicious attention to the public welfare—a remark which holds good in every part of his anomalous reign. Having at length reached an advanced age, Caius Caligula, the son of Germanicus, his grandson by adoption, and Gemellus, the son of Drusus, his grandson by nature, became objects of interest. Caius, however, who had reached the age of twenty-five, and who held the popular favour as a paternal inheritance, was at length declared his successor. Acting the hypocrite to the last, he disguised his increasing debility as much as he was able, even affecting to join in the sports and exercises of the soldiers of his guard. At length, leaving his favourite island, the scene of the most disgusting debaucheries, he stopped at a country house near the promontory of Misenum, where, on the sixteenth of March, 37, he sunk into a lethargy, in which he appeared dead; and Caligula was preparing, with a numerous escort, to take possession of the empire, when his sudden revival threw them into consternation. At this critical instant, Macro, the pretorian prefect, caused him to be suffocated with pillows. Thus expired the emperor Tiberius, in the seventy-eighth year of his age and twenty-third of his reign, universally execrated.

TIBET. See *Thibet*.

TIBIA; the ancient flute, the invention of which is ascribed to Minerva. It was used among the Greeks and Romans on occasion of almost all festivals, and even as a means of curing certain diseases; by the Romans in their triumphs; by the Lacedæmonians, particularly in war: in celebrating the praises of the gods; at sacrifices and other religious celebrations; at the mysteries of Cybele; at weddings and entertainments; to amuse guests after dinner; also, and particularly, on occasions of grave solemnity, as funerals. The following cut, from an antique carving, represents a Roman flute player.

TIBULLUS, Albius; a Roman poet of the golden age of Roman literature. Of his life nothing

is known but that he belonged to the equestrian order. The year 711 after the building of Rome is generally taken as the year of his birth. Voss places it about 695 A. U. C. He died, without having held any public office, in 735 or 736 A. U. C., in the flower of his age. We possess, of his writings, a collection of elegies, in four books, of which, however, the fourth contains several pieces of doubtful origin. These poems are among the most perfect of their kind which have come down to us from classical antiquity. Their moral tone, however, is that of a reckless voluptuary. The elegies of Tibullus are superior to those of Propertius (with which, and the poems of Catullus, they are usually printed) in agreeable simplicity and tender feeling, and are free from the insipid prate into which Ovid frequently falls; so that the author deserves the first place among the Roman elegiac poets. The best editions are those of Brouckhusius (Amsterdam, 2 vols., 4to.), Heyne (latest edition by Wunderlich, Leipsic, 1816), and Huschke (Leipsic, 1819). J. H. Voss, in his German translation, Heidelberg, 1810), ascribes the third book to a certain Lygdamus, which opinion is confirmed by Eichstädt. Dart and Grainger are among the English translators of this poet. The latter is much the most successful.

TIC DOULOUREUX (French *tic*, spasm; *douloureux*, painful), a painful affection of a facial nerve, is so called from its sudden and excruciating stroke. It is a species of neuralgia, which comprises similar affections in other parts of the body. It is characterized by acute pain, attended with convulsive twitchings of the muscles, and continuing from a few minutes to several hours. The causes of this affection are unknown, and it often baffles the skill of the physician.

TICINO. See *Tessin*.

TICK, in natural history; a little animal of a livid colour, with a blunt and roundish tail, elevated antennæ, a globose-ovate form, and full of blood, which infests cows, swine, goats, sheep and dogs.

TICKELL, Thomas, an ingenious writer in prose and verse, and the intimate friend of Addison, was born in 1686, and received his education at Oxford, where he obtained a fellowship in his twenty fifth year. While at the university, an elegant copy of verses, addressed by him to Addison, on his opera of Rosamond, introduced him to the acquaintance of that accomplished scholar, who induced him to lay aside his previous intention of taking orders, appointed him his under secretary of state, and, on his death, bequeathed to him the publication of his works. In 1724, Mr Tickell obtained the situation of secretary to the lords justices of Ireland. As an author, he takes a prominent rank among the minor English poets; his versification especially, in its ease and harmony, being inferior perhaps to that of no one, except Dryden and Pope. When the latter gave to the world his translation of the Iliad, Tickell printed his own version of the first book, in opposition to that of Pope. The production of this poem occasioned an interruption of the good understanding between Pope and Addison, the former suspecting Addison himself to be the author of the work. Tickell's other writings consist of the Prospect of Peace, a poem (1713); the Royal Progress; Kensington Gardens; a Letter to Avignon; Imitation of the Prophecy of Nereus; with several epistles, odes, and other miscellaneous pieces, to be found in the second volume of the Minor Poets. His death took place at Bath, in 1740.

TICONDEROGA; a post-town of Essex county, New York, on the west side of the south end of lake Champlain, and at the north end of lake George; twelve miles south of Crown Point, ninety-five north of Albany; population in 1820, 1493. There is a valuable iron mine in this township.—*Ticonderoga fort*, famous in the history of the American wars, is situated on an eminence, on the west side of lake Champlain, just north of the entrance of the outlet from lake George into lake Champlain, fifteen miles south of Crown Point, twenty-four north of Whitehall; lon. 73° 27′ W.; lat. 43° 30′ N. It is now in ruins. Considerable remains of the fortifications are still to be seen. The stone walls of the fort, which are now standing, are, in some places, thirty feet high. Mount Defiance lies about a mile south of the fort, and mount Independence is about half a mile distant, on the opposite side of the lake, in Orwell, Vermont.

TIDES. The ebb and flow of the sea are evidently connected with the moon's motions. The level of the ocean is slightly disturbed by the attraction which is alternately exerted and withdrawn. The waters, for a large space under the moon, being more attracted than the great body of the earth, are thus rendered lighter than those parts of the ocean which are at the same distance as the earth's centre; and, being lighter, they are forced upwards a little by the surrounding mass, which is heavier; just as water and oil will stand at different heights in the two branches of a siphon tube; or just as ice, which is lighter than water, is made to rise a little higher, on that account, when placed in water. If the earth rested immovably upon a fixed support, there would be a tide, or rising of the waters, only on the side towards the moon. But the great body of the earth is just as free to move as a single particle of the ocean, and, if suffered to yield to the moon's attraction, would be carried just as fast. Hence, for the same reason that a particle of water, on the side of the earth towards the moon, is drawn away from the centre, or has its downward tendency diminished, so the solid earth itself is drawn away from the mass of waters, on the side of the earth farthest from the moon. It is the difference of attraction, in both cases, between the surface and the centre, which causes the lightness of the waters, and the consequent elevation. It will be seen, therefore, that, taking the whole earth into view, there are always two high tides diametrically opposite to each other, and two low tides also, midway between the high ones. The high tides are two great waves, or swells, of small height, but extending each way through half a right angle. These waves follow the moon in its monthly motion round the earth, while the earth, turning on its axis, causes any given place to pass through each of these swells and the intervening depressions in a lunar day, or twenty-four hours fifty minutes. What we have said with respect to the moon's influence in disturbing the level of the ocean, may be applied also to that of the sun; only, in the case of the sun, although its absolute action is about double that of the moon, yet, on account of its very great distance, its relative action upon the surface of the earth, compared with that at the centre, is but about one third as great as that of the moon. At new and full moon, when the sun's and moon's actions conspire, the tides are highest, and are called *spring*

tides. But at the first and last quarters of the moon, the action on one body tends to counteract that of the other; and the tides, both at ebb and flow, are smallest, and are called *neap tides*. We have supposed the highest tides to happen at new and full moon, and the lowest at the quarters. But the waters do not yield instantly to the action exerted upon them: the greatest effect takes place some time after the attractive influence has passed its point of greatest power. Thus the spring and neap tides actually occur about a day and a half after the times above indicated. So, also, for a similar reason, the real time of high water, in the daily tides, happens about three hours after the moon has passed the meridian. It will be perceived, from what has been said, that the sun's and moon's influence will vary with a change of distance, being greatest when the attracting body is nearest, and *vice versâ*. The phenomena of the tides are modified, moreover, by the situation of the sun and moon with respect to the equator, and the particular latitude of the observer. When, for instance, the moon passes near the zenith of the observer, supposed to be in one of the temperate zones, the opposite high tide will be in the same latitude on the other side of the equator; consequently, under the above circumstances, the high tide, when the moon is above the horizon, exceeds the high tide when the moon is below the horizon; and at a point in the direction of the nearest pole, fifty degrees from the place where the moon is vertical, there will be only one tide in twenty-four hours. The different heights to which the same tide rises, in places but little distant from each other, depend upon local circumstances; as the particular form of the coast, the meeting of currents, &c. Where a bay grows narrower and narrower, like a tunnel, as it runs up from the ocean into the land, the swell of water must rise higher as the passage becomes more contracted in breadth. Thus, in the bay of Fundy, which answers to this description, and is of great extent, the tide sometimes rises to the height of seventy feet. It is frequently asked, why there are not tides in the inland seas and larger lakes. If we observe, upon an artificial globe, the very small space occupied by the largest bodies of water of this description, we shall readily perceive that there can be no appreciable difference in the action of the moon upon so small a portion of the earth's surface; the whole of the lake, or sea, therefore, becomes lighter when the moon is over it, and there is no heavier mass of water ninety degrees distant to force it above its natural level.

TIEBEAM. See *Architecture*.

TIERNEY, GEORGE, an eminent political character on the whig interest, was the son of a merchant of London, and born in 1761. He was educated at Cambridge, and designed for the bar, to which he was called. His father had some connexion with the East India company; and the first publication of Mr Tierney (1787) was the Real Situation of the East India Company. Mr Tierney now engaged in political life, and was sent down by a noble duke as candidate for Colchester, when he stood a severe contest at a great expense, which his patron refused to pay. The loss therefore fell heavily on Tierney. In 1796, he was nominated by the popular party to oppose Mr Thelluson, for the borough of Southwark; and, although defeated on the poll, yet, on a petition to the house of commons, he removed his opponent by the treating act; and, on the next return, as his competitor was legally disqualified, Mr Tierney was declared duly elected. As soon as he was in the house, he entered warmly into the measures of the whigs. He soon proved himself an able speaker, and long ranked as one of the first in the house. During a debate in the year 1798, some words spoken in the house were the occasion of a duel between him and Mr Pitt, in which, however, neither party was wounded. When Mr Addington became minister, in 1802, he made Mr Tierney treasurer of the navy. In 1806, under the Grenville administration, Mr Tierney was made president of the board of control, but went out of office early in the following year, on the resignation of the ministry. He then lost his seat for Southwark, but afterwards sat for different places; in 1806 for Athlone, in 1809 for Bandon Bridge, in 1813 for Appleby, and in 1818, 1820 and 1826, he represented the proprietor of Knaresborough. In 1827, Mr Canning invited him to the mastership of the mint, from which he retired, with lord Goderich, in 1828. His death took place Jan. 25, 1830.

TIERS ETAT (*third estate*). There was a time in France when the nobility and clergy possessed the property of almost the whole country. The cities were insignificant, and the former two, therefore, alone appeared at the diets. By degrees the cities rose in wealth and importance, became free from the yoke of the feudal lords, and of course were to be summoned also, when taxes were to be granted. Even the peasantry, having acquired the ownership of the ground which they cultivated, rose in importance; and Louis IX. summoned the cities and bailiwicks to send deputies to the diets in 1252. But this was done particularly by Philip IV. (the Fair), in 1303, when he was desirous to make himself popular on account of his quarrel with pope Boniface VIII.; hence the name *tiers état*. This order, however, was subjected to great humiliations: while the clergy were seated to the right of the king, and the nobility to the left, the deputies of the cities and bailiwicks were obliged to stand outside of the bar, and to receive and answer the propositions of the king on their knees. But the steady march of civilization made the third estate the nation, and the government, embarrassed or unsupported by the clergy and nobility, turned its eyes to this important class in 1788; and Siéyes, in his treatise *Qu'est ce que le Tiers Etat?* (1789), gave utterance to the feeling of the people. The *tiers état*, at present, is the nation itself; so that the term became unconstitutional, even during the restoration.

TIFLIS. See *Teflis*.

TIGER. This animal and the lion are the largest and most powerful of the cat kind. The tiger is found only in the East Indies, in Hindoostan, Siam, Cochin-China, Malacca, and the isles of Sunda. Its strength and sanguinary disposition are such that it is the terror of the inhabitants in those countries; and no animal, except the elephant, is capable of resisting it. It even comes into the midst of villages, in the night time, for the purpose of carrying off cattle. The colour is yellow, with transverse black stripes; and the tail has alternate black and yellow rings. The pupil of the eye is round. It resembles the other animals of the cat tribe in every respect, can be tamed as easily as the lion, and becomes familiar with its keeper. Its voice is very powerful, and resembles that of the lion.

TIGER FLOWER (*tigridia pavonia*); a Mexican plant, frequently cultivated in gardens, on ac-

count of the magnificence of its flowers. It belongs to the same natural family as the iris. The root is a scaly bulb: the leaves are radical, sword-shaped, and tapering towards the point of insertion; the stem is about a foot in height, slightly zigzag, dividing into two or three branches, and bearing a few alternate, distant leaves: the flowers are solitary, terminal, very large, of a singular form, and very evanescent. The three exterior divisions of the corolla are much the largest, of a fine orange-red towards the extremity; whitish or yellowish, and beautifully spotted, at the base. It is tolerably hardy, and is increased by seed or offsets.

TIGRANES; a celebrated king of Armenia Major, who reigned in the last century before Christ. He was delivered, by his father, Artaxias, as a hostage to the Parthians, who, upon the death of his father, restored him to the throne, upon condition that he should cede to them a portion of his dominions. With Mithridates, whose daughter Cleopatra he married, he entered into an alliance against the Romans; and, having conquered Cappadocia, his success induced the Syrians, wearied out by the continual family discords of their rulers of the house of the Seleucidæ, to invite him to take possession of their country. He did so, and subdued a great part of Cilicia and Syria, but would not enter into a second alliance with Mithridates against the Romans. He preferred attacking the Parthians; recovered that part of his dominions which he had surrendered to them, and conquered Mesopotamia and Mygdonia; then took from the Seleucidæ the portion of Syria yet possessed by them, and a great part of Phœnicia, and assumed the arrogant title of *king of kings*. But the Roman consul Lucullus soon required him to deliver up Mithridates, who had fled to him for protection. Upon his refusal, a war ensued, in which Tigranes was defeated. He now committed to Mithridates the conduct of the war; but they were both conquered in a pitched battle. In the following year, however, the two kings, taking advantage of the dissensions which had broken out among the Romans, subdued Armenia and Cappadocia. But the son of Tigranes rebelled against his father, who was thus compelled to divide his army. He, however, defeated his son, and obliged him to fly into Parthia. The Parthians now took part with the son, and made an incursion into Armenia, at the same time that Mithridates was defeated by the Romans, who were eventually joined by the son of Tigranes. Tigranes, relying upon the magnanimity of Pompey, resolved to surrender to him; whereupon Pompey gave him a portion of Armenia, and likewise of Mesopotamia. But the son of Tigranes having again engaged in a conspiracy against his father, as well as against the Romans, Pompey sent him in chains to Rome; but his father, in consequence of the friendly disposition which he manifested towards the Romans, was allowed to retain the title of their friend and ally, and died as such in the eighty-fifth year of his age.

TIGRIS; a river of Asia, which rises in the mountains of Armenia, about fifteen miles east of the source of the Euphrates, and, flowing along towards the eastern frontiers of Turkey, on the west side of Curdistan, in a south-south-east direction, joins the Euphrates at Corna, sixty miles north-west of Bassora. The country included between the Tigris and Euphrates, was anciently called *Mesopotamia;* in modern times, *Diarbekir*, and *Al-Gezira*. This river was particularly famed in antiquity; and on its banks were the cities of Nineveh, Ctesiphon and Seleucia. In modern times, it can boast the famous city of Bagdad, and the secondary ones of Diarbekir and Mosul. Its course is generally rapid. Between Corna and Bagdad, it is about two hundred yards wide, and navigable for boats of twenty or thirty tons. Small boats descend from Diarbekir.

TILLEMONT, Louis Sebastian le Nain de, an eminent historian, born at Paris, in 1637, was the son of a master of requests, and received his education at the Port Royal. He assumed the name of Tillemont on entering the priesthood, devoted himself to study, and, by his extraordinary industry and accuracy of research, gained a high reputation as a historical writer. His death took place in 1698. He was the author of *Mémoires pour servir à l'Histoire Ecclésiastique des six premiers Siècles* (16 vols., 4to., 1693—1712), and *Histoire des Empereurs et des autres Princes qui ont regné durant les six premiers Siècles de l'Eglise* (6 vols., 4to., 1690—1738).

TILLER. See *Helm.*

TILLOCH, Alexander, LL.D., an ingenious writer on science and mechanics, was the son of a tobacconist in Glasgow, and born in 1759. He was intended by his father to follow his own business; but a strong bias towards mechanics soon diverted his attention from commercial pursuits. In 1736, a jeweller of Edinburgh, named Gedd, had devised the art of printing from plates, and produced an edition of Sallust so printed; but the art was undervalued, and perished with him. Doctor Tilloch revived it, and carried it to the state of practical utility which it now exhibits, having himself again made the discovery without any previous acquaintance with Gedd's attempts. In this new process, Mr Foulis of Glasgow, a printer, joined him; and a patent in their names was taken out, both in England and Scotland. Circumstances, however, induced them to lay aside the business for a time; and it never was renewed by them as a speculation. In 1787, doctor Tilloch removed to London, and purchased the Star, an evening paper, which he continued to edit till within four years of his death. In June, 1797, he projected and established the Philosophical Magazine, to which, besides editing it, he contributed many articles. Only fifteen days before his death, he had obtained a patent for an improvement on the steam-engine. The last work which he was engaged to superintend, was the Mechanics' Oracle, published in numbers at the Caxton press. In his religious opinions, doctor Tilloch was a dissenter from the established church, and preached occasionally. He died in 1825. The late novelist, Mr. Galt, was married to Dr. T.'s daughter.

TILLOTSON, John, an English prelate, son of a clothier, near Halifax, was born in 1630. His father, a strict Calvinist, brought up his son in the same principles, and sent him a pensioner to Clare hall, Cambridge, of which he was elected a fellow in 1651. It is not known when he entered into orders; but his first sermon which appeared in print is dated 1661, at which time he was still among the Presbyterians. When the act of uniformity passed, in the following year, he submitted to it, and, becoming celebrated for his pulpit oratory, was chosen preacher to the society of Lincoln's inn. In 1666, he took the degree of D.D., and was made king's chaplain, and presented to a prebend of Canterbury. When Charles II., in 1672, issued a declaration for liberty of conscience, for the purpose of favouring the Roman Catholics, he preached

strongly against it, but was, nevertheless, advanced to the deanery of Canterbury, and soon after presented to a prebend in St Paul's. Popery was so much the object of his aversion, that, in a sermon preached before the king, in 1680, he expressed sentiments of intolerance which he himself acknowledged to his friends could not be defended. He warmly promoted the exclusion bill against the duke of York, and refused to sign the address of the London clergy to the king, on his declaration that he would not consent to it. At the execution of lord William Russel, he attended with doctor Burnet; and, though afterwards decided friends to the revolution, both these divines urged that nobleman to acknowledge the unlawfulness of resistance. On the accomplishment of the revolution, he was taken into favour by king William; and, in 1689, he was appointed clerk of the closet to that sovereign, and subsequently permitted to exchange the deanery of Canterbury for that of St Paul's. On the refusal of archbishop Sancroft to take the oaths to the new government, he was appointed to exercise the archiepiscopal jurisdiction during the suspension of that prelate; and, in 1691, after exhibiting the greatest reluctance, he was induced to accept the archbishopric itself. He had previously formed a scheme for the comprehension of the Presbyterians within the pale of the church, which had been rejected by the convocation. He had also failed in another design for forming a new book of homilies; and a sermon which he preached before the queen, against the absolute eternity of hell torments, still further involved him with the advocates of orthodoxy. When, therefore, he accepted the primacy, a large party assailed him with great animosity; and he was reproached with the inconsistency of his own conduct with the doctrine he had advanced to lord William Russel. He bore these attacks in silence, and even prevented some prosecutions for libel against him, directed by the crown. He was also charged with Socinianism; in answer to which he republished four of his sermons on the Incarnation and Divinity of our Saviour. There appears to have been no other ground for that imputation than that he defended Christianity on rational grounds, and corresponded with such men as Limborch, Locke and Le Clerc; to which reason doctor Jortin adds, that he had broken an ancient and fundamental rule of controversial theology—"Allow not an adversary either to have common sense or common honesty." He now exerted himself to advance the respectability of the church, and, among other things, wished to correct the evils arising from non-residence. He was, however, counteracted in all his endeavours, by the most perverse opposition, which rendered his high station a scene of much more disgust than gratification, and, soon after, died of a paralytic stroke, in 1694. He left his widow nothing but the copyright of his sermons. Doctor Tillotson was open, sincere, benevolent and forgiving; and although, in some points, too compliant, and liable to the charge of inconsistency, his intentions seem to have been pure and disinterested. His sermons maintain a place among the most popular of that class of compositions in the English language, displaying great copiousness of thought and expression, and abounding in passages which strongly impress the mind. His sermons are doubtless much less read than formerly, but can scarcely fail of remaining a permanent part of the branch of English literature to which they belong.

TILLY, John Tzerklas, count of, one of the most celebrated generals of the seventeenth century, was born in 1559, in Walloon Brabant, at the castle of Tilly. He was, in his youth, a Jesuit. After being educated strictly and fanatically, he entered the Spanish, the Austrian, and at last the Bavarian service. Under Alva and other commanders, he formed his military talents, and became accustomed to silent obedience, to a stern pursuit of his objects without regarding the calls of mercy, and to the destruction of heretics. He rose, by degrees, to the command of the army of the league in the thirty years' war. He distinguished himself much as a general; and when, in 1630, Wallenstein was obliged to give up the command, Tilly was appointed generalissimo of the imperial troops. His most celebrated exploit is the bloody sack of Magdeburg, May 10, 1631; and history has few pages so black as those on which the atrocities of Isolani's Croats and Pappenheim's Walloons are recorded. Some officers, at length, implored Tilly to put a stop to the horrible outrages. He coldly replied, "Come back within an hour, and I will then see what is to be done. The soldier ought to have some reward for his labours and dangers." On the 14th, he entered the burned and plundered city in triumph. "Since the destruction of Troy and Jerusalem, no such victory has taken place," he wrote to his master. Gustavus Adolphus met him at Breitenfeld, September 7, and Tilly, who had been thirty-six times victorious, was now entirely beaten, and was himself wounded. In a subsequent engagement with the Swedes, on the Lech, a cannon ball shattered his thigh, and he died in a few days, April 30, 1632. His face was repulsive; his manners always monastic, even amidst the dissoluteness of a camp of that time. He never accepted money, and left but a small fortune. He refused the grant of the principality of Kalemberg. As a soldier, he was prompt, cunning and cruel.

TILSIT; a town of East Prussia, in Gumbinnen, a capital of a circle; fifty miles north-east of Königsberg, fifty south-south-east of Memel; lon. 21° 56′ E.; lat. 55° 5′ N.; population 8248. It is situated on two rivers, the Niemen (here called the *Memel*) and the small river Tilse, which separates the town from the castle. It is a commercial town well built, and contains an hospital, two Lutheran churches, and a provincial school. The chief articles of export are corn, wax, salt, salted provisions, hats, and leather. The circle of Tilsit is a level and fertile tract, lying on the Curische-Haff.

Peace of Tilsit. The battle of Friedland on June 14, 1807, terminated in the total rout of the Russian forces, and the annihilation of Prussia's last hope. June 18, when the French were already on the Niemen, the emperor Alexander sent proposals for an armistice to the grand duke of Berg, which Napoleon readily accepted. The battles of Eylau and Friedland, continual skirmishes, and the siege of Dantzic, had much weakened the French army; and Napoleon was obliged to keep an attentive eye upon Austria, which, in case of his defeat, would not have failed to attack him. At the same time, the Russian cabinet complained of inactivity on the part of the British, so that the French and Russian monarchs were the more readily disposed to come to terms. They met, June 25, on a raft built for the purpose on the Niemen, in presence of the two armies. Tilsit was declared, by Napoleon, neutral, and the emperors and the king of Prussia had their head-quarters there, from the 28th, in order to expedite the negociations for peace. The queen of

Prussia, at the invitation of Napoleon, also repaired to Tilsit. July 7, peace was concluded between Napoleon and Alexander, by Talleyrand, Kurakin, and Labanoff Rostoffski, Kalckreuth and Golz. The question was only respecting the territory of the king of Prussia, who was obliged to cede one half of his country in order to retain the other, under the hardest conditions, which it was almost impossible to fulfil. By the terms of the peace, it was settled,—1. that the provinces torn from Poland by Prussia, in 1793 and 1795, should form a new duchy of Warsaw; 2. that Dantzic, with a territory two leagues in circuit, should be made a free city, under the protection of Prussia and Saxony; 3. that the king of Saxony, made duke of Warsaw, should have a military road to his new state, through Silesia; 4. that the dukes of Mecklenburg, Oldenburg, and Coburg should be reinstated, by the emperor of the French, and on the other hand, his brother Jerome should be acknowledged, by Alexander, as king of Westphalia, Joseph as king of Naples, Louis as king of Holland; and, 5. that the kingdom of Westphalia should be formed of the provinces ceded by Prussia, situated on the left bank of the Elbe, together with Brunswick, Hessia, &c. At the same time, 6. Alexander ceded the lordship of Jever to Holland, and promised, 7. to withdraw his troops from Moldavia and Walachia, and conclude peace with the Porte, under Napoleon's mediation. On the other hand, Russia received of the Prussian provinces, that of Bialystock, 4360 square miles, with 184,000 inhabitants. Moreover, the Russians evacuated Cattaro in consequence of the peace of Tilsit. In a secret article, Russia promised to unite with France against England, to secure the independence of neutral flags, and to induce the courts of Stockholm, Copenhagen, and Lisbon to concur in the same arrangement. The terms of the peace between Napoleon and Frederic William III. of Prussia, were contained, essentially, in that just described. Prussia was to cede the above-mentioned Polish provinces, and all the provinces between the Elbe and Rhine, to Napoleon, the circle of Cottbus to Saxony, and to close her ports against England. July 9, the peace with Prussia was signed, and count Kalckreuth agreed, with the prince of Neufchatel, that all Prussia should be evacuated by Oct. 1, if the heavy contributions should be paid up to that time, or security satisfactory to the intendant-general should be given for the payment. These terms could not be fulfilled, and Prussia continued a prey to French commissioners, until it compounded for the impositions laid on it, after the lapse of a year, by the payment of 120,000,000 francs. Yet it remained continually exposed to attack on the part of the French, who occupied three fortresses on the Oder (Glogau, Kustrin, and Stettin), and from their allied states (Warsaw, Saxony, and Westphalia), until, in 1813, its situation was changed. In the treaty with Russia, it was said, "The king of Prussia receives back half of his states at the intercession of the emperor of Russia." In 1822, Lewis Goldsmith published the secret articles of the peace of Tilsit, or rather the secret agreements made at the same. According to these, Russia was to have European Turkey; a prince of Napoleon's family was to receive the crown of Spain and Portugal; the temporal power of the pope was to cease; France to occupy the African States; Malta and Egypt to belong again to France; France to be supported by Russia in the conquest of Gibraltar; the Mediterranean to be open only to French, Russian, Spanish, and Italian vessels; and Denmark to be indemnified by the Hanse towns in northern Germany, if she would employ her fleet against England, &c.

TILT-HAMMER; a large and heavy hammer, put in motion by a water-wheel or steam-engine. Cogs being brought to bear on the tail of the hammer, its depression causes the head to be elevated, which, when liberated, falls with considerable force by its own specific gravity. Tilt-mills work on the same principle.

TILTING OF STEEL, is the process by which blistered steel is rendered ductile. This is done by placing it under the tilt-hammer.

TIMÆUS, of Locri, in Magna Græcia; a Pythagorean philosopher, and a teacher of Plato, who has called one of his dialogues by his name. Timæus employed himself chiefly in the study of nature. The genuineness of the work which goes under his name (On Nature and the Soul of the World) is doubted by Meiners, though defended by Tiedemann. It is inserted in Stanley's History of Philosophy. Meiners considers it merely as an abridgement of Plato's *Timæus*.

TIMAR AND SIAMET are military fiefs in Turkey. See *Zaim*.

TIMBER. A vast expense is every year occasioned by the premature decay of wood, employed in ships and other structures, which are exposed to vicissitudes of weather, and especially if they are subjected to the influence of warmth combined with moisture. Trees of different species vary greatly in the durability of their wood; yet, none of the species commonly employed are capable of withstanding, for many years, the effect of unfavourable exposures and situations. The decay of timber is sometimes superficial and sometimes internal. In the former case, the outside of the wood first perishes and crumbles away, and successive strata are decomposed, before the internal parts become unsound. In the other species, which is distinguished by the name of the *dry rot*, the disease begins in the interior substance of the wood, particularly of that which has not been well seasoned, and spreads outwardly, causing the whole mass to swell, crack, and exhale a musty odour. Different fungous vegetables sprout out of its substance; the wood loses its strength, and crumbles, finally, into a mass of dust. This disease prevails most in a warm, moist, and confined atmosphere, such as frequently exists in the interior of ships, and in the cellars and foundations of houses. Its destructive effects in ships of war have given rise, of late, to numerous publications. Some writers consider that the dry rot is not essentially different from the more common kinds of decay; but there seems to be sufficient reason for the distinction which has usually been drawn. The prevention of the evil has been attempted in various ways, and with some degree of success.

Felling. It is agreed by most writers that the sap of vegetables is the great cause of their fermentation and decay. Hence it appears desirable, if there is any season in which the trunk of a tree is less charged with sap than at others, that this time should be selected for felling it. The middle of summer and the middle of winter are, undoubtedly, the periods when the wood contains least sap. In the months of spring and autumn, in which the roots prepare sap, but no leaves exist to expend it, the trunk is overcharged with sap; and in many trees, as the maple and birch, sap will flow out at these

seasons, if the trunk is wounded. In summer, on the contrary, when the leaves are out, the sap is rapidly expended; and in winter, when the roots are dormant, it is sparingly produced; so that no surplus of this fluid apparently exists. From reasoning *a priori* it would seem that no treatment would be so effectual in getting rid of the greatest quantity of sap as to girdle the tree, by cutting away a ring of alburnum, in the early part of summer, thus putting a stop to the further ascent of the sap, and then to suffer it to stand until the leaves should have expended, by their growth, or transpiration, all the fluid which could be extracted by them, previously to the death of the tree.* The wood would thus, probably, be found in the driest state, to which any treatment could reduce it in the living state. Buffon has recommended stripping the trees of their bark in spring, and felling them in the subsequent autumn. This method is said to harden the alburnum; but the cause is not very apparent, nor is the success at all certain.

Seasoning. At whatever period timber is felled, it requires to be thoroughly seasoned before it is fit for the purposes of carpentry. The object of seasoning is partly to evaporate as much of the sap as possible, and thus to prevent its influence in causing decomposition, and partly to reduce the dimensions of the wood, so that it may be used without inconvenience from its further shrinking. Timber seasons best when placed in dry situations, where the air has a free circulation round it. Gradual drying is considered a better preservative of wood than a sudden exposure to warmth, even of the sun; for warmth, abruptly applied, causes cracks and flaws, from the sudden and unequal expansion produced in different parts. Two or three years' seasoning is requisite to produce tightness and durability in the wood work of buildings. It must be observed that seasoning in the common way only removes a portion of the aqueous and volatile matter from the wood. The extractive, and other soluble portions, still remain, and are liable to ferment, though in a less degree, whenever the wood reabsorbs moisture. Such, indeed, is the force of capillary attraction, that wood exposed to the atmosphere seldom gives up all its moisture.

Preservation of Timber. When wood is to be kept in a dry situation, as in the interior of houses, no other preparation is necessary than that of thorough seasoning. But when it is to be exposed to the vicissitudes of weather, and still more when it is to remain in a warm and moist atmosphere, its preservation often becomes extremely difficult. Numerous experiments have been made, and many volumes written, upon the preservation of timber, and the prevention of the dry rot; but the subject is not yet brought to a satisfactory conclusion. The methods which have hitherto been found most successful, consist in extracting the sap, in excluding moisture, and in impregnating the vessels of the wood with antiseptic substances. For extracting the sap the process of *water seasoning* is recommended. It consists in immersing the green timber in clear water for about two weeks, after which it is taken out, and seasoned in the usual manner. A great part of the sap, together with the soluble and fermentable matter, is said to be dissolved or removed by this process. Running water is more effectual than that which is stagnant. It is necessary that the timber should be sunk, so as to be completely under water, since nothing is more destructive to wood than partial immersion. Langton† has proposed to extract the sap by means of an air-pump, the timber being enclosed in close cases, with a temperature somewhat elevated, and the sap being discharged in vapour by the operation of the pump. It appears extremely probable that if trees were felled in summer, and the butt ends immediately placed in water, without removing the branches, a great part of their sap would be suspended by the vegetative process alone, and replaced by water. It is well known that branches of plants if inserted in water, continue for some days to grow, to transpire, and to perform their other functions. This they probably do at the expense of the sap, or assimilated fluid, which was previously in them, while they replace it by the water they assume. This state of things continues until the juices are too far diluted to be capable of any longer sustaining life.

The *charring* of timber, by scorching or burning its outside, is commonly supposed to increase its durability; but on this subject, the results of experiment do not agree. Charcoal is one of the most durable of vegetable substances; but the conversion of the surface of wood into charcoal does not necessarily alter the character of the inner part. As far, however, as it may operate in excluding worms, and arresting the spreading of infectious decay, like the dry rot, it is useful. Probably, also, the pyroligneous acid, which is generated when wood is burnt, may exert a preservative influence. The exclusion of moisture by covering the surface with a coating of paint, varnish, tar, &c., is a well-known preservative of wood which is exposed to the weather. If care is taken to renew the coat of paint as often as it decays, wood, on the outside of buildings, is sometimes made to last for centuries. But *painting is no preservative* against the internal or dry rot. On the contrary, when this disease is begun, the effect of paint, by choking the pores of the wood, and preventing the exhalation of vapours and gases which are formed, tends rather to expedite than prevent the progress of decay. Paint itself is rendered more durable by covering it with a coating of fine sand. Wood should never be painted which is not thoroughly seasoned. The impregnation of wood with tar, bitumen, and other resinous substances undoubtedly promotes its preservation. It is the opinion of some writers,‡ that "woods aboundant in resinous matter cannot be more durable than others;" but the reverse of this is proved, every year, in the pine forests of *America*, where the *light-wood*, as it is called, consisting of the knots and other resinous parts of pine trees, remains entire and is collected for the purpose of affording light long after the remaining wood of the tree has decayed. A coating of tar or turpentine, externally applied to seasoned timber, answers the same purpose as paint in protecting the wood, if it is renewed with sufficient frequency. Wood impregnated with drying oils, such as linseed oil, becomes harder, and more capable of resisting moisture. It is frequently the custom, to bore a perpendicular hole in the top of a mast, and fill it with oil. The fluid is gradually absorbed by the vessels of the wood, and penetrates the mast to a great distance. Animal oils, in general, are less proper for this

* See M'William on the *Dry Rot*, pp. 151 and 158.

† Repertory of Arts, 1826. Franklin Journal, ii. and v.

‡ Tredgold's Elementary Principles of Carpentry, page 48

purpose, being more liable to decomposition. The preservative quality of common salt (muriate of soda) is well known. An example of its effect is seen in the hay of salt marshes, which is frequently housed before it is dry, and which often becomes damp afterwards, from the deliquescence of its salt, yet remains unchanged for an indefinite length of time. In the salt mines of Poland and Hungary, the galleries are supported by wooden pillars, which which are found to last unimpaired for ages, in consequence of being impregnated with the salt, while pillars of brick and stone, used for the same purpose, crumble away, in a short time, by the decay of their mortar. Wooden piles, driven into the mud of salt flats and marshes, last for an unlimited time, and are used for the foundations of brick and stone edifices. The application of salt, in minute quantities, is said rather to hasten than prevent the decay of vegetable and animal bodies. Yet the practice of docking timber, by immersing it, for some time, in sea water, after it has been seasoned, is generally admitted to promote its durability. There are some experiments which appear to show, that, after the dry rot has commenced, immersion in salt water effectually checks its progress, and preserves the remainder of the timber.* In some ships, the interstices between the timbers, in various parts of the hull, are filled with dry salt. When this salt deliquesces, it fills the pores of the wood with a strong saline impregnation; but it has been said, in some cases, to render the inside of the vessel uncomfortably damp. If timber is immersed in a brine made of pure muriate of soda, without the bitter deliquescent salts which sea water contains, the evil of dampness is avoided. A variety of other substances, besides common salt, act as antiseptics in preventing the dry rot, and the growth of the fungus which attends it. Nitre and alum have been recommended for this purpose; and some of the metallic salts are considered still more effectual. Of these, the sulphates of iron, copper and zinc have the effect to harden and preserve the timber. Wood boiled in a solution of the former of these, and afterwards kept some days in a warm place to dry, is said to become impervious to moisture. Corrosive sublimate, which is recommended by Sir H. Davy, is a powerful preservative of organized substances from decay, and proves destructive to parasitic vegetables and animals; but its safety, in regard to the health of crews, if used in large quantities about the wood of a ship, may be considered as doubtful. An opinion has been stated, that the decay of timber in ships, by dry rot, is owing to the impure atmosphere generated by bilge water, and that it is to be remedied by constructing ships with a view to their free and effectual ventilation.

TIMBREL. See *Tambourine.*

TIMBUCTOO, or TOMBUCTOO; a city of Africa, for many centuries the great emporium of the interior trade of that continent, situated eight miles to the north of the Niger. This city has excited much interest, and has only recently been visited by any European traveller; and the information as yet possessed respecting it is exceedingly vague. Leo Africanus gives a description of this city, which he had visited twice. According to him, Timbuctoo was founded in the year of the Hegira 610 (1218, A. D.), and having extended its dominion over all the neighbouring states, acquired that commercial prosperity for which it has ever since been distinguished. At the time when he visited it, it contained many persons of great opulence, particularly foreign merchants. The king held a splendid court, and had an army consisting of 3000 cavalry, and a numerous infantry. The royal palace and principal mosque were built of stone, but the houses of the ordinary inhabitants were constructed in the form of bells—the walls composed of stakes or hurdles, and the roofs of reeds. In 1811, Robert Adams, an illiterate American sailor, was, according to his own account (see his *Narrative*, London, 1816, the misstatements of which are pointed out in the North American Review, vol. 5 and 22), after being shipwrecked near cape Blanco, carried as a slave to Timbuctoo, and detained there six months. A more recent account was given by captain Riley, an American, who suffered shipwreck on the coast of Sahara, in 1815. The account was given to Riley by Sidi Hamet, an intelligent Arab merchant, by whom he was purchased and carried to Mogadore. (See Riley's *Narrative of his Shipwreck and Captivity*, New York, 1817.) In 1826, major Laing reached Timbuctoo, where he remained for upwards of a month. Several letters were received from him while there, stating that, in point of extent, it did not exceed four miles in circuit, but that in other respects it answered his expectations. He was soon after obliged to leave the city, and was murdered three days after quitting it: his papers have not been recovered. (See *Laing.*) In 1828, Caillié visited Timbuctoo (or Temboctoo, as he calls it), and resided there above a fortnight. According to him, it consists of ill-built earthen houses, situated in the midst of deserts of moving sand, and containing seven mosques. He estimates the population at only 10,000 or 12,000, chiefly negroes, who are Mohammedans. It is entirely supported by commerce, being the depot of salt from the Taudeny mines, and of European goods brought by the caravans from Morocco, as well as those from Tunis and Tripoli, which go by the way of Ghadamis. These goods are embarked for Jenne, to be exchanged for the gold, slaves, and provisions, with which that city exclusively supplies Timbuctoo. It may be proper to observe, that the truth and accuracy of Caillié's statements have been very much questioned, particularly in the London Quarterly Review. Lon. of Timbuctoo, according to Rennell, 2° 30′ E.; lat. 16° 30′ N.; according to the map prepared by Jomard, from Caillié's notes, lat. 17° 50′ N.; lon. 3° 34′ W. See Caillié's *Travels to Timbuctoo*, from the French, London, 1830.

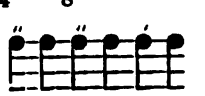
TIME is the general relation in which all things perceptible stand to each other, in regard to their origin, continuance and dissolution. It is a form necessary to enable the mind to unite successive existence. It is not an external object, nor a mere relation of individual things to each other, but is infinite, like the phenomena which are submitted to this form in our perceptions. (See *Kant*, volume vii, p. 304.) We speak of a distinct period of time (relative time) only in reference to that which fills time. Accordingly, we also distinguish the past, present and future as its component parts, which pass continually each into the succeeding. In order to measure the succession and duration of particu-

* The British frigate Resistance, which went down in Malta harbour, and the Eden, which was sunk in Plymouth sound, were both affected with dry rot. These ships, after remaining many months under water, were raised, and it was found that the disease was wholly arrested. Every vestige of fungus had disappeared, and the ships remained in service afterwards, perfectly sound from any further decay. (Supplement to the Encyclopedia Britannica, iii. . ?.)

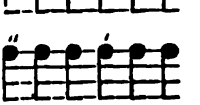
lar things and events, the great motions of the heavenly bodies, which always remain the same, particularly of those bodies which are most closely connected with the earth, have been taken as standards; hence the physical or astronomical time. Such a measure of time is afforded, by nature herself, in the apparent daily revolution of the heavenly arch, i. e. the rotation of the earth on its axis. This gives rise to the sidereal time. But as the sidereal time will not serve for the purposes of common life, it was necessary to resort to the solar time. The latter, indeed, is unequal, and neither agrees accurately with the sidereal time, nor with that indicated by a clock; but this evil is remedied by the equation of time, through which the true solar time is changed into mean time.

Time, in music and rhythm; the measure by which a series of tones or sounds is uniformly divided; next, the various modes of this division, and the division itself (as when we say, This singer does not keep *time*). Time has nothing to do with the height or depth of the tones, and can exist without these distinctions, but not without a variety of duration and accent, since without such variety we cannot conceive a connected series of tones or motions (for in dancing, too, we speak of *time*) as constituting a whole. In order to do this, it is necessary that the successive sounds or motions should appear to us as portions of divisions recurring periodically, because in this uniform recurrence we perceive that uniformity in variety which is essential to time. Time, therefore, in music, corresponds to symmetry in those objects which occupy space. But it is not only necessary to perceive that each division of the series of tones or motions, which is called in music a *bar*, is of equal duration with the others; all the bars must also be perceived to correspond with each other as to the parts of which they are composed. Otherwise, the perception of uniform progress would be destroyed; if, for instance, $\frac{3}{4}$ time and $\frac{4}{4}$ should continually and regularly follow each other in such a way that each bar should occupy precisely the same time, the parts of one bar would be at variance with those of the other; the accent would not be the same; the feeling of symmetry and a well-ordered whole would be destroyed. As symmetry delights through the eye, so time does through the ear. (See *Rhythm*, *Music*, *Dancing*.) Time, again, varies according to its component parts; hence the different kinds of time. It varies according to the number of the parts which compose it, and the accent depending thereupon. First, there is even time (i. e. time the parts of which form an even number), and uneven. The former is simple if it consists of two, the latter if it consists of three chief parts. The simple even time is $\frac{2}{4}$ and $\frac{2}{8}$ time; the compound is $\frac{4}{4}$ time, (also marked thus, C), and $\frac{8}{8}$ time. The $\frac{2}{4}$ time, according to Mr Apel, a German, who has written much on rhythm, &c., is only $\frac{4}{4}$ on a reduced scale: still quicker and easier is the $\frac{2}{8}$ time, which is not much used: on the other hand, $\frac{2}{2}$ time, or alla-breve time, is performed more slowly and heavily than $\frac{2}{4}$ time, and allows therefore, no smaller notes than an eighth. The even time cannot well have more than eight even portions, because a greater number could not be perceived as forming a regular period, so that the essence of time would be lost. The uneven time, which affords a greater variety, can be reduced to the $\frac{3}{4}$ time. A shorter duration of the three equal parts gives rise to the $\frac{3}{8}$ time, a longer duration to the $\frac{3}{2}$ time. By multiplying the three, we obtain the heavy $\frac{6}{2}$, $\frac{6}{4}$, and the easy $\frac{6}{8}$, $\frac{9}{4}$, $\frac{9}{8}$, and the $\frac{12}{8}$ time, which form the rest of the uneven kinds of time. The two latter are not often used. Beyond twelve uneven parts, there would, again, be no distinct perception; therefore the time could not be distinguished. Other uneven numbers, as 5 and 7, do not form kinds of time, because, according to Apel, they consist of even and uneven numbers. Therefore all uneven times were formerly called *triple times;* as only those uneven times which originate from three parts, are natural to the ear. A time consisting of one portion only would be impossible, as time requires a uniformity of the various, a periodicality. From all this it appears that the kinds of time are not arbitrary inventions, as Rousseau seems to think. Uneven time is considered livelier than even. As to the parts of time, they derive different values from the accent. Accordingly we distinguish good and bad notes (notes being the parts of divisions of time, or bars, in music), *nota buona*, and *nota cattiva*, *thesis* and *arsis*. A good or heavy note is that which has the accent, and in vocal music requires a long syllable; a bad one has a short syllable. Good notes, in the even species of time, are the first (thesis), which has absolutely the greatest stress, because it decides the beginning of the bar. If the half bars of $\frac{4}{4}$ time are changed into *quarters*, the first and third quarters receive the accent, the latter, however, a weaker one. A still weaker accent is given to the third and sixth eighth, if the quarters are changed into eighths. In the uneven time, the first $\frac{1}{2}$ has again the accent in the $\frac{3}{2}$ time, and in $\frac{6}{4}$ the first and fourth $\frac{1}{4}$, have the greatest stress, the second and fifth a proportionably weaker stress, and so on. That the various species of time are distinguished by variety of accent, even if the notes are of equal value, we see, e. g. by a comparison of $\frac{3}{2}$ and $\frac{6}{4}$, also of $\frac{3}{4}$ and $\frac{6}{8}$ time; because

$\frac{3}{2}$ is accentuated thus,

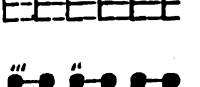


$\frac{6}{4}$ " "

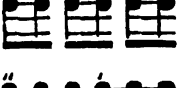


further,

$\frac{3}{4}$ " "



$\frac{6}{8}$ " "



This the composer has to refer to the words which

he intends to set to music. Franco of Cologne is considered the inventor of modern time. (See *Music, History of.*) With the Greeks, the time was indicated at the beginning of the chorus, originally by wooden shoes (κρουπέζια), at a subsequent period by iron ones; with the Romans by the *scamillum*, or *scabillum*.

It is of the greatest importance, for the performance of musical pieces, to ascertain the precise duration of the notes, i. e. the tempo. (q. v.) The usual expressions, *andante*, *adagio*, *allegro*, &c., are too vague. Various attempts, therefore, have been made, at different times, in London and Paris, to invent a machine which would enable the composer to indicate, with the greatest accuracy, the duration of the unit of the bar. Some of these have been commended by the academy of arts and sciences at Paris. These inventions have not met with much favour in Germany till lately, when one of the most successful has been made by Stöckel, at Burg, Germany, whose musical chronometer is a machine of the form of a common-sized clock. It has a dial, with numbers, to which the hand is turned, according to the directions given by the composer at the beginning of the piece. A pendulum, now put in motion, determines exactly the duration of the unit note. Mälzel of Vienna has brought this machine to great perfection. It is used in orchestras; and distinguished composers, as Beethoven, have determined the time of their compositions by this instrument. It can be bought in every considerable music shop in Leipsic and Vienna. But a very simple and efficient way of determining the time accurately is laid down, by Gottf. Weber of Mayence, in the Leipsic Musical Gazette. He says, "The simplest and surest measure of time is a simple pendulum, i. e. a thread with a leaden bullet at one end. It is well known that a pendulum swings quicker the shorter it is. It is, therefore, only necessary to write, at the beginning of a musical piece, the length of a pendulum, the vibrations of which correspond to the desired duration of the unit note. Thus, *allegro* $8''\frac{2}{4}$ would signify that in this allegro the unit note $\frac{1}{4}$ is to correspond to the vibration of a pendulum eight inches long, Rhenish measure. This way of indicating the time has this advantage, that it can be easily understood every where, and easily executed, as the niceties observed in astronomical calculations with the pendulum are not requisite here. It must only be remembered that, with $\frac{2}{4}$, $\frac{6}{4}$ and $\frac{4}{4}$ time, a vibration of the pendulum indicates the duration of $\frac{1}{4}$; with $\frac{2}{8}, \frac{3}{8}, \frac{4}{8}, \frac{6}{8}$ time, it indicates $\frac{1}{8}$. When military pedantry in Germany had reached its acme, before the French revolution, chronometers were used in some regiments, which were held by the drum-major, and determined by their beats the duration of each step, which he indicated by signs to the drummers. We have lately heard that they are again used by some regiments in Russia and Austria.

TIMOCRACY; according to Aristotle, that form of government whose laws require a certain property to enable a citizen to be capable of the highest offices. The word is derived from τιμή, which signifies both honour and valuation of property, and κρατος, power.

TIMOLEON; a native of Corinth, equally distinguished as a general and a lawgiver, a lover of liberty and a patriot. There is one act, however, of Timoleon, which casts a shade over his character,—the murder of his brother Timophanes,—to which he was a witness and accessary, if he did not actually assist in its execution. Yet Timoleon's conduct may be in some measure justified by the motives. Timophanes had aimed at the sovereign power, and had already begun to play the part of a tyrant. The remonstrances of Timoleon had no effect upon his brother, and he, therefore, determined to purchase the freedom of his fellow citizens, even at the price of his brother's death, should that step prove necessary. Going to his brother, at the head of several armed men, and finding himself unable to prevail upon him to abandon his ambitious projects, he stood aside, with his head covered, while his followers put Timophanes to death. Joyful as the intelligence of the tyrant's death might be to his fellow citizens, yet, to most minds, there was something hateful in the idea of fratricide; and Timoleon bitterly reproached himself for the act. He then went into voluntary exile. Twenty years afterwards, when the Syracusans demanded aid from Corinth against the tyrant Dionysius the younger, Timoleon was recalled, and placed at the head of the troops sent to their relief. He compelled Dionysius to leave Syracuse, and also forced the Carthaginians to renounce their claims to Sicily (B. C. 340). After having restored liberty to Sicily, recalled the exiles and fugitives, and erected public buildings in place of the fortresses built by the tyrant, he gave the citizens a new and more stable constitution, voluntarily laid down his power, which he might have retained, and retired into private life. His reward was the general esteem of the Sicilians, among whom he spent the rest of his life. They called him their benefactor and father, and took no measures of importance without consulting him. All Sicily mourned his death, which occurred at an advanced age; and a yearly solemnity was celebrated in honour of him. Thus lived and died Timoleon, one of the greatest and noblest characters, not only of Greece, but of all ages and countries.

TIMON of Athens; a celebrated misanthrope, who lived at the time of the Peloponnesian war—a period when a general corruption of manners was beginning to supplant the ancient simplicity which had characterized his countrymen. Timon, who united a strict integrity with much wit, seems to have been exasperated, partly by the ingratitude of some of his fellow citizens, and partly by the rapid progress of corruption; and, in his words and actions, he displayed a gloomy state of feelings. Like Socrates and Diogenes, he espoused the cause of virtue, but injured a good cause by the bitterness of his sarcasms and the malignity of his irony. His conduct gained him the epithet of the *misanthrope;* and he was made a subject of ridicule by the comic poets. Aristophanes says, he is surrounded with a hedge of thorns, and that every one shuns him as a scion of the Furies. Lucian has a witty dialogue, Timon, of which he is the subject; and Shakspeare's Timon of Athens has rendered his name and character familiar to the English reader.

TIMON the Phliasian, a philosopher and physician, the most celebrated disciple and friend of Pyrrho, and, consequently, a follower of the sceptic philosophy, was born at Phlius, and flourished in

the time of Antigonus, king of Macedonia, and Ptolemy Philadelphus, during the last half of the third century B. C. He attacked the dogmatists, and maintained a suspension of judgment as alone productive of tranquillity of mind. Thirty comedies and sixty tragedies are also ascribed to him; but of his numerous works nothing remains, except a few fragments of his *silli*, the loss of which is much to be regretted. They consisted of three books, the first of which was narrative, and the others in the form of dialogues. They were written in ridicule of the dogmatic philosophy. The fragments of Timon are contained in Langheinrich's *De Timone Sillographo* (1720), and Paul's treatise *De Sillis Græcorum* (Berlin, 1821). The ancients celebrate his industry, learning, and philosophical indifference to objects which excite the wonder, anxiety, grief and terror of the multitude.

TIMOROSO (Italian for *fearful*); a term applied to music, if the style of performance expresses awe and dread.

TIMOTHEUS, one of the most celebrated lyric poets and musicians of antiquity, who flourished at the court of Philip of Macedon, and his son Alexander, about the middle of the fourth century before the Christian era. He was a native of Miletus in Caria; and Pausanias attributes to him the completion of the lyre, by the addition of four new strings.

TIMOTHY, a disciple of St Paul, was born in Lycaonia, Asia Minor, probably at Lystra, of a pagan father and Christian mother. He was yet young when he became associated (A. D. 51) with the great apostle in his ministry to the Gentiles; and he accompanied Paul to Thessalonica, Philippi, and Berœa. He was then left in the latter city alone; and, after spending some time there and at Thessalonica, during a violent persecution, he again joined his master at Corinth. After preaching the gospel in Macedonia, Achaia, and other places, he is supposed to have shared the captivity of Paul at Rome, and to have suffered martyrdom there during the reign of Nerva (A. D. 97). Two letters addressed to him by St Paul form a part of the New Testament.

TIMOTHY GRASS (*phleum pratense*) is readily recognised by its long cylindrical spikes. It forms very excellent fodder, and horses prefer it to the other grasses; but it does not yield a very abundant crop. The root becomes bulbous in very dry grounds. It is a native of Europe.

TIMOUR, called also TIMOUR LENK (that is, *the lame*), and, by corruption, TAMERLANE, one of the most celebrated of the Oriental conquerors, was born in the village of Sebzar, in the territory of Kesh, about forty miles from Samarcand, in the year 1335. His ancestors were chiefs of the districts, and remotely related to the family of Gengis. At the time of his birth, great anarchy prevailed in his native country, which suffered from an invasion of the Getes, against whom he acted, at the head of a body of his countrymen, and endured much diversity of fortune, until at length, being joined by a large body of volunteers, he was enabled to expel the Getes from Transoxiana. A dispute with his confederate and brother-in-law, Houssein, led to a brief civil war; but the latter being defeated and put to death, a general diet, in 1370, seated him on the throne of Zagatai, upon which he made Samarcand the seat of his empire. His elevation, so far from satisfying his ambition, only opened further prospects to it; and, in a very few years, he reunited to Zagatai its former dependencies, Candahar and Carizme, overran Persia, passed as a conqueror through the whole course of the Tigris and Euphrates, reduced the Christians of Georgia, subdued the kingdom of Cashgar, and his emirs even crossed the river Irtish into Siberia. He also despatched an army into Western Tartary under a fugitive prince named Toctamish, who, having established himself by its means, turned his arms against his benefactor, and obliged Timour to contend for his capital and empire. He was, however, finally defeated, and, in the pursuit, Timour captured a duke of Russia. In 1390, he invaded Hindoostan, and, rapidly penetrating to Delhi, soon completed the subjugation of the country. While on the banks of the Ganges, he was informed of great disturbances on the confines of Georgia and Anatolia, and of the ambitious projects of the Turkish sultan, Bajazet. He soon made arrangements to encounter this new enemy, whom, after a war of the most barbarous ferocity, which lasted two years and upwards, he encountered and conquered, and made captive, in the decisive battle of Angora, fought in 1402. Concerning the treatment of the prisoner, different accounts are given, the most common of which states that he was carried about by the conqueror in an iron cage, against the bars of which, he, in a few months, beat out his brains in rage and despair. The conquests of the Tartar now extended from the Irtish and Volga to the Persian gulf, and from the Ganges to the Archipelago; and the want of shipping alone prevented him from crossing into Europe. His inordinate ambition was not yet satisfied, and he was making mighty preparations for an invasion of China, when death arrested his progress, at his camp at Otrar; and he expired in 1405, in the seventieth year of his age, having previously declared his grandson, Mahomet Jehan Ghiz, his successor. He left fifty-three descendants, and a name much revered in the East, where his posterity, until lately, still preserved the title of the Mogul emperors, although the dominion had passed into other hands. Timour was tall and corpulent, with a wide forehead, large beard and pleasing countenance; but he was maimed in one hand, and lame on the right side. He conducted his government alone, and without favourites, but was, in the highest degree, fierce and fanatical in his religion; and, although no conquests were ever attended with greater cruelty, devastation, and waste of human life, he affected the title of a benefactor to mankind. Happily, his ambition was too gigantic for its consequences to last, and his dominions rapidly became divided as before. Yet he was not a mere barbarian conqueror, if the institutes are to be regarded as genuine, which, under the title of the Institutions of Timour, have been made known to us by a version from the Persian, executed by major Davy and professor White (Oxford, 17[illegible]). See Gibbon's *Decline and Fall*, ch. 65.

TIN was known to the ancients in the most remote ages. The Phœnicians procured it from Spain and from Britain, with which nations they carried on a very lucrative commerce. It appears to have been in common use in the time of Moses. It is rather a scarce metal, occurring in the earth in but two forms, namely, that of the peroxide, usually contaminated with the oxides of iron and manganese, and of a double sulphuret of tin and copper, the last of which, however, is an exceedingly rare mineral. (For a description of these ores, see the end of the present article.) Cornwall has been

celebrated for its tin mines from the remotest ages; and it still continues the most productive country in this metal in all Europe. The mountains which separate Galicia from Portugal were also very productive of tin in ancient times, and still continue unexhausted. The mountains between Saxony and Bohemia have been wrought as tin mines for several centuries, and still continue productive. Mines of it occur in the peninsula of Malacca, in India, in Chile and in Mexico. The tin-stone (or peroxide of tin) is the only ore used for obtaining metallic tin. The first process to which it is subjected is grinding. The ground ore is then washed, which removes the impurities; for the specific gravity is so high that it is easy to wash away the earthy matter, and even some of the foreign metallic ores with which it is often mingled. But there are other bodies so nearly of the same specific gravity of the tin ore that they cannot be thus removed. The next process is roasting the ore in a reverberatory furnace; this expels the sulphur and arsenic with which the foreign matters were combined, and thus diminishes their specific gravity so much that they can now be washed away. The ore, thus freed as much as possible from foreign matter, is mixed with the requisite fuel and lime-stone, and heated strongly in a reverberatory furnace, so as to bring the whole into the state of fusion, which is kept up for about eight hours. The lime unites with the earthy matters still mixed with the ore, and flows with them into a liquid glass, while the coal reduces the oxide of tin to the metallic state. It falls by its weight to the bottom, and is, at the end of about eight hours, let out by tapping a hole in the furnace, which had been filled with clay. The tin thus obtained is still very impure. It is returned to the furnace, and exposed to a heat just sufficient to melt it. The pure tin flows out into a kettle, while a quantity of impurities remains behind. The tin in the kettle is kept in fusion and agitated, by which a quantity of impurity is accumulated on its surface. It is skimmed off, and the tin, now refined, is cast into blocks, weighing each about 300 pounds.

Tin, when pure, has a fine white colour, like silver; and, when fresh, its brilliancy is great. It has a slightly disagreeable taste, and emits a peculiar smell when rubbed. Its hardness is between that of gold and lead. Specific gravity, 7·28. It is very malleable; tin leaf, or *tin foil*, as it is called, is about one thousandth part of an inch thick; and it might be beat out into leaves as thin again, if such were wanted for the purposes of art. Its ductility and tenacity are much inferior to those of most of the metals known in early times. It is very flexible, and produces, while bending, a remarkable crackling noise, sometimes called the *cry of tin*. It melts at 442° Fahr. When cooled slowly, it may be obtained crystallized in the form of a rhomboidal prism. After a short exposure to the air, it loses its lustre, and assumes a grayish-black colour, but undergoes no further alteration. Neither is it sensibly altered by being kept under water. When tin is melted in an open vessel, its surface becomes very soon covered with a gray powder, which is an oxide of the metal. If the heat be continued, the colour of the powder gradually changes, and at last it becomes yellow. It forms two oxides. The *protoxide* has a black colour, but when combined with water, is white. The *peroxide* is yellow, and, in certain circumstances, is transparent, and nearly white. The *black oxide*, or *protoxide*, may be obtained by dissolving tin in muriatic acid till a saturated solution is obtained, precipitating the liquid by means of carbonate of soda, and collecting the precipitate on a filter, washing and drying it at a temperature not exceeding 180° Fahr. By this process a white powder is obtained, which is a hydrated protoxide. It requires to be raised to a red heat in a glass retort to expel the water, after which it is a black powder, devoid of lustre, tasteless, and insoluble in water. When heated in the open air, it takes fire, burns brilliantly, and is converted into peroxide. It is distinguished from the peroxide of tin not only by its colour, but by being insoluble in ammonia and in carbonate of potash. The other oxide exists abundantly in nature, though rarely free from admixture with iron. When pure, its colour is yellow. It is translucent, or almost transparent, and crystallizes in octahedra with square bases. Specific gravity 6·6. It is insoluble in all acids, until it has been fused with an alkali. Tin combines with chlorine in two proportions, forming the *protochloride of tin*, and the *perchloride of tin*. The former of these may be formed by heating together an amalgam of tin and calomel, or by evaporating to dryness the protomuriate of tin, and fusing the residue in a closed vessel. It has a gray colour, a resinous lustre and fracture, and takes fire when heated in chlorine gas, and is converted into the perchloride. The perchloride of tin has long been known under the name of *fuming liquor of Libavius*, because it was discovered by Libavius, a chemist of the sixteenth century. It is usually prepared by mixing together an amalgam of tin and corrosive sublimate, and distilling with a very moderate heat. At first, a colourless liquor passes into the receiver, consisting chiefly of water: then the fuming liquid rushes all at once into the receiver in the state of vapour. It is colourless, like water, and very fluid. When three parts of it are mixed with one of water, the mixture condenses into a solid mass. It acts with great violence on oil of turpentine. There are compounds, also, of tin with bromine and with iodine. Tin also combines with phosphorus and with sulphur. One combination of tin and sulphur (the persulphuret) has long been known in chemistry under the name of *aurum mosaicum*, or *mosaic gold*. It is formed by mixing twelve parts tin, seven parts sulphur, three parts mercury, and three parts sal-ammoniac, and exposing the mixture to a strong heat, for eight hours, in a black-lead crucible, to the top of which an aludel is luted. The mosaic gold sublimes. It may also be formed by mixing together in a retort equal parts of sulphur and oxide of tin, and distilling. When pure, it is in the form of light scales, which readily adhere to other bodies, and which have the colour of gold. Tin and arsenic may be alloyed by fusion. The alloy is white, harder and more sonorous than tin. Tin and antimony may be united together in various proportions. Equal parts of tin and molybdænum melt into a blackish-gray, granular, brittle, soft mass. Tin does not combine readily with iron. An alloy, however, may be formed by fusing them in a close crucible, completely covered from the external air.

Tin plate is formed by dipping into melted tin thin plates of iron, thoroughly cleaned by rubbing them with sand, and then steeping them twenty-four hours in water acidulated by bran or sulphuric acid. The tin not only covers the surface of the iron, but penetrates it completely, and gives the whole a white colour. Tin and zinc may be easily

combined by fusion. This alloy is often the principal ingredient in the compound called *pewter*. Lead and tin may be combined in any proportion by fusion. This alloy is harder, and possesses much more tenacity than tin; and these qualities are at a maximum when the alloy is composed of three parts of tin and one of lead. The presence of tin seems to prevent, in a great measure, the noxious qualities of the lead from becoming sensible when food is dressed in vessels of this mixture. This result is often employed to tin copper vessels; and the noxious nature of lead having raised a suspicion that such vessels, when employed to dress acid food, might prove injurious to the health, Mr Proust was employed by the Spanish government to examine the subject. The result of his experiments was, that vinegar and lemon-juice, when boiled long in such vessels, dissolve a small portion of tin, but no lead, the presence of the former metal uniformly preventing the latter from being acted on. The vessels, of course, are innocent. What is called *ley pewter* is often scarcely any thing else than this alloy. *Tin foil*, too, is almost always a compound of tin and lead. It is in the formation of these alloys that tin is principally employed. Its oxides are used in enamelling, and to polish the metals; and its solution in nitro-muriatic acid is an important mordant in the art of dyeing, rendering several colours, particularly scarlet, more brilliant and permanent.

Tin Ores. These are but two in number, *tin ore* and *tin pyrites*. The first of these occurs crystallized, and in a great variety of forms, but which may all be derived from an octahedron with a square base, the angle over the apex being 112° 10′. The majority of the crystals have the general figure of a right square prism, with four-sided pyramids at each extremity. The cleavages take place parallel with the sides of this prism, and with both its diagonals. The crystals may be cleaved also parallel to the sides of the above-named octahedron, but with difficulty. The prisms are sometimes vertically streaked. Lustre adamantine; colour various shades of white, gray, yellow, red, brown and black; streak pale gray; in some varieties it is pale brown; semi-transparent, sometimes almost transparent, and at others opaque; brittle; hardness about that of feldspar; specific gravity 6·96. Tin ore presents itself in a great variety of compound or macled crystals. It also occurs reniform, rarely in botryoidal shapes, and massive, with a granular or columnar composition, the individuals being strongly connected, and the fracture uneven. The *wood tin* of the Cornish mines is a mere variety of tin ore. The following ingredients were found in a specimen of crystallized, and in a massive tin ore:—

	Crystallized.	Massive.
Oxide of tin.	99·00	95·00
Oxide of iron, ...	0·25	5·00
Silex, ...	0·75	0·00

In its greatest purity, it contains nothing but oxide of tin. Alone, it does not melt before the blowpipe, but is reducible when in contact with charcoal. It occurs disseminated through granite, also in beds and veins. It also occurs in pebbles, and is extracted in this shape from stream-works. The variety called *wood tin* has hitherto been found only in these repositories. There are but few countries in which the present species is met with in considerable quantities. These are Saxony, Bohemia, Cornwall, in Europe, and the peninsula of Malacca, and the island of Banca, in Asia. Within a few years, small crystals have been met with at Gosher, in Massachusetts, in a granite rock, accompanied by tourmaline and spodumene. *Tin pyrites*, the other ore of tin, occurs massive, with a granular composition; fracture uneven, imperfectly conchoidal; lustre metallic; colour steel-gray, inclining to yellow; streak black; opaque; brittle; hardness about that of fluor; specific gravity 4·35. Before the blow-pipe, sulphur is driven off, and the mineral melts into a blackish scoria, without yielding a metallic button. It is soluble in nitro-muriatic acid, during which the sulphur is precipitated. It consists of

Tin, ...	34·00
Copper, ...	35·00
Iron, ...	2·00
Sulphur, ...	25·00

It is found only at St Agnes, in Cornwall.

TINCAL. See *Boracic Acid*.

TINCTURE; a solution of any substance in spirit of wine. Rectified spirit of wine is the direct menstruum of the resins, and essential oils of vegetables, and totally extracts these active principles from sundry vegetable matters, which yield them to water not at all, or only in part. It dissolves, likewise, the sweet, saccharine matter of vegetables, and generally those parts of animal bodies in which their peculiar smell and taste reside. The virtues of many vegetables are extracted almost equally by water and rectified spirit: but in the watery and spirituous tinctures of them there is this difference, that the active parts in the watery extractions are blended with a large proportion of inert gummy matter, on which their solubility in this menstruum in a great measure depends, while rectified spirit extracts them almost pure from gum. Hence, when the spirituous tinctures are mixed with watery liquors, a part of what the spirit had taken up from the subject generally separates and subsides, on account of its having been freed from that matter, which, being blended with it in the original vegetable, made it soluble in water. This, however, is not universal, for the active parts of some vegetables, when extracted by rectified spirits, are not precipitated by water, being almost equally soluble in both menstrua.

TINDAL, Matthew, LL.D., a controversial writer, born about 1657, in Devonshire, where his father was a clergyman, was admitted of Lincoln college, Oxford, in 1672, elected a fellow of All Souls' college, and afterwards became a doctor of law. At the commencement of the reign of James II., he turned Roman Catholic, but, in 1687, he returned to the church of England. Having concurred in the revolution, he was admitted an advocate, and sat as a judge in the court of delegates. He published several pieces, political and theological, among which were a Letter to the Clergymen of the two Universities, on the subject of the Trinity and Athanasian creed, and a treatise entitled the Rights of the Christian Church. This work excited a considerable sensation among the high church clergy, who attacked it with great animosity. Tindal published a defence, the second edition of which the house of commons ordered to be burnt by the common hangman, in the same fire with Sacheverel's sermon, thus treating the disputants on each side in the same manner. In 1730, he published his Christianity as old as the Creation, or the Gospel a Republication of the Religion of Nature, in which his object was to show that there neither has been, nor can be, any revelation distinct

from what he terms the internal revelation of the law of nature in the hearts of mankind. He died in 1733, leaving, in manuscript, a second volume of Christianity as old as the Creation, the publication of which was prevented by doctor Gibson, bishop of London. His nephew, Nicholas, born in 1687, fellow of Trinity college, Oxford, published a translation of Rapin's History of England, with a continuation.

TINDAL, William, also named *Hitchins*, a martyr to the reformation, born in 1500, near the borders of Wales, was educated at Oxford, where he imbibed the doctrines of Luther. Bearing an excellent character for morals and diligence, he was admitted a canon of Wolsey's new college of Christ-church; but, his principles becoming known, he was subsequently ejected. He then withdrew to Cambridge, where he took a degree, and soon after went to reside as tutor in Gloucestershire. While in this capacity, he translated Erasmus's *Enchiridion Militis Christiani* into English; but, in consequence of his opinions, articles were preferred against him before the chancellor of the diocese, and he received a reprimand. He then accepted of a retreat in the house of an alderman of London, where he employed himself in preparing an English version of the New Testament. England not being a place where such a work could with safety be effected, he proceeded to Antwerp, where, with the assistance of John Fry, and one Roye, a friar, he completed his work, which was printed in that city, in 1526, 8vo., without a name. The greater part was sent to England, which produced great alarm among the church dignitaries; and the prelates Warham and Tunstall collected all they could seize or purchase, and committed them to the flames. The money received by the sale of the first edition in this way, enabled Tindal to print another edition, in conjunction with Miles Coverdale. He also translated the pentateuch, and subsequently Jonas, which formed the whole of his labours on the Scriptures, although others have been ascribed to him. He then returned to Antwerp, where he took up his residence with an English merchant. Henry VIII. employed a wretch of the name of Phillips to betray Tindal to the emperor's procurator; and, in 1536, he was brought to trial upon the emperor's decree at Augsburg, where he was condemned to the stake, which sentence he quietly endured, being first strangled and then burnt. His last words were, "Lord, open the king of England's eyes!" Tindal's translation of the Scripture is highly esteemed for perspicuity and noble simplicity of idiom.

TINO (anciently *Tenos*); an island of the Grecian Archipelago, forming one of the group of the Cyclades, and consisting of a long, mountainous ridge, between Myconos and Andros, from which it is separated by a narrow channel. It contains 66 villages and 25,000 inhabitants, on 80 square miles. It is well cultivated by means of terraces, and produces abundance of silk, corn and fruit. Silk is the principal commodity. There are four monasteries on the island, and the church of the Evangelist, recently erected, has a miraculous image of the Virgin Mary, found there in 1823, which is much visited by pilgrims. Part of the revenues support a classical school established in 1825. The capital, St Nicholas, on the western side of the island, was the residence of the European consuls, before the Greek revolution. Tenos, the ancient capital, one of the oldest cities of the Greeks, lay near a sacred forest, in which was a temple of Neptune.

TINTORETTO; the surname of a Venetian historical painter, Giacomo Robusti, born at Venice, in 1512, died in 1594. His father was a dyer (in Italian, *tintore*), whence his surname. Tintoretto studied under Titian, who was so jealous of his powers that he dismissed him from his school. He therefore pursued his studies without any director, and endeavoured to unite his master's colouring with the design of Michael Angelo—a union which is discernible in his best pieces. But he executed his works with so much haste that he remained far inferior to both of those great masters. His manner of painting was bold, with strong lights, opposed by deep shadows; his pencil was wonderfully firm and free; his disposition good; his execution easy, and his touch lively and full of spirit. He painted many works for his native city, among which are a Last Judgment, the Israelites worshipping the Golden Calf, St Agnes, St Roche, and a Crucifixion, the Marriage of Cana, the Martyrdom, or *Miracolo del Servo*, &c. His portrait, by himself, is in the Louvre; and there are many of his paintings in Germany, Spain, France, and England. Equal, in several respects, to Titian or Paul Veronese, he wants the dignity of the former, and the grace and richness of composition which distinguish the works of the latter. He had great variety in his attitudes, some of which are excellent, while others are contrasted to extravagance. Those of his women are generally graceful, and his heads are designed in a fine taste.

TIPPERARY; a county of Ireland, in the province of Munster, extending from north to south about seventy-four miles, and from east to west about forty. The civil division of Tipperary comprehends the baronies of Clan-william, Eliogarty, East Iffa and Offa, West Iffa and Offa, Ikerin, Killnemanagh, Middlethird, Lower Ormond, Upper Ormond, Owney and Arra, and Sliebhardagh. In these the chief places are Cashel, an ancient city and residence of the Archbishop; Clonmel, the assizes-town, and also a borough; Carrick-on-Suir, a prosperous and well circumstanced town; Roscrea, Nenagh, Caher, a rapidly improving place; Thurles, Feathard, Tipperary, Emly, an ancient city, though now a small town; Temple-more, Clogheen, Newport, Killenaule, Littleton, and New Birmingham. Agriculture and the rearing of cattle, sheep, pigs, and poultry, constitute the principal occupation of the inhabitants. The coals raised here are not sufficient for the consumption of the inhabitants, who draw extensive supplies of fuel from the bogs southward of Roscrea and elsewhere. Some woollens are manufactured and stockings knitted, both for home consumption: ratteens are manufactured at Carrick-on-Suir, for the public market, besides woollens and cottons at Clonmel. That part of the Shannon which flows by this county is navigable, and facilitates the traffic with Limerick, and the river Suir opens a valuable inland navigation to the greater part of the county. Tipperary was anciently a palatinate, under the jurisdiction of the Dukes of Ormond, a power which ceased, and was suppressed after the attainder of the duke, in the reign of George I. Amongst the ancient families may be enumerated the O'Carrols. Butlers, O'Briens, M'Egans, O'Hickeys, O'Kearneys, and Fitzgibbons. Population in 1841, 435,553.

TIPPICANOE; a river of Indiana, which joins the Wabash, about 420 miles from its mouth;

length about 170 miles. It is rendered famous for a battle between the Americans and Indians, in November, 1811.

TIPPOO SAIB, sultan of Mysore, son of Hyder Ally, born in 1751, succeeded his father in 1782. (See *Hyder Ally* and *Mysore*.) He continued the war in which his father was engaged with the British until the peace of Paris (1783), which deprived him of the assistance of the French; and the alliance of the Mahrattas with the British induced him to sign the treaty of Mangalore, in 1784, on advantageous terms. His kingdom had now a superficial extent of 97,500 square miles, with a revenue of about £3,000,000 sterling. The country was well peopled and under good cultivation, and the people, although of Hindoo origin, contented with the Mohammedan government. But Tippoo soon showed himself fanatical and intolerant. He caused the Bramins to be cruelly beaten, or forcibly circumcised, when they would not consent to renounce their faith, and treated the Christians with such rigour, that more than 70,000 left his dominions. In 1787, he again attacked the Mahrattas, and, in 1789, turned his arms against the rajah of Travancore, an ally of the British. An offensive and defensive treaty was concluded (June 1790) between the East India company, the Peishwa, and Nizam Ali. In the campaign of 1790, several places were reduced by the allies, and, in that of 1791, in which lord Cornwallis commanded in person, they besieged Tippoo in his capital, Seringapatam. (q. v.) A peace was concluded, February, 1792, by the terms of which the sultan of Mysore consented to relinquish nearly half of his territory, and to pay 30,000,000 rupees (about £3,375,000). The ceded territory was divided between the allies. But Tippoo was unwilling to submit to this loss, and endeavoured, though without success, to engage some of the native powers in a war with the Company. He also entered into negociations with the French; and his intrigues were discovered to the British by the proclamation of the governor of the Isle of France, encouraging the inhabitants to enter his service. Suspecting that the preparations of Tippoo were connected with Bonaparte's invasion of Egypt, and receiving from him only evasive answers to their inquiries, the Company determined to anticipate hostilities, and, on the 22d of February, 1799, in connexion with their former allies, they declared war against the sultan. The forces of the native allies being occupied by domestic troubles, the British were obliged to conduct the war alone. Two armies, under generals Stuart and Harris, entered Mysore, defeated Tippoo in two battles, and formed a junction before Seringapatam, whither he had retreated. The place was reduced by storm, May 4, and Tippoo perished in the assault. The whole of Mysore was now divided between the allies. The British annexed portions of the territory to the presidencies of Madras and Bombay, and erected another portion into a vassal kingdom under the young raja or Kurtur Krishna, son of the last raja (who died in prison in 1796), who was found in prison in Seringapatam. The children of Tippoo, with his wives and female relations, received the fort of Vellore, in the Carnatic, as a place of residence, with a yearly pension of 720,000 rupees from the English East India Company. Tippoo Saib was a man of bold and deep views, and evinced much prudence and sagacity in the execution of his projects. But, unfortunately for himself, he was surrounded with flatterers, and neglected his old officers and counsellors. His library, and his tiger, an automaton with which he was accustomed to amuse himself at table, are in the East India House, in London.

TIPTOFT. See *Worcester, Earl of.*

TIRABOSCHI, GIROLAMO. This Italian scholar, born in 1731, at Bergamo, was distinguished for love of learning and unwearied application even in early youth, when his father placed him, at eight years of age, in the Jesuit college of Monza, where he enjoyed the instruction of learned teachers, and at the same time acquired such a fondness for the clerical profession, that he persuaded his father to let him, at fifteen years of age, commence his noviciate at Genoa. On its expiration, after the usual period of two years, he was directed to give instruction for five years in the lower schools in Milan and afterwards in Novara. He was subsequently appointed to the professorship of rhetoric at Milan in the university of Brera. In this situation he distinguished himself, not only as a teacher, but as an author. Several works of deep research and uncommon solidity obtained for him an offer of the place of librarian to Francis III. of Modena. Tiraboschi made use of the valuable resources thus placed at his command, to compose his celebrated work *Storia della Letteratura Italiana*, which appeared successively in fourteen volumes. This work, which, in extent of learning, in accuracy, completeness, and in style, has not its equal in any literature, extends from the commencement of intellectual cultivation in Italy to the year 1700, and excites so much the more wonder at the quantity and value of its contents, as it was completed in the short space of ten years, during which the author also found time, as if for recreation, to produce various other works, which are highly distinguished in their kind; as the *Biblioteca Modenese*. He also wrote other works of a literary, *historical and* theological nature. He died at Modena, 1794, a sacrifice to his incessant application.

TIRADE; a long, declamatory strain, generally of a violent nature. This term probably originated from the musical expression *tirata*, which formerly signified a series of notes of the same kind, rising and falling by degrees.

TIRAILLEURS; a name given, since the war of the French revolution, to a species of infantry intended to fight seldom in close order, but more dispersed, two and two always supporting each other, and in general to skirmish in front of the columns and troops of the line. The movements of the *tirailleurs*, nevertheless, are systematically ordered: they are directed by signals, generally given by bugles or small trumpets. The chief requisites of good *tirailleurs* are great activity, a correct and keen eye, in order to accommodate themselves promptly to circumstances; to collect quickly into masses when so ordered, and disperse again with equal expedition; and to act constantly in unison with the whole army. They must be good marksmen, though they do not need the same degree of expertness as the sharp-shooters. The French introduced the system of *tirailleurs* in their wars in their revolution; having taken the idea probably, from the practice of the people of North America, in the revolutionary war. (See *Infantry*.) As the French, when first attacked, could not oppose their enemies with troops equally well disciplined, they adopted the system of columns, succeeded by *tirailleurs*. Long practice developed their rude beginnings, until *tirailleurs* have become in-

pensable in armies. They are of the greatest service both in attack and defence, and generally a great part of a battle at the present day consists of the skirmishes of *tirailleurs*, particularly when the enemy is to be kept distant from the columns, or, in general, to be checked, or where, from the nature of the ground, columns cannot act, as in the defence of woods, morasses, villages, gardens. It is evident that the use of *tirailleurs* has essentially changed tactics, as well as the system of war in general. Sometimes the *tirailleurs* form a separate company in each battalion, as was formerly the case with the French; sometimes the third line of the whole battalion consists of *tirailleurs* alone; but in case of necessity, every soldier has to act as such, as in the Prussian army.

TIRESIAS, in mythology; a celebrated prophet of Thebes, son of Everus and Chariclo. He drew his prophecies from the flight or the language of birds, in which he was assisted by his daughter Manto, and sometimes evoked the manes from the infernal regions with mystical ceremonies. He was buried with great pomp by the Thebans, and honoured as a god. His oracle at Orchomenus was in universal esteem. Homer represents Ulysses as going to the infernal regions to consult Tiresias concerning his return to Ithaca.

TIREE, an island of the Hebrides. It is about 12 miles long, and 4 broad. Its surface is flat, and grows no trees; it has no streams, but there are two small lakes upon it, and numerous pools. The soil is the most fertile in the Hebrides. There are some antiquities here, such as small *duns* or towers. At the west point are numerous caves, and limestone and ironstone abound. In the centre of the island is a flat plain of 1562 acres, scarcely interrupted by a stone, called the Reef, which is kept in continual pasture, rich and verdant. Numbers of black cattle are reared in Tiree. The Duke of Argyle is sole proprietor. The population is decreasing; in 1831, 5769; in 1841, 4391. See *Hebrides*.

TIRLEMONT; a town of Belgium, South Brabant, called by the people of the country *Tienen*. It was anciently one of the principal cities of Brabant. Near Tirlemont is a station of the Belgian national railway. Tirlemont is 10 miles E. of Louvain, and about 25 S.W. from Brussels. The site of this place is very extensive, and it is certain that, in past times, it was a town of some importance. Similar to Louvain, the boundaries of the town inclose much cultivated ground. Its present population is about 8000. The Great Square is remarkable for size; upon it stands the town-house, an ancient edifice; also the Church of Our Lady, which is rather handsome. Here was born the Jesuit Bollandus, whose followers are known in church history as the Bollandists. In November, 1792, the Austrians were defeated here by the French; and, in April, 1793, the French were defeated by the Austrians, with the loss of 7000 men, and thirty-three pieces of cannon.

TIROL. See *Tyrol*.

TIRONIAN NOTES (*Notæ Tironianæ*). See *Abbreviations*.

TISAN, OR PTISAN (from πτισσω, to decorticate, bruise, or pound): 1. barley deprived of its husks, pounded, and made into balls. 2. A drink is so called by the French made mostly of farinaceous substances, as barley, rice, grits, and the like, boiled with water, and sweetened to the palate. This is prescribed by the French physicians in almost all complaints, being the common mode of putting a patient on a low diet, just as gruel is a common prescription of British physicians in like cases.

TISCHBEIN; a German family, distinguished in the fine arts, of whom we shall mention only *John Henry*, born at Heyna, in Hesse, in 1722, died at Cassel, in 1789, and *John Henry William*, born at Heyna, in 1751. The latter was appointed, in 1790, director of the academy of painting at Naples, where he did much for the fine arts. The troubles towards the end of the last century caused him to return to Germany. He passed the rest of his life chiefly at Eutin. He painted many pictures of great beauty, and was fond of comparing the physiognomies of men with those of certain animals, to which he may have been led by his connexion with Lavater. He published *Têtes de différens Animaux dessinées d'après Nature pour donner une Idée plus exacte de leurs Caractères* (Naples, 1796, 2 vols., fol.): the moral disposition of each animal, if we may be allowed the expression, is given here with admirable truth: also Sir William Hamilton's Collection of Engravings from antique Vases, the greater Part of Grecian Fabric, found in ancient Tombs in the Two Sicilies, in the Years 1789 and 1790, with the Remarks of the Proprietor, published by W. Tischbein (Naples, 1790—1809, 4 vols., fol.), which contains 240 outlines of vases. The originals were lost in a shipwreck. He likewise published Homer, illustrated by Drawings from Antiques, by W. Tischbein, &c., with illustrations by Ch. Theophilus Heyne, 1—6 numbers (Göttingen, 1801—4), and 7—11 numbers (1821—23, Stuttg.), with illustrations by doctor T. Schorn. Homer occupied him almost throughout his life; he sought for every antique with which the poetry of Homer was in any way connected, and made a rich collection of drawings of antiques, given to the world in the above-mentioned work.

TISIPHONE; one of the Furies, mythological goddesses, of whom there were three; the two others being *Alecto* and *Megæra*. See *Furies*.

TISSOT, SIMON ANDREW, an eminent physician, born in the Pays de Vaud, in 1728, studied at Geneva and Montpellier, and settled at Lausanne. The success with which he treated the confluent small-pox, by means of fresh air and a cooling diet, at a period when stimulants and sudorifics were generally adopted, fixed on the young practitioner the public attention. He published a tract in favour of inoculation, in 1750, and *Avis au Peuple sur sa Santé* (1761, translated into English by doctor Kirkpatrick); *Avis aux Gens de Lettres et aux Personnes sédentaires sur leur Santé* (Paris, 1768); *Essai sur les Maladies des Gens du Monde* (Lyons, 1770, 12mo.); and *Tentamen de Morbis ex Manustupratione ortis*. Tissot refused advantageous offers made him by the kings of Poland and England, to induce him to quit Lausanne, but accepted of a professorship in the university of Pavia. This office, however, he relinquished after three years, and returned to Lausanne, where his death took place in 1797. The principal works of Tissot were published together at Paris, 1809 (8 vols., 8vo.), with the notes of professor Halle.

TISSOT, CLEMENT JOSEPH, a relative of the preceding, born in 1750, studied at Besançon. He published a treatise entitled *Gymnastique Médicale* (1781). He was appointed adjunct physician to the household of the duke of Orleans. After the revolution, he was surgeon-in chief in various corps

of the French armies, and served in the campaigns in Austria, Prussia, Poland and Italy. At length he retired from the service, and settled in professional practice at Paris, where he died in 1826. He published several essays and treatises, which are esteemed in foreign countries.

TITAN; in mythology, a son of Cœlus and Terra. To him, as the eldest brother, belonged the empire; but, at the request of his mother and his sisters, Ceres and Ops, he ceded it to his youngest brother, Saturn, on condition that the latter should not let any of his sons live, so that the government would devolve on the sons of Titan. But when he learned that some children of Saturn had remained alive, he and his sons took up arms, conquered Saturn, and made him and his wife prisoners. But Jupiter, son of Saturn, who dwelt in Crete, made war upon his uncle with an army of Cretans, conquered him, and reinstated his father. This Titan is unknown to the early writers on mythology. The name of *Titans* is given to the sons of Cœlus and Terra, or Titæa (Earth), in general. Hesiod, and most of the mythological writers, make them six in number—Cœos, Crios, Hyperion, Japetus, Oceanus, Saturn. In a mythological fragment, Phorcys is added as the seventh. Later writers make them eighteen, reckoning, perhaps, in their number, some of the Cyclops and the Centimani, who were also sons of Cœlus. The children of the Titans, e. g. Atlas, are also called by this name. Helios, or Sol, son of the Titan Hyperion, is particularly denominated *Titan*. In general, the fable of the Titans is mixed with many notions borrowed from the Phœnician cosmogony, particularly this, that several of the Titans were the authors of various useful inventions, the first artists, architects, agriculturists, shepherds and hunters. The story that the eldest children of Cœlus dethroned their father, and waged war with Jupiter for the government, is one of the earliest mythological fictions. According to Hesiod (verse 176), they received this name because they stretched out their hands to their father (from τιταίνω or τείνω). They are also called *Uranides*. Terra was indignant, it is said, at the cruelties of her husband, who did not allow the children, whom she brought forth, to see the light, but imprisoned them in Tartarus. She therefore excited the Titans to insurrection: Cœlus was imprisoned, and emasculated by Saturn, and the latter ascended the throne. But as he also imprisoned his brothers, the Cyclops and Centimani, in Tartarus, Terra excited Jupiter, and the other children of Saturn, to insurrection, and the war between the Titanides and the children of Saturn began. For ten years, the former fought from mount Othrys, the latter from mount Olympus, without any decisive result to either party, until Jupiter, in obedience to an oracle of Terra, loosed the Centimani, by whose assistance the Titans were beaten, fettered, and thrown into Tartarus. The scene of the war is placed in Thessaly, on Olympus and Othrys, by Hesiod; on Olympus, Pelion and Ossa, by Homer. Among the earlier cosmogonical poets, this contest seems to be symbolical of the struggle of the elements at the formation of the world.

TITANIA. See *Mab*.

TITANIUM; a metal which has been obtained in a state of perfect purity only in sufficient quantity for the determination of its properties. It was in the condition of a powder as obtained, and possessed of the following properties: colour dark copper-red; tarnishes in the air, and takes fire when heated; it detonates with nitre, and is acted upon with energy by all the dense acids. A crystallized metallic titanium, in small cubes, has been observed occasionally, in the slags of great iron smelting furnaces; but it is always alloyed with iron, sufficiently to affect a delicate magnetic needle. These cubes have a copper-red colour and much brilliancy. They are hard enough to scratch rock crystal, and have a specific gravity of 5·3. Neither of the strong acids are capable of dissolving them, nor are they fusible before the blow-pipe. There are two combinations of titanium and oxygen; the one is an oxide, the other an acid. The *oxide* of titanium is of a black, bluish, or purplish colour, and may be formed by heating metallic titanium in fine powder along with caustic potash. It is also procured from titanic acid, by exposing it to a very violent heat in a charcoal crucible. It is insoluble in all the acids. When heated, it absorbs oxygen very slowly, and is converted into titanic acid by heating it with nitre, with great difficulty. Before the blow-pipe, it dissolves in bi-phosphate of soda, and forms a very dark-red glass. The anatase, an ore of titanium, described at the close of this article, appears to be wholly composed of this oxide. *Titanic acid* occurs native in the rutile. (See the close of the present article.) Its colour is reddish-brown, and it has a specific gravity of 4·249. The native acid is, however, slightly impure, from the presence of iron: when the iron is separated, the acid presents a white colour. It reddens litmus paper, after having been exposed to a high temperature. It resembles zirconia so closely as to be with difficulty distinguished from that earth. They may, however, be easily recognised from a blow-pipe experiment. Titanic acid, when fused with borax, or bi-phosphate of soda, in the exterior flame, gives a yellow or colourless glass, which in the interior flame becomes deep purple, or even brownish-black, if the acid be in excess. When titanic acid and zirconia occur together in the same mineral, we are unable to effect their separation: such minerals, in the present state of chemical knowledge, cannot be analyzed. Titanium unites with chlorine to form a *chloride*. It is formed by passing the gas over ignited titanic acid and charcoal in a porcelain tube. It is a fluid, perfectly transparent and colourless, heavier than water, and boils at 275° Fahr. When mingled with water, it is converted into muriatic acid and titanic acid. When titanic acid, fluor spar, and sulphuric acid, are mixed together in a leaden retort, a yellow-coloured liquid is gradually obtained, which water immediately converts into fluoric acid and titanic acid. This is probably a *fluoride* of titanium. A *phosphuret* and a *sulphuret* of titanium have both been formed. Nothing is known respecting the combinations which titanium is capable of forming with selenium, tellurium, arsenic, antimony, chromium, molybdenum, tungsten, and columbium. Unsuccessful attempts have been made to combine it with silver, copper and lead. It has been combined with iron, and gave rise to an alloy of a gray colour, interspersed with yellow-coloured brilliant particles. It would appear that the affinity of titanium for other metals is, on the whole, very weak.

Ores of Titanium. These are five in number; viz. rutile, anatase, ilmenite, crichtonite and sphene.

1. *Rutile*, or titanite, occurs crystallized, in right square prisms,—the primary form of the species,—which are often terminated at one extremity by a

four-sided pyramid, whose faces incline to the corresponding lateral ones under angles of 122° 45'. The lateral edges of the prism are often truncated, and the primary prismatic sides are liable to numerous vertical *striæ*. Macled forms, or twin crystals, are very common, whose appearance is that of a prism bent to an angle of 114° 30'; sometimes the geniculations are frequently repeated. The cleavage is parallel to the primary planes; lustre metallic adamantine; colour reddish brown, passing into red, sometimes yellowish; streak very pale brown; translucent to opaque; hardness about that of feldspar; specific gravity 4·24. It also occurs massive, the individuals being of various sizes and strongly connected. Alone before the blowpipe, it is infusible, but gives with borax, a yellowish glass, which assumes an amethyst colour when further reduced. It consists of titanic acid. It occurs generally in imbedded crystals, either in quartz engaged in gneiss, mica-slate, or chlorite slate; or in beds consisting of quartz, garnet, and augite. It is likewise found in transparent crystals of quartz. Imbedded crystals in quartz have been found at Rosenau in Hungary, Teinach on the Bacher, in Stiria, and at various places along the Alps. Very perfect crystals occur in the Sanalpe in Carinthia, also at St Gothard. Fine pebbles of rutile are found in Transylvania, and called *nigrine*, on account of their black colour. At St Yrieix, in France, and in the province of Guadalaxara, in Spain, twin crystals occur of very large dimensions. Other localities are Bohemia, Siberia, and Brazil. In the United States, very perfect crystals, and in great quantity, are found at Windsor, in Massachusetts, where they occur in seams of quartz traversing chlorite slate. Many other places might be mentioned in New England, where rutile has been met with; but the above mentioned is the only productive locality.

2. *Anatase*. This species is much more rare than that just described, but is exceedingly interesting from the beauty of its crystals, and from the nature of its composition, it being regarded as composed solely of the protoxide of the metal. Its crystals are small, and of the form of the octahedron, with a square base, the pyramids meeting under an angle of 136° 47', which is the primary form of the species. The cleavage is parallel to the primary planes, and to the longer axis of the crystals; fracture conchoidal, though with difficulty observed; lustre metallic adamantine; colour various shades of brown, more or less dark, also indigo-blue; streak white, semi-transparent; hardness nearly that of feldspar; specific gravity 3·82 It dissolves with difficulty in the salt of phosphorus, before the blowpipe, and the portion not melted becomes white and semi-transparent. It occurs in narrow, irregular veins, accompanied by albite, quartz, mica, and axinite. Its chief localities are Bourg d'Oisans in Dauphiny, and in Switzerland; it is also found in Cornwall, in Norway, in Spain, and Brazil.

3. *Ilmenite*. Axotomous iron ore (Mohs); menaccanite? iserine? The primary form of this species is believed to be a rhomboid of 85° 59'. It occurs massive, rarely crystallized in what are described by professor Kupfer as being variously modified four-sided prisms; colour black; streak brownish; opaque; lustre on the fracture shining and resinous; fracture conchoidal; no visible cleavage; hardness between apatite and feldspar; specific gravity 4·6—4·8. It is unalterable before the blow-pipe, and consists of

Titanic acid,	46·67
Oxide of iron,	47·08
Oxide of manganese,	1·29
Magnesia,	0·60
Lime,	0.35
Oxide of chrome,	0·28
Silica,	2·80

It occurs in the Ilmen mountains of the Ural chain. The *menaccanite*, a substance found in small, black angular grains, at Menaccan, in Cornwall, and at Botany Bay, as well as the *iserine*, found at Iser, in Silesia, and some other places, are believed to fall within the present species.

4. *Crichtonite* resembles very closely the ilmenite. It occurs in very small crystals, in the form of acute rhomboids having the summits replaced, and being otherwise variously modified by secondary planes, the only cleavage being at right angles to the axis of the rhomboid. It is perfectly black, opaque, and of a shining lustre: fracture conchoidal. It is harder than fluor. Before the blow-pipe, it conducts much like ilmenite, but is believed to be a silicate of titanium. It occurs, along with anatase, on crystals of quartz, at Dauphiny.

5. *Sphene* (silico-calcareous oxide of titanium) occurs for the most part in well-defined crystals, which have the general figure of very flat octahedrons, but which are derived from an oblique rhombic prism of 133° 30', parallel to which a distinct cleavage may be effected. Fracture imperfect conchoidal or uneven; lustre adamantine, sometimes inclined to resinous: colour brown, yellow, gray, and green; streak white; translucent on the edges, rarely transparent; hardness about that of apatite; specific gravity 3·46. Besides occurring in crystals it is found massive, with a granular or lamellar composition. Before the blow-pipe, the yellow varieties do not change their colour; all the rest become yellow. They intumesce a little, and melt on the edges into a dark coloured enamel. They are soluble in heated nitric acid, and leave a residue of silex. Sphene is composed of lime 32·20, oxide of titanium 33·30, and silex 28·00. It occurs in small nodules or crystals, imbedded in gneiss and beds of sienite. It is also found in white limestone, along with augite, scapolite, garnet and hornblende. It comes from several districts of the Sanalpe in Carinthia, where it is found in a coarse-grained gneiss. Other European localities, near Dresden in Saxony, Arendal in Norway, St Gothard, and Scotland. In the United States it has been found in numerous places; but no where so abundantly as at Roger's rock, on the shore of lake George, where it occurs in gneiss with augite and hornblende.

TITHES, or TYTHES; the tenth part of the increase yearly arising from the profits of lands, the stock upon lands, and the industry of the occupants, allotted to the clergy for their maintenance. The custom of giving and paying tithes is very ancient. In Gen. xiv. 20, Abraham gives Melchisedek the tenth of all the spoils taken from the four kings defeated by him. Tithes were first legally enjoined by Moses. They were not established by Christ. The Christian priests and the ministers of the altar lived at first upon the alms and oblations of the devout. For the first three hundred years after Christ, no mention is made in ecclesiastical history of any such thing as tithes. The first authority produced (setting aside the apostolical constitutions, which few of the advocates of tithes will insist on) is a provincial synod at Cullen, in 356, in which tithes are voted to be God's rents,

After the church had enjoyed tithes without disturbance for two or three centuries, the laity, in the eighth century, obtained possession of part of the tithes, and appropriated them to their own uses. Some time afterwards they restored them, or applied them to the founding of monasteries or chapters. In 1179, the third council of Lateran commanded the laymen to restore to the church all the tithes which they yet held. Upon the first introduction of tithes, though every man was obliged to pay tithes in general, yet he might give them to what priests he pleased, which were called *arbitrary consecrations of tithes;* or he might pay them into the hands of the bishop, who distributed among his diocesan clergy the revenues of the church, which were then in common. But when dioceses were divided into parishes, the tithes of each parish were allotted to its own particular minister; first by common consent, or the appointments of lords of the manors, and afterwards by the written law of the land. However, arbitrary consecrations of tithes took place again afterwards, and became common in England till the time of king John. This was probably owing to the intrigues of the regular clergy, or monks of the Benedictine and other rules, and will account for the number and riches of the monasteries and religious houses which were founded in those days, and which were frequently endowed with tithes. But, in process of years, the income of the laborious parish-priests being scandalously reduced by these arbitrary consecrations of tithes, it was remedied in England by pope Innocent III., about the year 1200, in a decretal epistle, sent to the archbishop of Canterbury, which enjoined the payment of tithes to the parsons of the respective parishes where every man dwelt, agreeably to what was afterwards directed by the same pope in other countries. This put an effectual stop to all the arbitrary consecrations of tithes, except some traces which still continue in those *portions of tithes*, which the parson of one parish has, though rarely, a right to claim in another; for it is now universally held that tithes are due, of common right, to the parson of the parish, unless there be a special exemption. This parson of the parish may be either the actual incumbent, or else the appropriator of the benefice; appropriations being a method of endowing monasteries, which seems to have been devised by the regular clergy, by way of substitution to arbitrary consecrations of tithes. See the article *Impropriations*.

Adam Smith observes (Nature and Causes of the Wealth of Nations, vol. iii.), that tithes, as well as other similar taxes on the produce of the land, are, in reality, taxes upon the rent, and, under the appearance of equality, are very unequal taxes; a certain portion of the produce being, in different situations, equivalent to a very different portion of the rent. In some very rich lands, the produce is so great, that the one half of it is fully sufficient to replace to the farmer his capital employed in cultivation, together with the ordinary profits of farming-stock in the neighbourhood. The other half, or, what comes to the same thing, the value of the other half, he could afford to pay as rent to the landlord, if there was no tithe. But, if a tenth of the produce is taken from him in the way of tithe, he must require an abatement of the fifth part of his rent, otherwise he cannot get back his capital with the ordinary profit. In this case, the rent of the landlord, instead of amounting to a half, or five tenths, of the whole produce, will amount only to four tenths of it. In poorer [illegible] on the contrary, the produce is sometimes [illegible] and the expense of cultivation so great, that [illegible] quires four fifths of the whole produce to [illegible] to the farmer his capital, with the ordinary [illegible] In this case, though there was no tithe, the [illegible] the landlord could amount to no more than [illegible] fifth, or two tenths, of the whole produce. If the farmer pays one tenth of the produce a way of tithe, he must require an equal abate[illegible] of the rent of the landlord, which will thus be [illegible] duced to one tenth only of the whole prod[illegible] Upon the rent of rich lands, the tithe may [illegible] times be a tax of no more than one fifth [illegible] four shillings in the pound; whereas, upon [illegible] poorer lands, it may sometimes be a tax of [illegible] half, or of ten shillings in the pound. It [illegible] great discouragement to the improvement of [illegible] that a tenth part of the clear produce, without [illegible] deducement for the advanced expense of [illegible] that produce, should be alienated from the [illegible] tor of the land to any other person whatever. [illegible] improvements of the landlord and the cultiva[illegible] of the farmer are both checked by this unequa[illegible] upon the rent. The one cannot venture to [illegible] the most important, which are generally the [illegible] expensive improvements, nor the other to rais[illegible] most valuable, which are generally the most [illegible] pensive crops, when the church, which contribute[illegible] no part of the expense, is to share so very large [illegible] in the profit. When, instead either of a certain portion of the produce of land, or of the price [illegible] a certain portion, a certain sum of money is to be paid in full compensation for all tax or tithe, the tax becomes, in this case, exactly of the same nature with the land tax of England. It neither raises nor falls with the rent of the land. It neither encourages nor discourages improvement. *The tithe*, in the greater part of *those* parishes which pay what is called a *modus*, in lieu of all other tithes, is a tax of this kind. It is well known, and has often been lamented, even by the clergy themselves, that this method of raising a revenue for their subsistence, is a continual source of dispute between the clergy and their parishioners, and contributes to obstruct the usefulness of their ministry. In Holland, and some other Protestant countries, the civil magistrates have adopted what some writers have thought a better plan, by allowing their ministers a fixed stipend, paid out of the *public funds*.

The custom of paying tithes, or of offering a tenth of what a man enjoys, has not only been practised under the old and the new law, *but we* [illegible] find something like it among the heathens. Xenophon, in the fifth book of the expedition of Cyrus, gives us an inscription upon a *column*, near a temple of Diana, by which the people were wont to offer the tenth part of their revenues every year to that goddess. The Babylonians and Egyptians gave their kings a tenth of their revenues. (See Aristotle, in his *Œconomics*, lib. ii., Diodorus Siculus, lib. v., and Strabo, lib. *xv.*) Afterwards the Romans exacted of the Sicilians a tenth of the corn they reaped; and Appian tells us, that those who broke up, or tilled, any *new grounds*, were obliged to carry a tenth of their produce to the treasury. The Romans offered a tenth of all they took from their enemies to the *gods; whence* the name of *Jupiter Prædator:* the Gauls, in like manner, gave a tenth to their god Mars, as we learn from the Commentaries of Cæsar. *Authors have* been perplexed to find the origin of a custom established

patrimony and neglected his art. Of the historical pictures of Titian, two are peculiarly excellent, a Last Supper in the Escurial, and Christ crowned with Thorns in a church at Milan. The engravings from his pictures, including landscapes and pieces, cut in wood, amount to more than six hundred.

TITICACA; a lake in Bolivia, 240 miles in circuit, and 400 feet in depth. The water, though neither salt nor brackish, is muddy, and nauseous to the taste. It contains several islands; one was anciently a mountain, levelled by order of the incas. It gave to the lake its own name of *Titicaca*, which, in the Indian language, signifies a mountain of lead. Lon. 69° 56′ W.; lat. 16° 10′ S.

TITLE; one of the various significations of this word is a term by which the rank or office of an individual is denoted. In the articles *Counsellor*, *Majesty*, and *Ceremonial*, the extreme to which the Germans have gone in attaching titles to every office, and even extending the same to the wife of the officer, is treated, and several curious examples are given. The Germans, having so enormous a mass of titles, have divided them into titles of rank (*Standestitel*), e. g. those of princes, nobles, &c., by which they are distinguished from commoners; titles of honour, as *excellency*, *grace*, *highness*; and titles of office, as *professor*, *counsellor*, *superintendent*. The holders of this latter class of titles are subdivided into *real* (as real counsellor, &c.), when actually possessed of the office denoted, and *titular*, when they have merely the title of an office, as, for example, so many counsellors of legation, court-counsellors, &c. Almost all monarchs assume titles taken from countries over which they have no sway. In some cases, this originates from a real or supposed claim of the crown upon the country in question; in some, the sovereignty asserted may be actually exercised, under certain circumstances, e. g. the king of Prussia calls himself duke of Mecklenburg, because, under certain circumstances, the government of that country would devolve upon him. In some cases, it is a mere pompous form; for instance, the emperor of Austria calls himself king of Jerusalem, and the king of Portugal king of the navigation, conquest and commerce of Æthiopia, Arabia and India. Generally, monarchs have a less and a great or full title, just as they have two coats of arms. That epithet which is added to the word *majesty*, in the case of the different sovereigns of Europe, is generally called the *predicate*. These epithets are, *Most Christian*, for France, (abolished since 1830); *Catholic*, for Spain; *Most Faithful*, for Portugal; *Apostolic*, for Hungary.

2. *Title* signifies the right of a person to some particular thing.

3. The heads of the various chapters in the *corpus juris* (q. v.), and other law books, &c., are called *titles*.

TITMOUSE (*parus*). The birds of this genus are of small size, but robust and muscular. The bill is thick at the base, short and stout; the feet strong, especially the hinder toe. The head is remarkable for the solidity and thickness of the bones of the skull. They eat all kinds of food, but more particularly insects and worms, in search of which they perpetually from branch to branch, examining every crevice, and clinging to every variety of surface, often with the head downwards. They do not spare young or weaker birds, when sick, or entangled in snares, but pierce the cranium by blow-

with the beak, for the purpose of feeding on the brain; neither do they hesitate to attack birds much stronger than themselves. Notwithstanding their pugnacious disposition, they live in small scattered flocks. Most of them build in hollow trees, and are remarkable for their fecundity among birds of their size, some laying eighteen or twenty eggs.

TITUS, a disciple of St Paul, who addressed to him a letter, was born of pagan parents, but, after his conversion, became the faithful companion of the apostle. He was employed by St Paul on several missions, and sent to Crete to organize and govern the church in that island, where he died at an advanced age.

TITUS VESPASIANUS, a Roman emperor, born A. D. 40, was the eldest son of the emperor Vespasian. He was educated at the court of Nero, with Britannicus, and was the intimate friend of that unhappy prince. Titus first served as a tribune in Germany and Britain, and won general favour and esteem by his courtesy of manners, his courage, and his military genius. After his return to Rome, he occupied himself with the practice of law, and managed several cases with much skill. While yet quite young, he married the daughter of a Roman knight, and, on her death, united himself in a second marriage with a noble Roman lady, whom he repudiated, after she had borne him a daughter. He then served as questor with reputation, and, on the expiration of his term of office, accompanied his father in the war against the Jews as commander of a legion. When Galba ascended the throne, Titus was sent by his father to declare his adhesion to the new emperor, but, on the way received the news of his assassination. On the death of Otho, Vespasian determined to possess himself of the throne; and Titus was left to conduct the war in Judea. He took Jerusalem (A. D. 70), after a siege, during which it had been the scene of the most shocking sufferings and cruelties. The temple was destroyed in spite of his exertions to save it. In some respects, Titus displayed much humanity; but it is impossible to justify the crucifixion, by his orders, of hundreds of the captives. After paying a visit to Egypt, he returned to Rome, which he entered in triumph, and was associated by his father in the government of the empire. His conduct thus far, if we may believe the accounts of Suetonius, had been marked by the most shameless excesses. He had chosen his associates among the most abandoned of the youthful courtiers, and indulged in the gratification of every impure desire and unnatural vice. From one so little accustomed to restrain his passions, the Roman people anticipated nothing but the misrule of a second Caligula or Nero; but, on ascending the throne (79), Titus disappointed these gloomy prognostications, and, relinquishing his vicious habits and debauched companions, became the father of his people, the guardian of virtue, and the patron of liberty. His reformation appeared to be sincere and perfect: the unworthy and dissolute youth assumed the character of the enlightened and munificent sovereign of a vast empire. All informers were banished from his court, and even severely punished; a reform took place in judicial proceedings: and the public edifices were repaired, and new ones erected for the convenience of the people. The memorable exclamation of Titus, "*Perdidi diem*" (I have lost a day), which he is said to have uttered one day when no opportunity had occurred for doing any service or granting a favour to any one of his subjects, has been considered as strikingly characteristic of his sentiments and behaviour, which procured for him the title of *Amor et deliciæ generis humani* (the delight of mankind). Two senators having engaged in a conspiracy against his life, he not only pardoned them, but also admitted them to his friendship. During his reign, there was a conflagration at Rome, which lasted three days; the towns of Campania were desolated by an eruption of Vesuvius (see *Herculaneum*); and the empire was visited by a destroying pestilence. In this season of public calamity, the emperor's benevolence and philanthropy were most conspicuously displayed. He comforted the afflicted, relieved the sufferers by his bounty, and exerted all his care for the restoration of public prosperity. The Romans did not long enjoy the benefits of his wise and virtuous administration. He was seized with a violent fever, and retiring to a country house which had belonged to his father, he there expired, lamenting with his latest breath the severity of his fate, which removed him from the world before he had perfected his plans for the benefit of his grateful subjects, whose sorrow for his loss was heightened by their apprehensions arising from the gloomy and unpromising character of his brother Domitian, who was even suspected of having hastened the catastrophe which was to contribute to his own elevation to imperial power. Titus died A. D. 81, in the forty-first year of his age, after reigning two years.

TITYOS. See *Tartarus*.

TIVERTON; a borough of Devonshire, England, fourteen miles north of Exeter, with the remains of a castle, the site of which covered nearly an acre. The church of St Peter, a handsome structure, is the work of different ages. The north side was built about 1073. *The south side*, ornamented with much curious sculpture, was erected about 1520. The tower is 116 feet in height. A free grammar school was founded here about 1599, attached to which are two fellowships and two scholarships, at Cambridge, and the same at Oxford. Tiverton was formerly famous for its woollen manufactures, and is now well known for an extensive manufacture of lace, in which more than 2000 persons are employed. Population, in 1841, 10,040.

TIVOLI, on the Teverone, remarkable for its classical associations and beautiful situation, is the capital of a district in the Campagna di Roma. population, 5500; eighteen miles north-east of Rome. The Teverone (anciently *Anio*) here precipitates itself nearly 100 feet in one mass, and then rushes through a chasm of the rock into a cavern below. (See *Terni*.) Here are some beautiful ruins in the vicinity, the remains of the ancient Tibur. Near the town is also the Solfatara, or Lago di Bagni. See *Campagna di Roma*.

TIZIANO. See *Titian*.

TLASCALA; at the time of the conquest of Mexico by the Spaniards, an independent state at war with the Mexicans, but afterwards included in the intendancy of Puebla de los Angeles, in the viceroyalty of New Spain. (See *Mexico*, and *Puebla*.) It now forms a territory of the Mexican republic, the population (about 60,000) not being sufficient to constitute it an independent state. The principal town, Tlascala (64 miles east of Mexico; lon. 98° 10′ W.; lat. 19° 25′ N.), situated on a river running into the Pacific, is said to have contained 300,000 inhabitants when the

Spaniards arrived here. At present, the population does not exceed 3000.

TOAD (*bufo*). The toads are hardly distinguishable from the frogs, except by their more clumsy form and motions, and the warts with which the skin is studded. The jaws, however, are destitute of teeth, and their habits are more terrestrial; for they keep at a distance from the water during the greater part of the year. They come out of their holes chiefly during the night, and feed on snails, worms and insects. They are capable of living a long time without food, and have been known to remain whole years in walls, hollow trees, in the earth, or even when artificially enclosed in plaster.* In the spring, they resort to the water for the purpose of depositing their eggs. The tadpoles are born there, acquire gills, and in every respect resemble those of frogs. The common toad of Europe has been an object of disgust, and even horror, in all ages; and numerous fables have been related concerning it. Notwithstanding the popular prejudice, it has been ascertained that the legs are sold extensively in the markets of Paris for those of frogs.

The progress of natural philosophy has destroyed half the beauty of the celebrated simile of Shakspeare:—

> "Sweet are the uses of adversity;
> Which, like the toad, ugly and venomous,
> Wears yet a precious jewel in his head."

Though the toad is still reputed venomous, yet no one imagines it to have a jewel in its head. This was, however, believed in Shakspeare's days. Mr Steevens, the commentator, tells us, that it was the current opinion, that in the head of an old toad was to be found a stone or pearl, to which great virtues were ascribed. Thomas Lupton, in his 'First Booke of Notable Things,' 4to., bl. l., bears repeated testimony to the virtues of the "tode-stone, called Crapaudina." In his 'Seventh Booke' he instructs how to procure it; and afterwards tells us, "You shall knowe whether the tode-stone be the ryght and perfect stone or not. Holde the stone before a toad, so that he may see it; and if it be a ryght and true stone, the tode will leape towarde it; and make as though he would snatch it. He envieth so much that man should have that stone." It is hardly necessary to say any thing more about this jewel, which is of course a mere fantastic invention.

Modern writers express themselves with some doubt when speaking of the supposed venomous nature of the toad. Beck says, in his Medical Jurisprudence, "It is doubted at the present day, though formerly it was believed. King John of England is supposed to have been poisoned by a drink in which matter from a living toad had been infused. Pelletier has analyzed the venom of the common toad, and states it to consist of an acid, a very bitter and even caustic fat matter, and an animal matter having some analogy to gelatine. No experiments, however, appear to have been made with it."

The *tree-toads* (*hyla*) belong to a different genus, distinguished by having a mucous tubercle at the extremity of each toe, by means of which, acting as a sucker, they are enabled to cling to the branches of trees, or to a perpendicular wall.

TOAD-FLAX (*antirrhinum linaria*). This plant, in its general habit, is not very unlike the flax; but the flowers are bright yellow, showy, and of a singular form, the corolla labiate, and provided with a long spur. In the ordinary state of the plant, the lips of the corolla are closed, and, if forcibly opened, somewhat resemble the mouth of some animal; hence the name of *snap-dragon* has been applied to plants of this genus. It grows in sandy soil. A singular deviation from the ordinary structure of the flower sometimes takes place in this plant, and has led to some discoveries in vegetable physiology: the corolla then assumes a regular form, and is provided with five radiating spurs, instead of one.

TOALDO, Giuseppe, a celebrated Italian mathematician, astronomer and meteorologist, born in 1719, near Vicenza, studied theology at Padua, but occupied himself chiefly with the mathematical sciences, and, in 1762, was made professor of astronomy and meteorology in the university of Padua. Through his influence, an observatory was built there, and lightning rods were erected in various places. His mathematical text-books are distinguished for clearness and precision, and have been introduced into many schools in Italy. His Astronomical and Meteorological Journal was continued from 1773 till his death, and his essay On the Influence of the Weather upon the Growth of Plants, which gained the prize proposed by the scientific society of Montpellier (1774), is a standard work. He published several other esteemed works, and died in 1797.

TOBACCO (*Nicotiana tabacum*). The introduction of the use of tobacco forms a singular chapter in the history of mankind; and it may well excite astonishment, that the discovery in America of a nauseous and poisonous weed, of an acrid taste and disagreeable odour, in short, whose only properties are deleterious, should have had so great an influence on the social condition of all nations; that it should have become an article of most extensive

* This, at least, is the common opinion; but the celebrated geologist, professor Buckland, in a paper published in the Edinburgh Philosophical Journal for July, 1822, says, in reference to a number of experiments which he made on the vitality of toads enclosed in wood and stone: "From the result, it seems to follow that toads cannot live a year excluded totally from atmospheric air, and that they cannot survive two years entirely excluded from food: and there is a want of sufficiently minute and accurate observation in those so frequently recorded cases, where toads are said to be found alive within blocks of stone and wood, in cavities that had no communication whatever with the external air. The first effort of the young toad, as soon as it has left its tadpole state and emerged from the water is to seek shelter in holes and crevices of rocks and trees. An individual which, when young, may have thus entered a cavity by some very narrow aperture would find abundance of food by catching insects, which, like itself, seek shelter within such cavities, and may soon have increased so much in bulk as to render it impossible to go out again through the narrow aperture at which it entered. A small hole of this kind is very likely to be overlooked by common workmen, who are the only people whose operations on stone and wood discloses cavities in the interior of such substances. In the case of toads, snakes and lizards, that occasionally issue from stones that are broken in a quarry, or in sinking wells, and sometimes even from strata of coal at the bottom of a coal mine, the evidence is never perfect, to show that the reptiles were entirely enclosed in a solid rock: no examination is ever made, until the reptile is first discovered by the breaking of the mass in which face it was contained, and then it is too late to ascertain, without carefully replacing every fragment (and in no case, that I have seen reported, has this ever been done), whether or not there was any hole or crevice by which the animal may have entered the cavity from which it was extracted. Without previous examination, it is almost impossible to prove that there was no such communication. In the case of rocks near the surface of the earth, and in stone quarries, reptiles find ready admission to holes and fissures. We have a notorious example of this kind in the lizard found in a chalk-pit, and brought alive to the late doctor Clarke. In the case, also, of wells and coal-pits, a reptile that had fallen down the well or shaft, and survived its fall, would seek its natural retreat in the first hole or crevice it could find; and the miner, dislodging it from this cavity, to which his previous attention had not been called, might, in ignorance, conclude that the animal was coeval with the stone from which he had extracted it."

commerce; and that its culture should have spread more rapidly than that of the most useful plants. At the time of the discovery of America, tobacco was in frequent use among the Indians, and the practice of smoking was common to almost all the tribes; and they pretended to cure a great variety of diseases by this plant.

Humboldt, in his work on New Spain, says that *tobacco* was the term used in the Haytian language to designate the pipe or instrument employed by the natives in smoking the herb; which term, having been transferred by the Spaniards from the pipe to the herb itself, has been adopted by other nations. Other accounts say, that tobacco received its name from the province of Tabaca in St Domingo, whence it was first introduced into Europe, in 1559, by a Spanish gentleman, named Hernandez de Toledo, who brought a small quantity into Spain and Portugal. From thence, by means of the French ambassador at Lisbon, Jean Nicot, from whom it derived its botanical name of Nicotia, it found its way to Paris, where it was used in the form of a powder by Catherine de' Medici. Tobacco then came under the patronage of the Cardinal Santa Croce, the pope's nuncio, who, returning from his embassy at the Spanish and Portuguese courts, carried the plant to his own country. Both in France and in the Papal States it was at once received with general enthusiasm, in the shape of snuff; but it was some time after the use of tobacco as snuff that the practice of smoking it commenced. This practice is generally supposed to have been introduced into England by Sir Walter Raleigh; but Camden says, in his 'Elizabeth,' that Sir Francis Drake and his companions, on their return from Virginia in 1585, were "the first, as far as he knew, who introduced the Indian plant, called Tabacca or Nicotia, into England, having been taught by the Indians to use it as a remedy against indigestion. And from the time of their return," says he, "it immediately began to grow into very general use, and to bear a high price; a great many persons, some from luxury, and others for their health, being wont to draw in the strong-smelling smoke with insatiable greediness through an earthenware tube, and then to puff it forth again through their nostrils: so that tabacca-taverns (tabernæ tabaccanæ) are now as generally kept in all our towns, as wine-houses or beer-houses." It appears from a note in the 'Criminal Trials,' vol. i. p. 361, that in 1600 the French ambassador, in his despatches, represented the Peers, on the trial of the Earls of Essex and Southampton, as smoking tobacco copiously while they deliberated on their verdict. Sir Walter Raleigh, too, was accused of having sat with his pipe at the window of the armoury, while he looked on at the execution of Essex in the Tower. Both these stories are probably untrue, but the mere relation of them by contemporaneous writers, shows that they were not then monstrously incredible, and they therefore prove the generality of the practice of smoking at that time amongst the higher class of society. After a time, however, the practice of smoking tobacco appears to have met with strenuous opposition in high places, both in this country and other parts of Europe. Its principal opponents were the priests, the physicians, and the sovereign princes; by the former its use was declared sinful; and, in 1684, Pope Urban VIII. published a bull, excommunicating all persons found guilty of taking snuff when in church. This bull was renewed in 1690, by Pope Innocent; and, about twenty-nine years afterwards, the Sultan Amurath IV. made smoking a capital offence. For a long time smoking was forbidden in Russia, under pain of having the nose cut off; and in some parts of Switzerland, it was likewise made a subject of public prosecution—the police regulations of the canton of Berne, in 1661, placing the prohibition of smoking in the list of the Ten Commandments, immediately under that against adultery. Nay, James I. of England did not think it beneath the royal dignity to take up his pen upon the subject. He accordingly, in 1603, published his famous 'Counterblaste to Tobacco,' in which the following remarkable passage occurs:—"It is a custom loathesome to the eye, hateful to the nose, harmfull to the braine, dangerous to the lungs, and in the black stinking fume thereof nearest resembling the horrible Stygian smoke of the pit that is bottomless." But notwithstanding this regal and priestly wrath, the use of the plant extended itself far and wide; and tobacco is, at this moment, perhaps the most general luxury in existence.

The plant is glutinous, and covered with a very short down; the stem upright, four or five feet high, and branching; the leaves are alternate, sessile, oval-oblong, and entire on the margin; the superior ones lanceolate; the flowers are disposed in a terminal panicle; the tube of the corolla long, inflated towards the summit, and dividing into five acute, angular, spreading lobes, of a rose colour. It was originally a native of South America.—Another species (*N. rustica*) is very common, but is less esteemed, and is distinguished by the short yellowish-green corolla.—*N. quadrivalvis* is cultivated by the Indians of Missouri, and furnishes tobacco of excellent quality.—The best Havanna cigars are made from the leaves of *N. repanda*.—Other species of tobacco are found in *Mexico* and South America. One has been discovered in China, and another in New Holland. This genus belongs to the natural family *solaneæ*.

Tobacco is a powerful narcotic, and also a strong stimulant, and, taken internally, even in small doses, it proves powerfully emetic and purgative. The oil is celebrated for its extreme virulence, and, when applied to a wound, is said, by Redi, to be as fatal as the poison of a viper. The decoction, powder and smoke, are used in agriculture to destroy insects. Mr Barrow, in his Travels, speaks of the use made by the Hottentots of this plant, for the purpose of destroying snakes: "A Hottentot," says he, "applied some of it from the short end of his wooden tobacco-pipe to the mouth of a snake while darting out his tongue. The effect was as instantaneous as an electric shock: with a convulsive motion that was momentary, the snake half untwisted itself, and never stirred more, and the muscles were so contracted that the whole animal felt hard and rigid, as if dried in the sun." As tobacco is cultivated for the leaves, it is an object to render these as large and as numerous as possible, and new, fresh and fertile soil is preferred. It is very sensible to frost. The plants are raised on beds, early in spring, and when they have acquired four leaves, they are planted in the fields, in well prepared earth, about three feet distant every way. Every morning and evening, the plants require to be looked over, in order to destroy a worm which sometimes invades the bud. When four or five inches high, they are moulded up. As soon as they have eight or nine leaves, and are ready to put forth a stalk, the top is nipped off, in order to make the

leaves larger and thicker. After this, the buds, which sprout from the axils of the leaves, are all plucked; and not a day is suffered to pass without examining the leaves, to destroy a large caterpillar which is sometimes very destructive to them. When they are fit for cutting, which is known by the brittleness of the leaves, they are cut, with a knife, close to the ground: and, after lying some time, are carried to the drying shed, where the plants are hung up by pairs, upon lines, having a space between, that they may not touch one another. In this state they remain, to sweat and dry. When perfectly dry, the leaves are stripped from the stalks, and made into small bundles, tied with one of the leaves. These bundles are laid in heaps, and covered with blankets. Care is taken not to overheat them; for which reason, the heaps are laid open to the air from time to time, and spread abroad. This operation is repeated till no more heat is perceived in the heaps, and the tobacco is then stowed in casks for exportation.

In the manufacture of tobacco, the leaves are first cleansed of any earth, dirt, or decayed parts; next, they are gently moistened with salt and water, or water in which salt, along with other ingredients, has been dissolved, according to the taste of the fabricator. This liquor is called *tobacco sauce*. The next operation is to remove the midrib of the leaf; then the leaves are mixed together, in order to render the quality of whatever may be the final application, equal; next, they are cut into pieces, with a fixed knife, and crisped or curled before a fire. The succeeding operation is to spin them into cords, or twist them into rolls, by winding them, with a kind of mill, round a stick. These operations are performed by the grower. Afterwards, tobacconists cut it into chaff-like shreds for smoking, by a machine like a straw-cutter, form it into small cords for chewing, or dry and grind it for snuff. In manufacturing snuff, various matters are added for giving it an agreeable scent; and hence the numerous varieties of snuffs. The three principal sorts are called Rappees, Scotch, or Spanish, and Thirds. The first is only granulated; the second is reduced to a very fine powder; and the third is the siftings of the second sort.

Tobacco is extensively cultivated in France and other European countries, in the Levant, and India; but the tobacco of the United States is considered decidedly superior to most others, being much more highly flavoured than that of Europe. The total quantity of tobacco and snuff imported into the United Kingdom in the year ending January 5th, 1836, was 25,818,965 lbs., *viz.* 25,523,611 lbs. of unmanufactured tobacco; 294,601 lbs. of manufactured tobacco and cigars: and 753 lbs. of snuff. The imports from the United States amounted to 25,133,158 lbs. of which 24,955,419 lbs. were unmanufactured tobacco; 177,724 lbs. of manufactured and cigars; and 15 lbs. of snuff. The quantity of snuff and manufactured and unmanufactured tobacco entered for home consumption in the year ending January 6th, 1836, was—for England, 15,222,884 lbs.; Scotland, 2,014.156 lbs.; Ireland, 4,879,719 lbs.: total, 22,116,759 lbs. The duty amounted to £3,354,459 1*s* 5*d*

TOBAGO; one of the Caribbee islands, in the West Indies, belonging to Great Britain, about thirty miles in length, from south-east to north-west, and about nine in breadth; lon. 60° 30′ W.; lat. 11° 16′ N.; population, 13,700. Total annual imports from Britain, £35,000 to £75,000. The climate of Tobago is temperate, the heat being allayed by the sea breezes; and it lies out of the track of those hurricanes that prove so fatal to the other West India islands. The surface is unequal and agreeably diversified; and its north-west extremity is mountainous. Its soil is of different kinds, but, in general, the mould is rich and black, and produces whatever is raised in other parts of the West Indies. The abundance of springs upon the island contributes to its healthfulness, and its bays and creeks are very commodious for shipping.

TOBIT. The book of Tobit, though rejected as apocryphal by the Jews and Protestants, is received into the canon by the Roman Catholics. It contains an account of some remarkable events in the life of Tobit, or Tobias, a Jew of the tribe of Naphthali, and his son, of the same name. Jahn thinks it was written in Greek, about 200 or 150 B. C. Tobit, though carried away captive, and afflicted with the loss of sight, retained his trust in God, and distinguished himself by his active benevolence towards his countrymen. Having become poor, he determined to send his son Tobias to Media to collect a debt there due him, and the angel Raphael, who was commissioned by God for that purpose, served him as a guide. On arriving at the river Tigris, the young Tobias was attacked, while bathing, by a large fish, which, by the direction of Raphael, he killed, preserving the heart, liver and gall. Reaching Ecbatana, they found there a relation of Tobit, whose beautiful daughter, Sara, had been married seven times. But her seven husbands had all been killed, before consummating the marriage, by a devil, who loved the maid. By command of the angel, Tobias married her, and, on going into her chamber, burned the heart and liver of the fish upon the ashes of the perfume; and when the evil spirit smelt the smoke, he fled into the utmost parts of Egypt, and the angel bound him. Tobias now returned to his father with the money and his bride, and restored his sight by anointing his eyes with the gall of the fish. Tobit died at Nineveh, at the age of ninety-nine years, and his son Tobias retired to Ecbatana, where he lived to rejoice over the fall of Nineveh.

TOBOLSK; a government of Asiatic Russia, comprising the western part of Siberia, bounded north by the Frozen ocean, east by Tomsk, south by Orenburg, and west by Perm and Archangel; square miles, 356,000; population, 600,000. It is watered by the Oby and its branches, the Irtisch, Tobol, &c. (See *Siberia*.) The capital, of the same name, the chief city of Siberia, is on the Irtisch, at the junction of the Tobol; 1000 miles east by north of Moscow; lon. 68° 16′ E.; lat. 58° 12′ N. It consists of two parts, upper and lower towns. The upper town has an elevated situation, and forms what is properly called the city. It contains the residence of the governor, the tribunals, public offices, and the magazine of foreign merchandise. The lower town is subject to inundation: it is entirely built of wood, with the exception of a convent. Tobolsk contains one Lutheran and thirteen Greek churches, and two convents. Connected with the lower town is a suburb inhabited by Tartars, who are a quiet and industrious race. The other residents are in a great measure descendants of exiles sent here for their crimes, or for offences against the Russian government, or sometimes on the mere caprice of despotism. The largest colony ever transported hither consisted of Swedish officers, made prisoners at the battle of

Pultava, in 1709, many of whom were well-educated men. Tobolsk is a great thoroughfare for the trade of Siberia; and hither are brought all the furs collected as tribute to the government. Tobolsk is an archiepiscopal see, and has a theatre and a theological seminary. Population, 25,000. There is much difference in the climate and soil of the government of Tobolsk. The northern half is extremely cold, and unfit for cultivation, and even the heat of summer is soon interrupted by the icy winds from the sea. The wealth of this region consists of furs, fish and game. The reindeer is the most important domestic animal. The southern and western parts are more mild, although the winters are severe, and have a fruitful soil, yielding corn and flax in abundance, and furnishing rich pastures for large flocks of sheep, and herds of cattle and horses. Besides Russians, there are numerous Tartar tribes, with Samoiedes, Ostiacs, &c., among the inhabitants. The adjoining cut represents the prevailing costume of a Tobolskin woman. Although the basis of the population is Tartar, yet from the number of exiles banished there by a jealous government—men in general, too, of education and intelligence—society at Tobolsk is chiefly European in its character, and a somewhat general refinement of manners prevails. The natives are rather a quiet and substantial people, but still, as among other Tartars, their industry consists in the rearing of horses, and their indulgence in the eating of horse-flesh and drinking of mare's milk.

TOCAT, or TOKAT; a city of Asiatic Turkey, in the pachalic of Sivas, anciently a city of Pontus, called *Berisa*; lon. 36° 30′ E.; lat. 39° 35′ N.; population, 100,000, chiefly Turks. It is almost surrounded with mountains, which afford quarries of marble, and is well supplied with water from innumerable springs. It is the residence of a cadi, a waywode, and an aga. The Armenians have seven churches, the Greeks one. Tocat may be considered as the centre of an extensive inland trade from all parts of Asia Minor. The caravans from Diarbekir arrive in eighteen days, from Sinob in six, from Bursa in twenty, from Smyrna in twenty-seven, and proportionally less on horseback or on mules.

TOGA (from *tegere*, to cover); the garment of wool, which, in time of peace, Roman citizens wore in public. Latterly, it was worn almost exclusively by the male sex. Under the emperors, the toga went out of fashion. As only freeborn citizens were permitted to wear the toga, it was an honorary garment, and at the same time distinguished the Romans from other nations; hence *gens togata* is used for Roman people. As the toga was worn only in peace (the warrior wore the *sagum*), the word *toga* is sometimes used as a metaphor for peace, or peaceful citizens. The toga was thrown over the left shoulder, and passed under the right arm, which thus remained entirely free. From the breast downwards it was sewed together, and, as

the Romans had no pockets, the bolsa called *sinus*, in front of the breast, was used to put small articles in. The variety in the colour, the fineness of the wool, and the ornaments attached to it, indicated the rank of the citizen. Generally it was white (*toga alba*. Rich persons wore wide *togæ*, the poor narrow ones. Candidates for office wore a pure white toga. (See *Candidate*.) The mourning toga was black. Persons prosecuted at law wore a dirty, or old, or gray, or, in general, unsightly *toga* (*toga sordida*). If it was ornamented with a purple stripe, it was called *toga prætexta*. Such was worn by all superior magistrates and priests. This ornamented toga was also worn by boys and girls, the former till their seventeenth, the latter till their fourteenth year, after which the former changed it for the *toga virilis*, i. e. the common simple white toga, which was also called *pura* and *libera*. (See also *Stola*.) The *triumphatores* wore a toga adorned with gold and purple (*toga picta*, also *palmata*). Ald. Manutius has written on the toga, and Seckendorf has lately treated of its essential form.

TOGRUL BEG. See *Caliph*.

TOISE. See *France*.

TOKAY; a town of Hungary, in the county of Semplin, at the conflux of the rivers Theis and Bodrog; lon. 20° 57′ E.; lat. 48° 10′ N.; population, 2800. This town is celebrated for its wines, which is esteemed the best of the wines of Hungary. It is the product of the country around the town called the Submontine district, or Hegyallya, twenty or thirty miles in extent. The prime Tokay, or Tokay Ausbruch, as it is termed, is prepared from grapes, gathered one by one, after having become dry and sweet, like raisins, whilst hanging on the vines. A great part of the wine sold for Tokay is produced in other parts of Hungary. See *Hungarian Wines*.

TOKÖLY. See *Tekeli*.

TOLAND, John, was born in 1669, in Ireland, of Catholic parents. He discarded the Roman faith before he had attained the age of sixteen, and finished his education at the universities of Glasgow and Edinburgh. He then went to England, where he was introduced to some dissenting families, which enabled him to pursue his studies for two years more at Leyden. Returning to England, he began the work, published in 1696, under the title of Christianity not Mysterious, which was presented by the grand jury of Middlesex. To withdraw himself from obloquy, he visited his native country, where he was assailed with even greater violence than in England; and the Irish parliament not only voted his book to be burned by the hangman, but ordered him to be prosecuted by the attorney general. He was therefore obliged to quit Ireland; and soon after his arrival in London, he published a life of Milton, and a treatise entitled Amyntor, in which

he assailed the authenticity of the received canon of Scripture. In 1699 he published a life of Denzil lord Holles, and in the following year, an edition of Harrington's *Oceana*. In 1718 appeared his work entitled *Nazarenus*, or Jewish, Gentile, and Mahometan Christianity, in which he stated his own views of primitive Christianity. This was followed (1720) by a Latin tract, called *Pantheisticon*, which subjected him to the charge of atheism, and by *Tetradymnus*, in four parts, the second of which, on the exoteric and esoteric philosophy of the ancients, is deemed one of his most learned and valuable productions. In the conclusion of this work, he professed his preference of the Christian religion, pure and unmixed, to all others. He died in 1722, in the fifty-third year of his age. His posthumous works were published in two volumes, octavo, 1726, and again in 1747, with an account of his life and writings by Des Maizeaux.

TOLEDO (anciently *Toletum*); a city of Spain, in New Castile, capital of a province of the same name, on the Tagus; thirty-two miles south-west of Madrid; lon. 40° 11′ W.; lat. 39° 53′ N.; population, 25,000. It is the see of an archbishop, who is primate of Spain, and who had formerly a revenue of 500,000 dollars; but it was appropriated to the public in 1820. The city is situated on the sides of a steep hill, surrounded by lofty mountains, and the environs are rocky and unproductive. It contains an alcazar or Moorish palace, now an hospital, a Gothic cathedral, twenty-five churches, thirty-eight convents and monasteries, and fourteen hospitals. The streets are narrow and steep, and the houses crowded. Here was a university, founded in 1470, suppressed in 1807. The manufactures consist of woollens, linens, silk, &c. The Toledo sword-blades, formerly very noted, are manufactured in a large building on the Tagus. The secret of tempering them is said to have been recovered; and they fetch a high price. Toledo is a place of great antiquity, much celebrated in the history of Spain, and was successively the seat of government under the Goths, the Moors, and the kings of Castile.

TOLENTINO; a small town in the States of the Church, where a treaty of peace was concluded between general Bonaparte and the papal court, Feb. 19, 1797. See *Pius VI.*

TOLERATION, in politics; a word which indicates the misconception so long entertained respecting the right of political interference in the religious belief and worship of individuals. Every man is as much entitled to liberty of opinion on religious subjects as on any other, and has a right to adopt any mode of worship that does not disturb the peace of society. This truth, plain as it seems to a reflecting man of the present day, is one which men have attained, as they have many other important truths, only by slow degrees and bitter experience; and, in fact, few governments act fully upon this principle even now. The historian finds that intolerance has been the most deadly bane to intellectual progress. See *Religious Liberty.*

TOLLENDAL. See *Lally-Tollendal.*

TOLTECS. See *Mexico.*

TOMATO, or LOVE-APPLE (*solanum lycopersicum*). This plant belongs to the same genus with the potato and egg-plant. It was originally brought from South America, but is now cultivated in many parts of the globe, for the sake of its large, variously shaped, scarlet or orange fruit, which many esteem a great luxury. These are used in sauces, stewing, and soups, and when boiled and seasoned with pepper and salt, make an excellent sauce for fish, meat, &c. In warmer climates, they possess more acidity and briskness, and are therefore more grateful to the palate. The plant is a tender herbaceous annual, of rank growth, weak, decumbent, fetid, glutinous, and downy: the leaves somewhat resemble those of the potato, but the flowers are yellow, and disposed in large divided bunches: the fruit is pendulous, shining, and very ornamental. The tomato is one of the most common articles in Italian cookery, and its use is, at the present time, rapidly increasing in England. It is cultivated to considerable extent near London against walls and artificial banks, being raised on a hot-bed, and transplanted like other tender annuals.

TOMB (from the Greek word τυμβος). This term includes both the grave and the monument erected over it. In many countries of antiquity it was customary to burn the bodies of the dead, and to collect the ashes into an urn, which was deposited in a tomb. Among the Greeks, these tombs were generally constructed outside the walls of the cities, with the exception of such as were raised to the founders of the place, or to heroes. In Campania, several tombs of the ancient inhabitants have been discovered, containing beautiful Grecian vases (improperly called Etruscan), of which Mr Hamilton formed two collections, the first published by D'Ancarville, the second by Tischbein. The Campanian tombs were formed by an enclosure of cut stones, and covered with a sort of roof of flagstones, shelving on both sides. The dead body was stretched on the ground, the feet turned towards the entrance of the sepulchre, and the head ranged against the wall, from which were suspended, by bronze nails, vases of terra cotta, whilst others of a similar kind were disposed around the body. In the plains of Etruria are also many shallow sepulchral grottoes scooped out of the living rock. These cells or sepulchres receive the daylight only through an opening placed in the middle of the vault, and which communicates with the superficies of the mountain or rock. The interior is often ornamented with paintings. The Romans designated by *sepulchrum* the tomb wherein the bodies or the ashes of the defunct were deposited, also the magnificent monuments (*mausolea*), sepulchral arches, destined to the great and the rich. Tombs where funeral rites were celebrated, yet without depositing the body, were called *cenotaphs*. Persons of high rank had sometimes, in their palaces, sepulchral vaults, where were deposited, in different urns, the ashes of their forefathers. The pyramid of Cestius, at Rome, constructed of Parian marble, and which contained a chamber ornamented with beautiful paintings, was the tomb of an individual surnamed Cestius, one of the *septemviri epulones*. After the decline of the arts, this species of architecture was much neglected, the tombs becoming simply masses of large stones, upon which were engraved rude effigies of the deceased, and inscriptions stating his age and the circumstances of his death, &c. Sometimes, for marble or stone, plates of copper were substituted, rarely enamelled, but generally engraved. The dead person is here represented as clad in the habit commonly worn by him when living; his hands are joined as in the act of prayer; and two angels are, in most instances, placed near the cushion upon which his head reposes, to indicate his admission into heaven. The revival of art brought improvements in the construction of tombs. On the splendid tomb of Julius II. Michael Angelo exercised his

surpassing talent. See *Sarcophagus*; also *Les Monumens de la Monarchie Française*, by Montfaucon; *Les Antiquités Nationales*, by A. L. Millin (5 vols., folio, or 5 vols., 4to.); *Sepulchral Monuments* (3 vols., folio), &c. &c.

TOMBECKBEE, the western branch of Mobile river, in Alabama, rises in the ridges that separate its waters and those of the Tennessee, in the northern parts of the state, and receives some of its branches from a range that diverges from the Tenessee hills, and runs south along the state of Mississippi. It receives in its progress several considerable streams from the state of Mississippi on the west side. It meanders through the Indian country and a tract purchased by French immigrants. Eighty miles above St Stephens, it receives the Black Warrior, to which place small sea vessels ascend. In moderate stages of the water, it affords steamboat navigation to Tuscaloosa, 320 miles from Mobile. The lands on its banks are exceedingly fertile.

TOMBUCTOO. See *Timbuctoo*.

TOMCOD. See *Cod*.

TOMSK; a government of Russia, in Siberia, bounded north by Yeniseisk, east by Irkutsk, south by Chinese Tartary, and west by Tobolsk; population, 352,000; square miles, 300,000. (See *Siberia*.) The capital, of the same name, is situated on the Tom, 540 miles east of Tobolsk; lon. 85° 21′ E.; lat. 56° 30′ N.; population, 12,000. It contains five churches and two convents, is extremely well situated for commerce, and the inhabitants carry on a considerable trade. It lies in the road from the towns in the eastern and northern parts of Siberia, and on the great line of rivers that connect Tobolsk with the Chinese frontier; so that all caravans going to and from China pass every year through this town, besides a caravan or two going from the country of the Calmucks. Tomsk is represented as much behind Tobolsk and Irkutsk in civilization, and the inhabitants are excessively addicted to intoxication.

TONE (Greek τονος, from τεινω, to stretch or expand), in painting; a term used chiefly in colouring, to express the prevailing hue. Thus we say, this picture is of a *dull tone*, of a *lively tone*, of a *soft tone*, of a *clear tone*, &c. To *heighten the tone* of a work, is to render the colours more vivid, and, in some instances, the masses more decided and the figures more striking. The word *tone*, in relation to *chiaro-scuro*, expresses the degree of brightness or intensity. *Tone* is not precisely synonymous with *tint*; the latter relating rather to the *mixture* of colours, and the former to their *effect*.

TONE, KEY, SCALE, SYSTEM OF TONES. Tone, in music, signifies a sound considered in the relations of height or depth; also each particular sound in our musical system. The tone, in this fundamental sense, is determined by the greater or less quickness of a uniform series of vibrations in a sonorous body. Musical tones differ from those of common speech chiefly by being more prolonged, so as to give the ear a more decided perception of their height, formation, and relations to each other. (For the production and propagation of sounds, in general, see *Acoustics*.) The difference of one tone from another, in respect to height or depth, forms the interval. But as music deals only with those which are capable of producing harmony, the whole body of sounds used in music has been brought into a system, which exhibits their different height and depth in regular order. The compass of tones is not indefinite, because the ear is unable to perceive a tone, when the vibrations of the body producing the sound are either excessively quick or slow; they are not limited to a definite number. The measured series of tones is an invention of modern times, since the nature of sounds has been accurately investigated, and their relations settled in musical instruments. Man in a state of nature, or a state but little removed from this, is guided by his feelings, in the production of tones, and knows nothing of a regulated arrangement; hence it is difficult to adapt the songs of savages to our diatonic system. As instruments do not, like the human voice, produce all the various tones without particular contrivances, those who first endeavoured to produce a certain tune by means of instruments were obliged to assign to them, as it were, certain tones, and arrange these in regular order; strings were to be tuned in a certain way, for producing certain sounds; a distinct length was to be given to them, and holes were to be made at certain distances in wind instruments. The relations of tones first perceived by the ear, were undoubtedly those which were thus fixed. Thus the fable says that Hermes strung the lyre with four strings, and tuned them in the proportion of the fourth, fifth and octave; and, probably, these tones were sufficient for the simplest accompaniment of the voice. By degrees the other tones of the octave were added. In this first system, which embraced four strings or tones, were comprehended two-fourths, forming the two extreme tones, as, a d e a: the lowest tone was called A. Hence this system, or the division of tones according to fourths, is called *tetrachord*. When the tones were increased in number, it seems to have been done also by fourths; so that, e. g. to the chord d the fourth g was given, and to e (descending) the fourth b. Now g had not yet its pure fourth; but in order not to go beyond the octave, the same was taken within the octave from g downward; this received the fourth f, and thus the whole octave was formed, or a series of tones, extending from a, fundamental tone, to its octave, which is called the *scale*. The scale thus formed consisted of the tones

A B C D E F G a

which had the proportions

1 8 27 3 2 81 9 1
9 32 4 3 128 16 2

When the fourths were divided, in different ways, into smaller intervals, the genera of tones originated, viz. 1. The enharmonic; 2. the chromatic; 3. the diatonic, in which whole and half degrees alone appear. The modern diatonic system is that division of tones according to which the octave is divided into seven tones, consisting of five entire and two half degrees (also called *tones*; hence *tone* often stands for the interval of a whole tone), and by which we never proceed by smaller divisions than semitones, nor ever by two successive semitones. Now, as the ancients had not adopted the semitones c♯, d♯, f♯, g♯, into their system, and the scale or progressive series of eight tones in the octave (which, ascending from the fundamental tone, are designated by numbers, as the second, third, &c.) was probably as follows:

C D E F G A b B c,

since the seventh degree had a double tone, small and great B (the latter of which was afterwards changed by mistake into H, in the German notation), they thus adopted two chief classes or modes of sounds, the *sharp* and the *flat*. (These terms

are at present used also in another sense, as will appear below.) If on the double B the higher tone (now h) was taken, the song was called *cantus durus*; if the lower one was taken, the *cantus mollis* was produced. Now as every one of the seven tones of the octave may be taken as the fundamental tone, or *tonic* (q. v.), and thus the semitones of the diatonic system may assume constantly a different situation, seven different keys originate. The ancient church singers, who were not allowed to go beyond the limits of an octave, were enabled, by sometimes ascending from the tonic to the fifth and eight, sometimes from the fifth of the tonic (the *dominant*) to the eighth and twelfth, to obtain a *duplication* of their modes, viz. the *authentic* and the *plagal*. If each tone of their system had had its pure fifth and fourth, there would have been on the whole fourteen keys, viz. seven authentic and seven plagal; but as the H had no fifth, and the F no fourth, the former could only be plagal, and the latter only authentic; hence there were but twelve, viz. six authentic and six plagal keys in the ancient church music. Every one of these keys, also called *tones* in ecclesiastical music, had its proper Greek name, contained in the following table:—

Auth.	d	e	f	g	a	h	c	d	Doric
Plag.	A	H	c	d	e	f	g	a	Hypo-Doric
Auth.	e	f	g	a	h	c	d	e	Phrygian
Plag.	h	c	d	e	f	g	a	h	Hypo-Phrygian
Auth.	f	g	a	h	c	d	e	f	Lydian
Plag.	c	d	e	f	g	a	h	c	Hypo-Lydian
Auth.	g	a	h	c	d	e	f	g	Mixo-Lydian
Plag.	d	e	f	g	a	h	c	d	Hypomixo-Lydian
Auth.	a	h	c	d	e	f	g	a	Æolian
Plag.	e	f	g	a	h	c	d	e	Hypo-Æolian
Auth.	c	d	e	f	g	a	h	c	Ionian
Plag.	G	A	H	c	d	e	f	g	Hypo-Ionian

KEY.

There yet remain a number of choral melodies in these keys. According to the ancient diatonic system, no tone, with the exception of b, could be enlarged. The feeling of this imperfection, and the want of transposition, gave rise to the invention of new semitones between the whole tones; hence the octave was divided into twelve degrees or semitones, so that, with the repetition of the fundamental tone, it received thirteen degrees and strings. If, now, to every string of the instrument its pure third (both lesser and greater), pure fourth and fifth had been given, many more intermediate tones would have been produced, and by the use of quarter-tones, the practice of music would have been rendered infinitely difficult. The thirteen tones and chords, therefore, were retained, so that each of the twelve tones of the octave may be made the fundamental tone of the sharp or flat key, yet not so that all the intervals are given perfectly pure, but sometimes one, sometimes another tone is made a little sharper or flatter. This is called the temperament of the system of tones. In Sulzer's work it is defined as a small deviation, judiciously made from perfect correctness in an interval, in order to render it more useful in connexion with others. He also defines it, more particularly, as the arrangement of a whole system of tones, in such a manner that some tones lose a little of their perfection, so that they may serve in different keys, and all remain in the highest attainable harmony. The object of temperament is that each of the twelve tones of the system may be used as a fundamental tone in the flat and sharp keys, without increasing the number of strings, that the octave may be perfect, and the fifth not fall much short of being perfect. The even temperament is that in which all the twelve half tones or intervals of the system are measured equally, by which, consequently, all the perfect fifths lose something of their original purity, which is added to the fourths, and also a major third is tuned as much too high as the others. The uneven temperament is that in which some fifths and thirds are so tuned that some are a little higher, some a little lower than perfect. The chief harmony, or the chief concord, of a tone can be twofold, according as it has a major or minor third; and this is called, in a narrower sense, *key* or *mode*, viz. in the first case, the sharp or greater third, in the second, the flat or smaller third. Hence there are, in modern music, twenty four scales or keys in the wider sense (genera of tones capable of being connected in a musical composition, in relation to a fundamental tone). Each flat and sharp key has its peculiar character; the latter serves more particularly for the expression of gay and lively; the former of soft and melancholy feelings. Uncivilized nations prefer the flat keys. Every scale has, also, according to its fundamental tone, and its situation and relations to the whole system, its peculiar character, so as to be particularly fit for the expression of certain emotions. This point is connected with the fact, that the flat and sharp keys are not entirely equal in all the tones, as neither the thirds nor the sixths are equal. This advantage of difference of the scale does not take place in the even temperament, in which the scales of C major and A minor are merely repeated in the other tones. See the articles, in this Encyclopedia, *Enharmonic* and *Music*.

TONG, or TOUNG (Chinese for *copper*); in many geographical names, as *Tong-chan* (Copper mountain). Tong also signifies, in Chinese, *east*; as *Tong-kong* (Eastern palace).

TONGATABOO (properly *Tonga*; *taboo* being merely an epithet signifying *sacred*), one of the Friendly islands, about sixty miles in circuit, was first discovered by Tasman, who called it *Amsterdam*. The productions and climate are the same as those of the other Friendly islands, and the Society islands. (See the articles.) The Wesleyan missionary society has established a mission here, and many of the natives have been converted to Christianity.

TONGUE; an organ found in most animals, and serving in many as the organ of taste; in all for taking in food. We are not justified in considering the tongue as an organ of taste in all animals; and Blumenbach thinks that it serves this purpose in very few genera of birds.—See his *Manual of Comparative Anatomy*, 2d Engl. edit. by W. Coulson, (London, 1827). The human tongue is a soft, fleshy viscus, very movable in every direction, situated interiorly in the cavity of the mouth, and constituting the organ of taste. It is composed of muscular fibres, covered by a nervous membrane, on which are a great number of nervous *papillæ*, particularly at the point and sides, the *rete mucosum* and *epidermis*. The use of this organ is for chewing, swallowing, sucking, and tasting.

TONIC, in music; the first or fundamental note of the diatonic scale, and, in general, the fundamental and key-note of every piece. The fifth note (counted upwards) from the tonic is the dominant.

TONICS, in medicine (from τονος, tension), are medicines given to increase the tone of the fibres of the stomach and bowels, and, in fact, of the muscular fibre in general; such are vegetable bitters, also stimulants, astringents, &c.

TONNAGE. For the mode of measuring, see *Ship*.

TONNERE, Mount (in German, *Donnersberg*, Thunder mountain); a summit of the Vosges, on the left bank of the Rhine, ten miles from Worms. It is about 2000 feet high; and half way up its side is a village called *Donnersfeld*, with the ruins of a castle. The French gave the name of this mountain to a department 2700 square miles in extent, with a population of 480,000; capital, Mentz. It is now divided between Bavaria and Hesse-Darmstadt.

TONQUIN; a country of Asia, bounded north and east by China, south by Cochin-China, and west by Laos; about 650 miles in length, and 220 in its greatest breadth, extending from lat. 19° to 23° N., and from lon. 104 to 108 E. The climate is mild and temperate. The rainy season begins about April, and continues till August, and is the most unhealthy part of the year. The country lying low and flat, is frequently overflowed by violent rains, so as to do great injury to the harvest; and on the other hand, if the rain be not in sufficient quantity to nourish the rice, a famine is the consequence. The principal river of the country is Song-ca (*Songkoi*.) Tonquin is but imperfectly known to us; it is a viceroyalty of Cochin-China, both which countries are known to the Chinese by the common name of *Annam*. It is the most valuable and populous part of the empire. (See *Cochin-China*.) Rice is almost the only grain cultivated. Other productions are potatoes and yams; a variety of fruits, mangoes, lemons, cocoa nuts, and ananas; sugar-cane, indigo, areca, betel nut, the tea plant, &c. Some of the principal articles of commerce are silk and lacquered ware. The chief town, Kecho, or Cachao, on the Song-ca, eighty miles from the sea, is supposed by Crawfurd, to contain a population of about 150,000 souls; twenty miles lower is Hean, a considerable town; and forty miles below Hean is Domea, where the British and Dutch merchants usually stopped, and were rowed to Cachao in boats. See Crawfurd's *Embassy to Cochin-China and Siam* (London, 1828), and the *Nouvelles Lettres Edifiantes* (Paris, 1821).

TONSURE (*corona clericalis*). A shaved crown has been, from time immemorial, one of the honorary distinctions of the priests. The first Christian teachers, however, wore their hair like other men, in order to distinguish themselves from the heathen priests. Penitents had their heads shaved, and, in imitation of their example, the monks did the same: it was not until the sixth century, that the fashion of shaving the head, with many other peculiarities of the monks, was adopted by the secular clergy. A difference was then made between a shaved forehead, which was called *tonsure of the apostle Paul*, and a shaved crown, called *tonsure of the apostle Peter*. The former being customary with the Greeks, Britons, and Irish, the latter in the Roman church and the countries most under its influence. At a council held at Toledo, in 633, the latter mode was formally prescribed, and called *corona clericalis*. Since that time the Roman tonsure has remained common to the clergy and monks in the west of Europe, and furnishes a means to distinguish the higher clergy from the lower, as the extent of the tonsure increases with the rank. The pope, if he is young enough to have hair, which is seldom the case, loses nearly all on the fore part of the head. Many religious orders (*e. g.* the Franciscans) allow only a narrow strip of hair around the head to grow; all above and below is shaved. Shaving the hair prevents consecration: it is performed by the bishop. The tonsure qualifies the subject for holding a simple benefice, and subjects him to the laws relating to ecclesiastics. The clergy of the Greek church retain the old custom.

TONTINES; a kind of life annuity. When the credit of the governments in Europe, in the seventeenth century, was continually sinking, and rich men would not loan them money, Lorenzo Tonti, an Italian, invented a peculiar species of life annuities, called after him *tontines*, and first introduced them into France, in 1653, under Louis XIV. His method was the following:—A certain capital was loaned by a society, generally, at the usual rate of interest. This interest was divided equally among the members of equal age; and among those of unequal ages it was divided in proportion to their age. This interest was paid as long as any of the society remained alive, and when one of the members died, his portion of the income was inherited by the surviving members, so that the last survivor enjoyed, during his life, the whole income. At his death the interest ceased, and the borrower obtained the capital. In the formation of a tontine contract the members of the society were divided into six classes: 1. those from one to five years old received three per cent.; 2. from five to ten, three and a half per cent.; 3. from ten to fifteen, four per cent.; 4. from fifteen to twenty, four and a half per cent.; 5. from twenty to twenty-five, five per cent.; 6. from twenty-five to thirty, five and a half per cent.; 7. from thirty to forty, six per cent.; 8. from forty to fifty, six and a half per cent.; 9. from fifty to sixty, eighty, ninety, seven per cent. In this way the whole capital paid only five per cent.; and many more lenders were found to take part in tontines than in the old life annuities, in which five per cent. was paid to each individual. See *Annuities*.

TOOKE, John Horne, was born in Westminster, in 1736. His father was a poulterer, who had acquired considerable property. John, the third son, was educated both at Westminster and Eton, whence he was removed to St. John's college, Cambridge. In 1756, he had entered himself of the Inner Temple; but, at the request of his family, he consented to be ordained, and was conducted to the chapelry of New Brentford, which his father had purchased for him. Three years afterwards, he accompanied, as travelling tutor, the son of Mr Lewis, of Berkshire, in a tour to France. On his return he took a warm share in politics, in behalf of Wilkes, to whom, on a second visit to Paris, he was personally introduced. When he returned to England, he resumed his clerical functions, and obtained some distinction in the pulpit, until the return of Wilkes plunged him again into politics. He was the principal founder of the *Society for supporting the Bill of Rights*; and, in 1770 and 1771, a public altercation took place between Messrs Wilkes and Horne, on account of the attempts made by the former to render the society instrumental to the discharge of his private debts. It was through his means that two printers of the newspapers were, in 1771, induced to violate the orders of the house of commons, by publishing their debates, which brought on those proceedings which terminated in a defeat of the house, and the unopposed practice of such publication ever since. The same year also witnessed his contest with Junius, in which, in the general opinion, he came off victor. In 1773, he resigned his clerical gown, and shut himself up to retrench-

with a view to study for the bar. and it was by affording legal advice to Mr Tooke of Purley, in his opposition to an enclosure bill, and defeating the same by a boldness of stratagem peculiarly in character, that he acquired the good will, and ultimately shared in the fortune of that gentleman. He was a warm opponent of the American war, and was prosecuted for sedition, for the wording of a resolution, by which the Constitutional Society voted £100 to the widows and children of the Americans who fell in the battle of Lexington. For this obnoxious paragraph he was tried at Guildhall, in 1777, on which occasion he defended himself with his characteristic spirit and acuteness, but was sentenced to a year's imprisonment and a fine of £200. In 1779, after having fully prepared for the bar, he applied for admission to the society of the Inner Temple, and was refused, on the ground that he was still a priest, and ineligible—a decision which destroyed all his future views in this profession. In 1780, he published a keen review of lord North's administration, in a pamphlet entitled Facts, and in 1782, a Letter on Parliamentary Reform, with a Sketch of a Plan, which did not embrace the principle of universal suffrage. About this time he became the avowed friend of Mr Pitt, then also favourable to parliamentary reform, and a vehement opponent to Mr Fox, for his coalition with lord North. In 1786, he appeared in a character more important to his lasting reputation than that of a subordinate politician, by the publication of an octavo volume, entitled *Epea Pteroenta*, or the Diversions of Purley, which he afterwards extended to two volumes quarto. This celebrated work contains those ideas concerning grammar, and the formations of words, of which the germ had appeared in a letter to Mr Dunning some years before. Of these, one of the most prominent was the derivation of prepositions and conjunctions from verbs and nouns, and, in consequence, assigning them a determinate meaning, often different from that which had been arbitrarily given to them. The knowledge of language and logical acuteness which he displayed in this performance, raised him to a high rank as a philologist. In 1788, he published Two Pair of Portraits, the figures in which were the two Pitts and the two Foxes, of the past and present generation, the preference being given to the Pitts. In 1790, he offered himself as a candidate for Westminster, in opposition to Mr Fox and lord Hood, when he distinguished himself by a strong vein of humour, in his daily addresses to the populace; and, although he failed, he received 1700 votes, without solicitation or corruption. In the year 1794, he was apprehended and committed to the Tower on a charge of high treason, founded on the presumed objects of the corresponding societies to overthrow the constitution. His trial, with that of the other parties accused at the same time, holds a conspicuous place in the historical annals of a period rendered so remarkable by the excitement produced by the French revolution. The trial of Mr Tooke, although made interesting by the ease, self-possession and acuteness displayed by the accused, was deprived of much political importance by the previous acquittal of Hardy insuring his own. From this time, however, he was more cautious in his company, and seems to have declined the visits of persons of violent characters and principles at Wimbledon. After the death of Mr Tooke of Purley, he had taken his name, in consequence of inheriting a portion of his fortune. In 1796, he again offered himself for Westminster, and failed; and in 1801, he accepted a seat for Old Sarum, on the nomination of lord Camelford. His parliamentary career was neither long nor distinguished; but an attempt to exclude him on the ground of ordination, was turned aside by the minister, Mr Addington, who substituting a bill to determine the future ineligibility of persons in that predicament, the political life of Mr Tooke closed with the dissolution of parliament in 1802. In 1805, he published a second part of the Diversions of Purley, which is chiefly dedicated to etymology, and adjectives and participles, and their formation; but also abounding, like the former, with various satirical strictures on literary characters of note. He died at Wimbledon, in 1812, in his seventy-seventh year. His latter days were cheered by easy circumstances, and the attention of numerous visitors, whom he treated with great hospitality, and amused with his conversation, which was singularly pleasant and lively, although at the same time, he would often make his guests objects of his satire, which he would cover with the most imperturbable countenance. At the same time his manners were polished. He manifested a libertinism, in his manners and discourse, very unbecoming his profession. As a scholar, he possessed considerable learning; but his knowledge of modern languages was more considerable than of Greek and Latin; his acquaintance with the Gothic was very extensive. He was never married, but left natural children, to whom he bequeathed his property.

TOOTH. See *Teeth*.

TOP; a sort of platform surrounding the lower mast head, from which it projects on all sides like a scaffold. The principal intention of the top is to extend the top-mast shrouds so as to form a greater angle with the mast, and thereby give additional support to the latter. The top is also very convenient to contain the materials necessary for extending the small sails, and for fixing and repairing the rigging and machinery with greater expedition. In ships of war, the tops are furnished with swivels, musketry, and other fire-arms, and are guarded with a fence of hammocks in time of action. Finally, the top is employed as a place for looking out either in the day or night.

TOP-MAST; the second division of a mast, or that part next above the lower mast.—*Top-gallant mast*; the mast next above the top-mast, and is generally the uppermost mast.—*Top-sails*; large sails extending across the top-masts.—*Top-gallant-sails* are extended above the top-sail yards, in the same manner as the top-sails are extended above the lower yards. See the article *Ship*.

TOPAZ; a gem in jewelry, and one of the most interesting species in mineralogy. Its crystals are short prisms, terminated at one or both extremities by a great number of facets, the primary form being a right rhombic prism of 124° 22′. It cleaves with readiness at right angles to the prismatic axis, but with considerable difficulty parallel to the lateral faces of the primary form; fracture more or less perfectly small conchoidal, or uneven; the lateral faces are deeply striated vertically, while the terminal planes are smooth and brilliant; lustre vitreous; colour white, yellow, green, blue; the shades are generally pale; transparent to translucent; hardness intermediate between quartz and corundum; specific gravity 3·49. It also occurs massive, the composition being granular, and the individuals varying much in size. There occurs, also, a columnar composition, in which the individuals are thin.

long, and parallel, and their faces of composition longitudinally streaked. Two varieties of topaz have, without sufficient reason, been treated as forming separate species, viz. *pyrophysalite* and *pycnite*. The first of these occurs in large individuals, of a pale greenish-gray colour, and faint translucency, imbedded in round masses, in a granite composed of white quartz, feldspar and mica, at Fahlun and Finbo in Sweden. The pycnite (schorlite) consists of thin and straight columnar particles of composition, forming masses of considerable size, in a rock composed of quartz and mica, at Altenberg in Saxony, in Siberia, and at Kongsberg in Norway. But these varieties are united with common topaz by transitions, which render their distinction often impossible. Topaz consists, according to Berzelius, of

	Topaz.	Pyrophysalite.	Pycnite.
Alumine, . .	57·45	57·74	51·00
Silex, . .	34·24	34·36	38·43
Fluoric acid, .	7·75	7·77	8·84

In a strong heat, the faces of crystallization, but not those of cleavage, are covered with small blisters, which, however, immediately crack. With borax it melts slowly into a transparent glass. Its powder colours the tincture of violets green. Those crystals which possess different faces of crystallization on opposite ends, acquire different kinds of electricity, on being heated; by friction it acquires positive electricity. Topaz enters into the composition of several granitic rocks; thus it forms, with quartz and tourmaline, the topaz rock of Saxony, and is found crystallized in its drusy cavities. It occurs, also, in irregular beds, either with quartz and mica, like the variety called *pycnite*, or it is found in veins and beds in gneiss, mica-slate, clay-slate, and porphyry, along with tin ore, wolfram, fluor, beryl, quartz, &c. It is met with besides in the alluvial deposits of rivers, along with other gems. Among the varieties of topaz, employed in jewelry, are the following, which depend upon their colours: 1. *colourless*, or *white topaz* (called *novi mina*); its localities are New Holland, Brazil, and the Ural mountains, and it commonly occurs in rolled pebbles; 2. *blue topaz*, or *Oriental aqua-marine*; it comes from Siberia, and, of late, has been found in Brazil; 3. *straw-yellow topaz*, found in the Urals, and at Mucla in Asia Minor; 4. *wine-yellow topaz*, found in Saxony; 5. *brownish-yellow topaz*, from Brazil; 6. *pink-coloured topaz*, which is produced by heating, in a sand bath, to a moderate degree, the deep-yellow Brazilian crystals. The topaz is now too abundant in nature to command the extravagant prices of some other gems; for it is not only afforded plentifully in Brazil, but it is found also in the tin mines of Saxony, Bohemia and Cornwall; also at Cairngorm in Aberdeenshire, where pieces of very extraordinary dimensions have been found possessed of very rich brownish tints. The mountains of Altai and the Urals produce an immense quantity, in like manner, of this gem; and large bags of pebbles and loose crystals are frequently brought from Brazil and New Holland. The United States have as yet furnished but a single locality of topaz; it exists at Munroe in Connecticut, and occurs in a vein about one foot wide, accompanied by fluor, mica, and quartz. The vein traverses gneiss. It occurs both crystallized and massive; but the crystals are rarely transparent. They vary in size from many pounds weight down to that of a few grains. Their prevailing colour is white.

TOPHET, or HINNOM; a valley near Jerusalem, called, also, in the New Testament, *Gehenna* (Γεεννα), by corruption from the Hebrew *Ge* (valley), and *Hinnom*. It was infamous as a spot in which the Jews passed their children through the fire to Moloch, god of the Ammonites. The name *Tophet* is from the Hebrew word for *drum*, because a drum was used to drown the cries of the victims. The valley was watered by the brooks Kedron and Siloam, and being a fertile and agreeable spot, was at one time occupied with gardens, whence the propriety of Milton's expression:

> The pleasant valley of Hinnom, Tophet thence
> And black Gehenna called.

It was, at a later period, shunned as unclean, by the Jews, and made the receptacle of the filth of the city. The Aceldama (q. v.) was adjoining it. The Gehenna of the New Testament is rendered hell in the English version; and with the Mohammedans it is the name of one of the circles of the fiery pit.

TOPICAL, in medicine (from τοπος, place), is used of remedies applied externally to the suffering part, and intended to have an effect there only, such as ointments, cataplasms, &c.

TOPICS. The ancient Greek and Roman teachers of rhetoric designated by this word (derived from τοπος, place, passage) a systematic representation of certain general notions and propositions which, as they thought, might be advantageously used, by public speakers, in the selection and invention of arguments. They distinguished the *loci argumentorum* (sources of proofs), and the *loci communes* (common places). Under the first, they comprised general notions, from which the orator might deduce proofs by comparing with them the case in question, e. g. the similar, the dissimilar, the opposite, cause and effect, genus and species, &c. Common places were general propositions, formed by transferring the proofs, which were deduced from the *loci argumentorum*, and applicable only to the special case, again to the genus. Such a common place, in the forensic discourses of the ancients, was the position, All legal causes are so far of equal importance as the question is, What is just and right? Compare Aristotle's *Rhetoric* (lib. i., particularly chap. 2, 3); the author of the rhetorical work *Ad Herennium* (1st, 2d, 3d book). Cicero *De Inventione* (lib. i., chap. 6—15; chap. 24—52; and lib. ii.); Cicero's *Topica* and *Partitiones Oratoriæ* (chap. 1, 2, 3, 9—15); also *De Oratore* (lib. ii., chap. 30 et seq.); Quinctilian's work *Institutiones Oratoriæ* (lib. v.). The ancients applied topics exclusively to political and forensic oratory; but some moderns, especially Germans, have employed them for pulpit oratory, and call them, in this case, *homeletic topics*. They use *topics* and *topology* also to signify a theory of the principles which the theologian should follow in selecting and applying the various passages of the Bible, to prove important doctrines, or to judge of those which are generally used for this purpose.

TOPOGRAPHY (from τοπος, place, and γραφω, I write); the accurate description of a country, place, &c. going into details into which geography does not enter. Rivers, rivulets, mountains, lakes, forests, rocks, roads, particularly inhabited places, bridges, &c., are proper subjects for topographical description. Topographical maps are such as treat of all these subjects, and even show the variety of soils, &c. The angle of declination of elevated plains, mountains, &c., forms a particularly important subject of topographical surveys. Lehmann has invented a very excellent mode of preparing topographical maps.

TORA (Hebrew, the *law*) signifies the law

books of Moses, in which the written law of the Hebrews is contained. (See *Hebrew Literature*.) In the synagogues, *tora* is used for the parchment roll which contains these five books, and from which portions are read or sung on the Sabbath. The *tora* is contradistinguished to the *cabala*, or oral law, which is contained in the Talmud.

TORBAY; a bay in the English channel, on the east coast of Devonshire, and a celebrated rendezvous for the British navy. It is about twelve miles in compass, and is secure against westerly winds; but a south or south-east wind sometimes forces ships out to sea. Lon. 3° 28′ W.; lat. 50° 26′ N.; five miles north-east of Dartmouth.

TORCH-DANCE. Dancing and music were, even with the Greeks and Romans, essential to a well-ordered festival; and they were especially important at wedding feasts, which ended by conducting the bride to the house of the bridegroom, when a youth, who personated Hymen, preceded them with the wedding torch, and hymns were sung in honour of the god. The Romans, who had borrowed this ceremony from the Greeks, mingled with it their Fescennine games. This seems to have been the origin of the torch-dance, which was introduced by Constantine at his court, after it was transferred from Rome to Byzantium. It was known to the Christian emperors in the fourth century, as a court and ceremonial dance. In later times, it was connected with the tournaments, with which emperors and kings celebrated their marriages. At the tournaments given by Henry the Fowler, the successful knight danced alone, with the lady who presented him with the reward of victory, by the light of torches, which were borne before and after them. After tournaments ceased to be celebrated, the torch-dance was revived as a relic of the chivalric ages; and it is used, in our times, at the marriages of royal personages, when it is performed with great splendour, at the conclusion of the wedding, when the married pair are conducted to their apartment.

TORCH-RACE. See *Lampadephori*.

TOREUTICS (from the Greek τορευτικη, the art of making work in relief) is sometimes used in a narrower sense, sometimes in a wider. Ernesti, in his *Archæologia literaria* (5th chap.), treats it as almost equivalent to plastics in general. He says the Greeks call τορευτον and γλυπτον that which is worked by the chisel. Winckelmann, on the other hand, says toreutics signified the art of making raised work in silver and bronze, while raised work in gems was called διαγλυφον. Eschenburg and Heyne understand by it castings; and, according to Schneider's Greek Lexicion, τορευω and τορευμα were applied only to raised work in metal, produced by casting, not by engraving. The later Greeks, as Pausanias, applied the term also to entire figures. Pliny understood by *toreutice*, statuary in bronze in general. Veltheim and others have considered the term as used, also, to express the finishing of casts by the chisel.

TORGAU, an important fortress on the Elbe, in the government of Merseburg, Prussian province of Saxony, belonged to the kingdom of Saxony till 1815. It has 4000 inhabitants and 700 houses. Torgau has suffered much in various wars. Here Luther and his friends wrote his Articles of Torgau, the foundation of the Augsburg Confession; and the Book of Torgau, against Crypto-Calvinists, was signed here by more than eight thousand clergymen.

TORNEA; a town of Finland, belonging, since 1809, to Russia, on a small island in the river Tornea, at its entrance into the north extremity of the gulf of Bothnia; lon. 24° 6′ E.; lat. 66° 51′ N.; population, 666. It is a central place for the imports and exports of a wild and thinly peopled country. The climate is less severe than might be expected in so high a latitude. In June, the sun is visible above the horizon at midnight. In 1736 and 1737, Tornea was visited by Maupertuis and other French *savans*, in company with the Swedish astronomer Celsius, to make observations to ascertain the exact figure of the earth.

TORPEDO; a genus of fishes, belonging to the family of the rays, and formerly united with them under the *raja* of Linnæus. It is distinguished by the short and somewhat fleshy tail, and the nearly circular disk formed by the body. This is smooth, and the teeth are small and acute. The electrical apparatus, which has rendered the torpedo so celebrated, consists of small membraneous tubes, disposed like honey-comb, and divided, by horizontal partitions, into small cells, which are filled with a mucous substance. These occupy the space between the head gills and pectoral fins, and are abundantly supplied with nerves from the eighth pair. This conformation is analogous, in many respects, to the galvanic pile, and, accordingly, the identity of the benumbing power of these animals with electricity may be considered established. A Leyden jar may be charged by one of these animals. This extraordinary structure, which may lead to the determination of important points in general physiology, serves a more humble purpose in the economy of the animal. By exercising this power, the torpedo is enabled to procure its prey, and to protect itself against enemies. Whoever attempts to lay hold of it receives a sudden, paralyzing shock in the arms; and small fishes, it is said, are completely stunned on approaching it. This faculty is by no means confined to the species of torpedo. The *gymnotus*, or electrical eel of the fresh waters of South America, possesses it in a still more extraordinary degree; and it has lately been discovered in a *silurus*, or cat-fish, of the African rivers, as well as in several other fishes of different genera. The torpedo, however, is best known, as it has been an object of astonishment and terror with the common people in all ages. According to Cuvier, several species inhabit the European seas, which have been confounded under the *raja* torpedo of Linnæus. They frequent sandy coasts, and sometimes, it is said, even conceal themselves above low-water mark. According to Mitchell, there is one upon the American coasts, which is sometimes taken on St George's Bank, in the ocean, near Block island, and to the southward. Few are taken in the course of the season, and these only by the hook and line, while fishing for cod. These instances are, however, well remembered by the fishermen, who call the animal *numb-fish*, or *cramp-fish*. It is said sometimes to attain to the weight of a hundred pounds. The liver is cut out for the sake of the oil; but no use is made of the body.

TORPEDO; a machine invented by Robert Fulton, and intended to blow up the largest ships. The principal part of the apparatus is a copper box, enclosing a certain quantity of gunpowder, and prepared with a spring which sets fire to the powder. The whole is enclosed in cork, or some light substance. It was intended to be placed under the keel of the vessel to be destroyed, by means of a harpoon directed against the side.

TORPID STATE OF ANIMALS. See *Dormant State.*

TORQUEMADA. See *Inquisition.*

TORRE (in Italian, Spanish and Portuguese, *tower*) appears in many geographical and family names.

TORRE DEL GRECO; a town in Naples, five miles south-east of Capua, nine east-south-east of Naples; population, 16,766. It is situated on the sea-coast, at the foot of mount Vesuvius. The inhabitants are mostly employed in fishing, navigation, and the culture of the vine. This town was destroyed by an eruption of Vesuvius in 1794; yet the inhabitants, after the eruption, returned, and rebuilt the town on the same spot.

TORRES VEDRAS, LINES OF; so called from a small village lying on the road from Lisbon to Coimbra, twenty-four miles north-west of the former. These stupendous works, constructed by lord Wellington in 1810, consisted of two lines, the one extending from Alhandra, on the Tagus, to the mouth of the Zizandra, on the Atlantic ocean, twenty-nine miles in length, and the other, in the rear of the former, reaching from Quintella, on the Tagus, to the mouth of the Lorenza, on the ocean, twenty-four miles in extent, forming an impregnable barrier between the enemy and Lisbon. Fifty miles of fortifications, bristling with six hundred pieces of artillery, and one hundred and fifty forts, flanked with abattis and breast-works, and presenting, in some places, high hills artificially scarped, in others, deep and narrow passes carefully chocked, and artificial pools or marshes made by damming up the streams, were defended by 70,000 disposable men. The French force under Masséna, which had been much superior to that of the British, before Wellington had concentrated in the lines the Portuguese troops and the marines, amounted, also, to about 70,000 men. The British were plentifully supplied with provisions, by the Tagus and the sea, and enjoyed perfect security in their rear. The French, on the other hand, were suffering from want, in a country where Wellington had laid waste and destroyed every thing which could be useful to an enemy, and were harassed by the attacks of the inhabitants. Masséna was, therefore, finally obliged to retreat, by hunger (March 4, 1811), after having made some ineffectual attacks upon the works. The lines of Torres Vedras thus saved Lisbon, annihilated a well-appointed French army, and gave Wellington a fair opportunity to enter upon offensive operations.

TORRICELLI, EVANGELISTA, an illustrious mathematician and philosopher, born at Faenza, in Italy, in 1608, was instructed in Greek and Latin by his uncle, a monk, probably with a view to his obtaining preferment in the church; but his genius induced him to devote himself to the study of mathematics, which he did for some time without a master; but at the age of twenty, he went to Rome, and prosecuted his studies under father Benedict Castelli. Torricelli, thus assisted, made great improvement, and, having read Galilei's Dialogues, composed a treatise concerning Motion, according to his principles. Castelli, astonished at the ability displayed in this piece, took it to Galilei at Florence, who conceived a high opinion of the author, and engaged him as his amanuensis. He entered on this office in October, 1641; but, Galilei dying three months after, Torricelli was about to return to Rome, when the grand duke of Tuscany, Ferdinand II., engaged him to continue at Florence, giving him the title of ducal mathematician, and the promise of a professorship in the university, on the first vacancy. Here he applied himself closely to study, and made many improvements and some discoveries in mathematics, physics, and astronomy. He improved the construction of microscopes and telescopes, and first ascertained the gravity of the air, by means of mercury in a glass tube, whence resulted the barometer. (See *Barometer.*) He was cut off prematurely, after a few days' illness, in 1647. He published, in 1644, a volume entitled *Opera Geometrica;* and his academical lectures were printed in 1715.

TORRICELLIAN VACUUM, AND TORRICELLIAN TUBE. See *Barometer*, and *Torricelli.*

TORRIGIANO, PIETRO; a Florentine artist of great eminence, who flourished towards the close of the fifteenth and the commencement of the succeeding century. He was born in 1472, and, while yet a lad, gave evidence of that genius for sculpture which time only was wanting to bring to perfection. Being, at the time, a fellow-student with the famous Michael Angelo Buonaroti, a dispute, arising from a jealousy with respect to their comparative proficiency, terminated in blows; one of which, from the hand of Torrigiano, broke the bridge of his antagonist's nose, and inflicted a mark which he carried to his grave. While in the zenith of his reputation, he went to England, which he afterwards quitted for Spain, and there fell into the hands of the holy office, being denounced as guilty of impiety and sacrilege, in breaking to pieces a statue of the virgin, which he had himself executed for a hidalgo, who afterwards refused to pay him an adequate price. He was condemned to the stake, but avoided the torture of a public execution, by starving himself, previously to the celebration of the auto da fé, in 1522. The beautiful tomb of Henry VII. in the chapel erected by that monarch in Westminster abbey, is by him.

TORSO (*Italian*) signifies originally the core of an apple, pear, &c.; secondly, the trunk of a statue, of which the head and the extremities are wanting. One has become particularly celebrated, and is often called *the torso*, by way of excellence. It is the *torso* of Hercules, in the Belvedere of the Vatican, at Rome, considered, by connoisseurs, one of the finest works of art remaining from antiquity. "Mutilated in the greatest degree," says Winckelmann, in his History of Art, "without head, arms, and legs, as this statue is, it yet discloses to those who are able to penetrate the secrets of art, the splendour of its former beauty. The artist has formed, in this Hercules, a high ideal of a body of more than natural perfection, in the prime of adult age. The figure was, as we may judge from the remaining part, seated with a supported and upturned head. This Hercules may be said to approach nearer to the noblest period of art than even the Apollo." A Greek inscription ascribes it to the artist Apollonius. It was found, towards the end of the fifteenth century, in Rome.

TORSTENSON, LEONARD, a Swedish general, born at Torstena, in 1603, died at Stockholm, in 1651, was one of the most distinguished pupils of the school of Gustavus Adolphus. He served under that king, and under Baner, in the thirty years' war, and was made prisoner in the attack on Wallenstein's camp at Nuremberg, in 1632. He returned to Sweden in 1639, and, in 1641, on the death of Baner, was appointed to the command-

chief of the Swedish forces in Germany. The position of the Swedish affairs was most discouraging: but the activity of Torstenson soon recovered them. He defeated the imperial forces at Schweidnitz (May 21, 1642), and, after being obliged to retreat before a superior force, at Breitenfeld (November 2). A rupture having taken place between Denmark and Sweden, the Swedish commander hastened from Silesia to Holstein (a distance of 400 miles), by forced marches, and reduced nearly the whole of that province. This bold enterprise contributed to produce the peace of Bromsebro, between Denmark and Sweden, on terms highly advantageous to the latter. The imperial general Gallas, who had closely pursued the Swedes, was now obliged to retire to Bohemia, with great loss. Torstenson penetrated into that country, formed a junction with Rakotsky, prince of Transylvania, routed the imperial forces at Jankow, or Jankowitz (Feb. 24, 1645), and threatened Vienna. But the gout soon after compelled him to resign (1646), and retire to Sweden, where he was created count. Torstenson has left behind him the reputation of a great and successful general, and of a friend and patron of the arts and sciences. See *Thirty Years' War*.

TORT, in law, denotes injustice or injury. The word is French. Actions upon torts or wrongs are all personal actions for trespasses, nuisances, assaults, defamatory words, and the like.

TORTOISE OR TURTLE, (*testudo*). These reptiles are distinguished by having the body enclosed between two shields or shells, so that the head, neck, legs, and tail, only appear externally; and these are capable of being retracted in a greater or less degree. The upper shell is formed by the ribs, which are enlarged, flattened, and closely united by sutures; the under shell is the sternum, or breast bone; and the vertebræ of the neck and tail only are movable. In consequence of this conformation, the muscular system is inverted, in many respects, as with insects and *crustacea*; and to this circumstance these animals owe their great strength. Tortoises have no teeth; and the margin of the mandibles is covered with horn, as in the beak of birds. They are very tenacious of life, and will move weeks after being deprived of the head; and this last will continue to bite long after it is severed from the body. They can remain months, and even years, without food. The eggs have a hard shell, and are deposited in the sand. The land tortoises are distinguished by the convexity of their upper shell, and their short toes, enveloped in the common integument, nearly to the nails. They pass their lives altogether upon land, and perish if thrown into the water. Some of them attain a very great size. The *gopher*, or large land tortoise, digs large and deep holes, discoverable by the mound of earth at the orifice, and rarely ventures out except at night. The shell exceeds a foot in length. The flesh is eatable, and is often sold in the markets. The common land tortoise, or box tortoise (*testudo clausa*), is remarkable for the hinge of the sternum, by means of which the animal can close the shell, in such a manner as to conceal perfectly every part of the body. The colours are yellow and brown, but the markings vary in different individuals. The shell does not exceed six inches in length. The fresh water tortoises (*emys*) have the upper shell more flattened, the nails longer, the toes more deeply divided, and their intervals occupied by a membrane, which assists the animal in swimming. The largest is the *E. Floridana* of Le Conte, which inhabits the St John's river of East Florida. The shell of this species exceeds a foot in length, and is more convex than usual. The red-bellied terrapin (*E. rubriventris*, Lec.) is next in size. The shell is nearly a foot in length, and, more or less distinctly, longitudinally striated. The margin of the mandibles is usually worn away by use, and the bone presents a serrated or jagged edge. The flesh is esteemed. *E. reticulata* is a southern species, hitherto not found north of the thirty-fifth parallel of latitude. It is remarkable for the extraordinary length of the neck. *E. serrata* is also a southern species, distinguished from the preceding by a carina or keel along the middle of the back. *E. concinna* inhabits the upper and rocky parts of rivers. The shell is perfectly smooth, but, in other respects, it bears a general resemblance to the red-bellied terrapin. *E. geographica* of Lesueur, is so called from the pale, reticular or map-like lines on the back. *E. insculpta* (Lec.) is rather rare. The back is carinate; the plates of the upper shell are concentrically furrowed, somewhat prominent, with radiating yellow lines. It differs somewhat in its aspect from the other fresh water tortoises; is observed to be more fond of leaving the water, and will remain for months uninjured in a dry place. *E. Muhlenbergii* is also rare. It is readily distinguished by two large, irregular, orange spots on the back part of the head. The common terrapin (*E. palustris*) is well known as an article of luxury. It is found exclusively in the salt water—a remarkable circumstance in this genus—and always in the neighbourhood of marshes. The plates of the upper shell are concentrically furrowed. *E. picta* is found only in Canada and the Northern and Middle States of America. The shell is flattened and very smooth, and the plates are bordered with a yellow margin. It is fond of basking in the sun, upon rocks and logs, and instantly takes refuge in the water on the approach of danger. In the common spotted tortoise (*E. guttata*), the colour of the upper shell is black, with rounded yellow spots; the sternum is yellow, with large, dusky blotches. *E. Pennsylvanica* and *odorata* differ from the preceding in having the sternum divided into two or three pieces, by ligamentous hinges, admitting a slight degree of motion. They are of small size, of a brown colour, or dusky, frequent ditches and muddy water, emit a strong and musky odour, and are very troublesome to anglers, as they bite readily at the hook. The snapper (*E. serpentina*) has been separated by some authors from *emys*, on account of the small size of the sternum, which serves very imperfectly to conceal the head and members. It prefers muddy waters, is very voracious, and destroys great quantities of fish. The shell is more or less tri-carinate; the head, neck, limbs and tail are very large, the latter strongly crested. From the form of its body, it is sometimes called *alligator tortoise*. It bites severely, and will seize any thing presented to it, and sometimes will not let go its hold even after the head is severed from the body. It is sought after as an article of food, but, when old, the flesh is rank and disagreeable, and at all times, it exhales a strong, musky odour. It attains large dimensions; individuals have been met with exceeding four feet and a half in total length.

The soft-shelled tortoises (*trionyx*) differ much in appearance from the preceding. The shell is

covered with a soft, cartilaginous skin. The nose is prolonged into a snout. The feet are palmated, and provided with only three nails. The tail is short. They live in fresh waters; and the flexible border of the shell assists them in swimming. *T. ferox*, notwithstanding its name, is not more inclined to bite than usual. Of all the tortoises, it furnishes the most wholesome and delicious food. It attains large dimensions, and is usually speared or shot. *T. muticus* of Lesueur strongly resembles the preceding, and, indeed, has not been very clearly distinguished. The only marked difference seems to consist in the perfectly smooth shell. The great soft-shelled tortoise of Florida is known only from the figure of Bartram. The head and neck are described as being provided with long retractile tubercles, and the figure has five claws on each foot —if correct, a remarkable anomaly in this genus. There is, however, sufficient evidence of the existence of this animal.

The sea tortoises, or, as they are generally called, *turtles*, (*chelonia*) far surpass the others in size, and are found chiefly within the tropics. The head and limbs are but slightly retractile, and the toes are entirely united and enveloped in the common integuments, forming a sort of flipper or paddle, as in the seals. They feed on sea-weed at the bottom, but, at a certain season, visit the shore, for the purpose of depositing their eggs in the sand. The green turtle (*C. mydas*) is well known for its delicious and wholesome flesh. It is imported pretty extensively from the West Indies. The *C. imbricata* furnishes the finest tortoise-shell of commerce, but the flesh is disagreeable. The coriaceous turtle (*C. coriacea*) differs in having the shell covered with a leathery skin, and three prominent ridges upon the back. It attains enormous dimensions, but is not applied to any useful purpose.

The instinct which leads the female turtle to the shore to lay her eggs, exposes her to the prey of man, as well as of various quadrupeds. The count de Lacipede, in his History of Oviporous Quadrupeds, has described the various modes of turtle-catching.

"In spite of the darkness (he says) which is chosen by the female tortoises for concealment when employed in laying their eggs, they cannot effectually escape from the pursuit of their enemies: the fishers wait for them on the shore, at the beginning of the night, especially when it is moonlight, and, either as they come from the sea, or as they return after laying their eggs, they either dispatch them with blows of a club, or turn them quickly over on their backs, not giving them time either to defend themselves, or to blind their assailants, by throwing up the sand with their fins. When very large, it requires the efforts of several men to turn them over, and they must often employ the assistance of handspikes or levers for that purpose. The buckler of this species is so flat as to render it impossible for the animal to recover the recumbent posture, when it is once turned on its back. A small number of fishers may turn over forty or fifty tortoises, full of eggs, in less than three hours. During the day, they are employed in securing those which they had caught in the preceding night. They cut them up, and salt the flesh and the eggs. Sometimes they may extract above thirty pints of a yellow or greenish oil from one large individual; this is employed for burning, or, when fresh, is used with different kinds of food. Sometimes they drag the tortoises they have caught, on their backs, to enclosures, in which they are reserved for occasional use. The tortoise fishers, from the West Indies and the Bahamas, who catch these animals on the coasts of Cuba and its adjoining islands, particularly the Caymanas, usually complete their cargoes in six weeks or two months; they afterwards return to their own islands, with the salted turtle, which is used for food both by the whites and the negroes. This salt turtle is in as great request in the American colonies, as the salted cod of Newfoundland is in many parts of Europe; and the fishing is followed by all these colonists, particularly by the British, in small vessels, on various parts of the coast of Spanish America, and the neighbouring desert islands. The green tortoise is likewise often caught at sea in calm weather, and in moonlight nights. For this purpose two men go together in a small boat, which is rowed by one of them, while the other is provided with a harpoon, similar to that used for killing whales. Whenever they discover a large tortoise, by the froth which it occasions on the water in rising to the surface, they hasten to the spot as quickly as possible, to prevent it from escaping. The harpooner immediately throws his harpoon with sufficient force to penetrate through the buckler to the flesh; the tortoise instantly dives, and the fisher gives out a line, which is fixed to the harpoon, and, when the tortoise is spent with loss of blood, it is hauled into the boat or on shore."

TORTOLA; one of the Virgin islands, near the island of Porto Rico, belonging to the British: eleven and a half miles long, and three and a half broad; lon. 64° 20′ W.; lat. 18° 20′ N. It was first settled by a party of Dutch buccaniers, who, in 1666, were driven out by others, who took possession in the name of the king of Britain, by whom they were protected; and Tortola was *soon after* annexed to the government of the *Leeward islands*. It has an unhealthy climate, and suffers much from want of water. The chief productions are sugar and cotton. The population, in 1838, was 7,731; of whom 5192 were blacks. In 1837 the exports of the island were valued at £24,729; imports, £10,426.

TORTURE (Latin, *quæstio*; French, *question*). The extortion of confessions from a suspected person, or of discoveries from a condemned criminal, has been common in all the nations of modern Europe. It was also practised by the ancient Romans, although only upon the bodies of slaves, until the servile period of the later empire (from the third and fourth centuries). In the provinces, however, where it had previously prevailed, as in the Oriental countries, in Macedonia, Rhodes, Athens, &c., it was retained by the provincial magistrates, even to the disregard of the persons of Roman citizens. Even the Roman civilians point out the absurdity of the practice, which could not extort truth from the stubborn, and might easily force the weak to obtain relief by falsehood. Beccaria, with exquisite irony, puts the problem, The force of the muscles, and the sensibility of the nerves, of an innocent person, being given, to find the degree of pain necessary to make him confess himself guilty. Some writers have distinguished between the application of torture, for purposes of discovery, and for purposes of evidence, maintaining the propriety of the former, while they acknowledge the folly and cruelty of the latter. The term *torture*, although improperly, is sometimes also employed to signify the torments to which condemned criminals are sentenced, as a part of their punishment, and not for

the purpose of obtaining confessions; but, in all its applications, the practice of torture shocks every principle of reason, justice, and humanity. Among the Romans, slaves were tortured when their masters were found murdered, for instance, by being stretched on a machine called *equuleus*; their arms and legs being tied to it with ropes, they were raised upright and their limbs were stretched by means of screws; to increase the pain, pincers, fire, &c., were applied to them. The belief of the middle ages in the immediate interference of God for protection of innocence and the exposure of guilt, which gave rise to the ordeal, and judicial combat, contributed much to extend the use of torture, by inculcating the notion, that Divine Providence would aid the innocent to endure pains which the guilty would be unable to sustain. The church, which, in other respects, gave a new form to the system of judicial process, set the example in this practice also; and, when the old superstitious means of discovering guilt (as by trial by fire and water) lost their efficacy, torture became general in Europe.

It has been said, that in England torture never was practised; but this is a great error; for, though it is true, that the law never recognized the use of torture, yet there were many instances of its employment, as late as the reigns of Elizabeth and James, when prisoners were examined, to use the expressive words of an English writer, "before torture, in torture, between torture, and after torture;" and, notwithstanding the judges, when consulted by Charles I., as to the legality of putting Felton, the assassin of Buckingham, to the rack (1628), declared that the law of England did not allow the use of torture, instances of its application occur through the reign of that prince.

In Scotland, the practice of torture was not wholly disused till very near the close of the seventeenth century. Every reader is familiar with the horrid tortures inflicted on many of the covenanters, by means of thumbikens, bootikins, &c., in order to discover alleged hiding-places, and the like. A striking, yet not overcharged scene of this kind is given in the tale of "Old Mortality."

In France, the *question préparatoire* was employed during the progress of the trial, to induce the accused to confess (but his endurance of the pain without confessing, did not necessarily save him from condemnation), and the *question préalable*, to extort from a condemned criminal, previous to execution, the confession of his accomplices, or the disclosure of some circumstance which had not been explained or revealed on trial. In 1574, the count of Montgomery (q. v.) was subjected to the torture before his execution, although he had only been the innocent cause of the death of Henry II., by an accident at a tournament. Louis XVI. abolished the *question préparatoire*, by a decree of Aug. 24, 1780; but the *question préalable* subsisted till the time of the revolution.

In Germany, the incapacity of the criminal judges (ignorant baillies, burgomasters, &c.) could suggest to them, notwithstanding their official obligations, no better or shorter method of proceeding, than that of beginning every examination with torture, and terminating it by capital execution; and it was the great merit of the *carolina* (q. v.), that it established these two important principles of criminal jurisprudence, that no man should be punished without confession, or a direct and full proof, and that no man should be tortured without strong grounds of suspicion; and the opinion of learned jurists was required to be taken as to the sufficiency of these grounds. With these restrictions, torture continued to be practised in the German states till the close of the last century, and, in some of them, is at present rather disused than abolished. The mere threat of torture is termed *territion*, and is distinguished into *verbal territion*, in which the accused is given up to the executioner, who conducts him to the engines of torture, and describes, in the most appalling manner possible, the sufferings which he may endure, and the *real territion*, in which he is actually placed upon the machine, but is not subjected to torture. Thomasius, Beccaria, Voltaire, and Hommel were the great promulgators of the better views which led to the abolition of torture. See *Criminal Law*.

The instruments of torture are very various; human ingenuity seems to have been exhausted in inventing the means of inflicting the most exquisite and prolonged sufferings. The following kinds of torture were chiefly employed in the Tower of London:—The *rack* is a large open frame of oak, under which the prisoner was laid on his back, upon the floor, with his wrists and ancles attached by cords to two rollers at the end of the frame. These rollers were moved by levers in opposite directions, till the body rose to a level with the frame; questions were then put, and, if the answers were not satisfactory, the sufferer was gradually stretched, till the bones started from the sockets. The rack is said to have been introduced into England by the duke of Exeter, under Henry VI., and is therefore familiarly called the *duke of Exeter's daughter*. The *scavenger's daughter* is a broad hoop of iron, consisting of two parts, fastened together by a hinge. The prisoner was made to kneel on the pavement, and contract himself into as small a compass as possible. The executioner kneeling on his shoulders, and having introduced the hoop under his legs, compressed the victim close together, till he was able to fasten the extremities over the small of the back. The time allotted to this kind of torture was an hour and a half, during which the blood commonly started, by force of the compression, from the nostrils, and sometimes from the hands and feet. *Iron gauntlets*, which could be contracted by a screw, were used to compress the wrists, and to suspend the prisoner in the air, from two distant points of a beam. He was placed on three pieces of wood, piled one on the other, which were successively withdrawn from under his feet, after his hands had been made fast. The *little ease* was a fourth kind of machine, made of so small dimensions, and so constructed, that the prisoner confined within it could neither stand, walk, sit, or lie at full length, but was compelled to draw himself up in a squatting posture, and so to remain several days. Besides these there were manacles, thumb screws, Spanish boots, &c. Several degrees of torture are distinguished. In France there were two, the *question ordinaire*, and *extraordinaire*; and in Germany we find mention of the first, second, and third degree.

TORY. The following account of the original use of this term, as a party name, so distinguished in the political history of England, is given by a contemporay *whig*, Defoe, in his Review, (vol. vii.) published in 1711:—"The word *tory* is Irish, and was first used in Ireland at the time of queen Elizabeth's war, to signify a robber who preyed upon the country. In the Irish massacre (1641), you had them in great numbers, assisting in every thing that was bloody and villanous; they were such as chose to butcher brothers and sisters, fathers and mothers

the dearest friends, the nearest relations. In England, about 1680, a party of men appeared among us, who, though pretended Protestants, yet applied themselves to the ruin of their country. They began with ridiculing the popish plot, and encouraging the Papists to revive it. They pursued their designs in banishing the duke of Monmouth, and calling home the duke of York (see *James II.*); then in abhorring, petitioning, and opposing the bill of exclusion; in giving up charters and the liberties of their country to the arbitrary will of their prince; then in murdering patriots, persecuting dissenters, and at last in setting up a popish prince on pretence of hereditary right, and tyranny on pretence of passive obedience. These men began to show themselves so like the Irish thieves and murderers aforesaid, that they quickly got the name of *tories*. Their real god-father was Titus Oates. On account of some one saying, at a meeting of honest people of the city, upon the occasion of the discovery of an attempt to stifle the evidences of the witnesses [to the popish plot], that he had letters from Ireland, that there were some tories to be brought over hither to murder Oates and Bedloe, the doctor [Oates] could never after this hear any man talk against the plot or witnesses (see *Popish Plot*) but he thought he was one of these tories, and called almost every one a tory that opposed him in discourse; till at last the word *tory* became popular, and it stuck so close to the party in all their bloody proceedings, that they had no way to get it off. So at last they owned it, just as they do now the name of *highflyer*." (For the origin of the term *whig*, and the history of the two parties, see the article *Whig*.) The Irish word *tory* is derived from *toruighim* (to pursue for purposes of violence); and the country was for a long time so much harrassed by the depredations of the tories (or *rapperees*, as they were also called) that a price of £200 was set on their head by Cromwell. The term *tory* is now applied to that political party, who are jealous of the extension of democratic power, and who give their support to the regal and aristocratical institutions of the country; differing, thus, from the whigs and radicals, who, on the other hand, are jealous of the encroachments of the crown and the privileged classes, and who give their support, in various degrees, to an extension of the power of the people. History can best tell whether mankind have suffered more from the tyranny of the few or the many. Of late years the term *Conservatives* has come to be adopted by the tories, as tending to convey the best explanation of their principle, which is, they allege, not to encroach on the liberties of the people, but to secure those liberties by *preserving* the institutions of the country.

TOTILA, king of the Ostrogoths in Italy, succeeded to the throne in 541, having previously distinguished himself in the war against the Romans. The confusion among the Goths at this period induced the Romans to make an attempt upon their capital, Verona; but Totila repeatedly defeated them, marched through Italy, and formed the blockade of Naples, which was obliged to surrender, and having reduced the provinces of Lucania, Apulia, and Calabria, led his army to the neighbourhood of Rome, and posted himself at Tivoli, within eighteen miles from the capital. Justinian now recalled Belisarius from the Persian war, and sent him to its relief; but he was unable, from disparity of force, to meet the Goths in the field, and Rome fell into the possession of Totila. He indulged his Goths with free liberty of pillage, and then sent an embassy to Justinian to proffer a treaty of amity, which being rejected, he proceeded to the demolition of the city, and had destroyed a third part, when he was induced by Belisarius to desist. On quitting it, however to march to Lucania, he carried the senators along with him, and Belisarius and his small army soon after occupied the vacant city, and began to repair the fortifications and recall the inhabitants. Upon intelligence of this event Totila returned and made a furious assault, in which he was repulsed with great loss; and symptoms of disobedience began to appear in his army. Having received a reinforcement, however, he made a second attempt, and by the treachery of some Isaurian guards, was enabled to re-enter Rome. On this occasion he restored the senators to their honours, and the inhabitants to their possessions, and repaired many of the walls and buildings which he had formerly demolished. He then made proposals to Justinian a second time, which were not even listened to, and, passing over to Sicily, made himself master of that island, as also those of Sardinia and Corsica. His troops were, in the mean time, besieging Ancona; but a naval force being sent to its relief, the siege was raised, and the recovery of Sicily soon after followed. At length Justinian recalled Belisarius, and despatched a powerful army under Narses, which advanced directly towards Rome. Totila met him in the neighbourhood of that capital. A furious battle ensued in which the Goths were entirely defeated; and their leader quitted the field with five companions. Being overtaken by a party of Gepidæ, their commander not knowing him, ran a lance through his body. With him expired (A. D. 552) the revived glory of the Goths in Italy. His character is commended, by the historians of the time, for valour, tempered by humanity and moderation, and justice.

TOTT, Francis, baron de, a Hungarian nobleman, was born in France, where his father was employed as a public agent, in 1733. In 1755, he accompanied Vergennes, the French ambassador, to Constantinople, and, after seven years' residence there, during which time he learnt the Turkish language, was appointed French consul in the Crimea. At the breaking out of the revolution, he was commander of Douai; and, being obliged to flee, on account of his anti-republican principles, he retired to Hungary, where he died in 1793. His interesting *Mémoires sur les Turcs et les Tartares* (1784, 4 vols., 8vo.) have been translated into English and several other European languages.

TOUCAN (*ramphastos*). These birds, so remarkable for the enormous size of the beak, are found exclusively in the tropical parts of America. The species are numerous, and, in their size, correspond to the raven, crow and jay. The colours of the plumage are brilliant; but black predominates, especially on the upper parts. The beak is also varied with the most beautiful tints during life; but they disappear in the stuffed specimens, unless prepared in a particular manner. The feet are short and strong, provided with two toes before and two behind; the wings short and concave; the bill is long, compressed, curved downwards towards the extremity, and has the margin of the mandibles serrated: it makes a formidable appearance, but is extremely light, weak, and of a cellular consistence. The tongue is long and slender, and remarkable for its resemblance to a feather. The toucans live in small communities, composed of six or eight individuals, and frequent the summits of the highest trees. They are continually in motion, but do not climb,

notwithstanding the conformation of their feet. They feed on fruits, especially bananas, insects, and even young birds. They throw their food into the air before swallowing, in order to seize it more favourably. They nestle in hollow trees, and lay two eggs.

TOUCH. See *Feeling*.

TOULON; a seaport of France, department of the Var, on a bay of the Mediterranean, thirty miles south-east of Marseilles, and 220 south of Lyons; lon. 5° 56′ E.; lat. 43° 7′ N.; population, 30,171. It is built at the foot of a ridge of mountains which shelter it from the north, is surrounded with ramparts, ditches and bastions, and defended by a citadel and a number of forts and batteries. It consists of two parts, the old and new towns; the former ill built, but the latter in a better style, containing the principal public structures, and several straight streets. The chief public buildings in Toulon are the hôtel de Ville, the hotel de l'Intendance, eight churches and three hospitals. The environs yield vines, figs, and other products of a warm climate. Toulon has long been one of the chief stations of the French navy, being on the Mediterranean what Brest is on the Atlantic. It has two ports, the old and new, communicating with each other by a canal. The old or commercial port is a basin, commodious, but not large. The new or military port is one of the finest in Europe, and is said to be capable of containing 200 sail of the line. The arsenal, situated along the side of the new port, is a very large edifice, well filled with arms and naval stores. Here are docks for shipbuilding, store houses for timber, manufactures for canvass, cordage, anchors, &c. The trade of Toulon is not extensive, being limited to the products of the vicinity, such as wine, oil, silk and fruit. In 1707, the town was bombarded by the allies, under the duke of Savoy and prince Eugene, by land, and by the English and Dutch fleets by sea, and nearly destroyed, but the assailants were obliged to raise the siege. It was occupied by the British troops in 1793; but, being besieged by the French troops under Bonaparte, the British abandoned it (December 19) after burning and carrying off about half of the squadron contained in the port. The bagnio of Toulon is capable of receiving more than 4000 convicts sentenced to the galleys.

TOULOUSE; a city of France, capital of Upper Garonne, formerly capital of Upper Languedoc, on the Garonne, near the junction of the canal of Languedoc; lon. 1° 27′ E.; lat. 43° 36′ N.; population, 55,319. The buildings are almost all of brick: the walls enclose a space larger than any other city in France; but there is much vacant ground. Some of the streets are tolerably broad; others are winding and irregular. There is a fine bridge over the Garonne, 810 feet long. It is an archbishop's see, and contains a cathedral, forty Catholic churches, one Reformed church, two hospitals, a mint, a royal college, a provincial university or academy, an observatory, a museum, or public library, and a *capitole*, or town-house. The situation of Toulouse is advantageous; but the commerce and manufactures are inconsiderable. Toulouse is an ancient town: in the sixth century, it was the capital of the Visigoths (see *Goths*), and afterwards became the residence of the counts of Toulouse, till the union of Languedoc with France. In 1814, Soult was defeated here by Wellington, and the town was taken by the British (April 11). The archbishop of Toulouse, minister of Louis XVI., was Loménie de Brienne.

TOUR AND TAXIS. See *Thurn and Taxis*.

TOURAINE; before the revolution, a province of France, bounded north by Maine, east by Orleannais, south by Berry and Poitou, and west by Anjou. It is about sixty miles in length, and fifty-four in breadth. The river Loire runs through it, and divides it into Higher and Lower Touraine. Tours was the capital. See *Department*.

TOURMALINE; one of the most interesting species in the mineral kingdom, on account of the forms of its crystals, its various and rich colours, its electrical properties, and its chemical composition. The general form of its crystals is a prism of three, six or more sides, variously terminated at one or both extremities; when at both, the two terminations being dissimilar. The primary form is an obtuse rhomboid of 133° 50′; and the secondary crystals, or occurring forms, may be conceived of by supposing the lateral solid angles deeply truncated, so as to extinguish the lateral edges, and convert the rhomboid into a prism with trihedral terminations. This prism is sometimes eight to ten times longer than thick; instead of six sides, it often has twelve, or a much greater number, and rarely becomes, through the multiplication of lateral faces, nearly cylindrical. The trihedral summits have their apices truncated also, and their edges variously bevelled; cleavage is rarely visible, and cannot be determined with certainty; fracture imperfect conchoidal, or uneven. The sides of the prism are deeply striated longitudinally: the terminal faces are generally smooth. Lustre vitreous; colour brown, green, blue, red, white, frequently black, generally dark; streak white; transparent to opaque; less transparent, if viewed in a direction parallel to the axis, than perpendicular to it, and generally presents different colours in these directions; hardness a little above that of quartz; specific gravity 3·07. Besides the crystals, tourmaline is found massive, the composition being usually columnar; individuals of various sizes, thin, straight, parallel or divergent. Tourmaline and schorl, which were once distinguished as two particular species, differ only in their colours and transparency. The varieties of green, blue, red, brown and white colour, and such in general as are not perfectly black, were included under tourmaline; while the black and opaque ones constituted schorl. The red variety is sometimes called *rubellite*, and the blue one, *indicolite*. The composition of the species is as follows:—

	By C. G. Gmelin. Red Variety.	Arfvedson. Blue.	Vauquelin. Green.	C. G. Gmelin. Black.
Alumine,	36·12	40·50	39·00	33·24
Silex,	42·12	40·20	40·00	35·26
Boracic acid,	5·74	1·16	00 00	0·00
Oxide of iron,	0·00	4·05	12·50	7·20
Oxide of manganese,	0·32	1·50	2·00	0·00
Potash,	2·45	0 00	0 00	2·32
Lithia,	2·14	4·30	0·00	0 00
Lime,	1·20	0·10	3·50	0 00
Magnesia,	0 00	0·00	0 00	2·20
Water and loss,	1 21	2 00	0 00	0·00

Those which contain lithia intumesce before the blow-pipe, and assume a slaggy appearance, but do not melt; those which contain soda intumesce still more, but likewise do not melt, except on the edges; those containing lime intumesce very much, and melt into a white slag. Long crystals of tourmaline assume, by heat, opposite kinds of electricity at their opposite extremities; and transparent pieces which have been cut and polished are electrical at common temperatures without friction or pressure. Tourmaline is a very abundant mineral in granitic rocks, occurring imbedded in them in larger or smaller masses, sometimes occupy-

ing drusy cavities of considerable extent. It exists also in beds with augite, garnet and various iron ores. It is also met with in pebbles in the sand of rivers. In Saxony, Cornwall and other places, massive varieties of tourmaline are very frequent; but simple, well-defined crystals are rare. The largest and most remarkable crystals of a black colour occur in Greenland, in Bavaria, and near Bovey, in Devonshire. The red varieties are found in Permia, in Siberia, and at Rozena in Moravia. Pale-green crystals occur in the dolomite of St Gothard, and various transparent, deep-green, red, brown and blue colours are found among the crystals and pebbles from Brazil and Ceylon. Blue varieties also come from Utön in Sweden. The United States, however, have afforded, and still continue to afford, the most superb varieties of tourmaline. Large, black and well-defined crystals occur in the granite of Saratoga, New York; of Brunswick, Maine; and Munroe, Connecticut: very perfect blackish-brown crystals, of unusual dimensions, and under great diversity of modification, are found in a soft mica slate at Munroe, Connecticut; red, green and blue varieties, of bright colours, and often transparent, exist in albite granite at Chesterfield and Goshen, Massachusetts; while the same coloured varieties, but in much larger crystals, occur at Paris in Maine. The last named locality has furnished specimens which are unsurpassed in beauty by any which have been elsewhere found.

Tourmaline, when of a handsome colour and transparent, is much esteemed as a gem. The rubellite, or red varieties, command the highest price; next to them, the green ones, formerly called *Brazilian emerald*, are the most valuable; but they are less esteemed than real emeralds. Plates of brown tourmaline, if cut parallel to the axis, absorb one of the polarized pencils, which renders them useful in the examination of the structure of minerals in polarized light.

TOURNAMENT, AND JOUSTS. "Impartial taste," says Gibbon, "must prefer a Gothic tournament to the Olympic games of classic antiquity. Instead of the naked spectacles, which corrupted the manners of the Greeks, the pompous decoration of the lists was crowned with the presence of chaste and high-born beauty, from whose hands the conqueror received the prize of his dexterity and courage. The skill and strength that were exerted in wrestling and boxing, bear a distant and doubtful relation to the merit of a soldier; but the tournaments, as they were invented in France, and eagerly adopted both in the East and West, presented a lively image of the business of the field. The single combat, the general skirmish, the defence of a pass or castle, were rehearsed as in actual service; and the contest, both in real and mimic war, was decided by the superior management of the horse and lance." (ch. 57.) The origin of tournaments is uncertain: Von Hammer, with others, derives them from the Arabians; but all historical monuments tend to show their Teutonic origin. They reached their full perfection in France in the ninth and tenth centuries, and first received the form under which they are known to us from the French. The word *tournament* is also evidently of French origin (*tourneis*, from *tourner*); and the German, Italian, &c. terms for this exhibition betray the same source. Godfrey de Preuilly, a French nobleman, first collected the rules of tourneying, in 1066, which, in the twelfth and thirteenth centuries, we find to have been received in other countries. The opinion that tournaments originated in Germany, is without foundation: Sebastian Münster asserts that the first great tourney in Germany was held at Magdeburg in 1066. Tournaments were introduced into England soon after the conquest by the Normans, who were passionately fond of this amusement. Jousts (French *joûte*) differed from tournaments in being single combats between two knights, while tournaments were performed between two parties of cavaliers. Jousts were of two sorts—the *joûte à l'outrance*, or the joust to the utterance, or mortal combats, generally between two knights of different nations; and the *joûte à plaisance*, or joust of peace, which often took place after the conclusion of a tournament, but sometimes at times and places specially appointed for the purpose. Weapons of war were frequently used, even in this latter species of jousts; but blood was seldom shed in them. A favourite description of jousts was the *passage of arms*; a party of knights assembled at a certain place, and suspended each several shields of different colours, offering to combat any knight who should present himself. The comer touched the shield of that knight whom he wished to engage, and the nature of the combat and descriptions of arms to be employed were determined by the particular shield which he struck. But the tournament was the most popular and splendid of these exhibitions: in these, blunted weapons were used, and heralds were often despatched to different courts, inviting all brave knights to prove their chivalry. Certain qualifications of birth were required for admission to the tourney, and their respective hostels, or tents, were assigned to the knights by the king at arms and heralds. The place of combat was the lists, a large open space, surrounded by ropes or a railing. Galleries were erected around the lists for the spectators, among whom were seated the ladies, the supreme judges of tournaments. The heralds then read to the knights the regulations of the sport, and announced the prize. When the knights entered the lists, their arms were examined by the constable: the weapons used were lances, with the points removed, or covered with pieces of wood called *rockets*, and swords, blunted and rebated. The tilting armour was of a light fabric, and generally adorned with some device of a lady's favour. Every thing being prepared, the heralds shouted, *Laissez aller!* and the knights dashed from the opposite ends of the lists to the encounter. Each knight was followed by his squires, who furnished him with arms, raised him if dismounted, &c. To break a spear between the saddle and the helmet was accounted one point of honour; to break it on the helmet, ten points; to dismount an opponent, three points, &c. (See the *Ordinances, Statutes and Rules to be observed in Justes, &c.*, drawn up by the earl of Worcester, by the royal command, in the *Antiquarian Repertory*.) The sport being over, the prizes were delivered to the successful knights by the queen of beauty, who had been chosen by the ladies. On the second day, there was often a tournament for the esquires; and on the third a *mêlée* of knights and esquires in the lists. The great luxury and expense to which the tournaments gave rise, frequently occasioned the prohibition of them by princes; and they were opposed also by the spiritual power, on the ground of humanity, though there appears to have been little cause for such opposition. They gradually went out of use, however, as chivalry declined; and the whole art of war was changed by the use of gunpowder. In

France, the death of Henry II., who was accidentally killed, at a tournament, by count Montgomery in 1559, contributed to hasten their abolition; and they were little practised after the sixteenth century. Tournaments were succeeded by the *carrousel*, in which several parties of knights executed various evolutions, and mock combats, and other shows were exhibited.—See Mills's *History of Chivalry*, ch. vi., on Tournaments and Jousts; and Ferrario, *Romanzi di Cavalleria*, diss. v.; *Sui Tornei, sulle Giostre*, &c. (Milan, 1828).

TOURNAY, OR DOORNICK; a city of Belgium, in Hainaut (q. v.), on the Scheldt, three posts east of Lille, and thirty-one north of Paris; lon. 3° 23′ E.; lat. 50° 30′ N.; population, 33,000. It is a bishop's see, has a citadel, a cathedral, twelve parish churches, seventeen convents, and five hospitals. It formerly had a university, now converted into a lyceum. On the side of the Scheldt is a broad, handsome quay, the only embellishment of the town, which is, in general, ill built and gloomy. It has manufactures of woollen and cotton stuffs, was formerly strongly fortified, and had one of the finest citadels in Europe, which was levelled by the French in the middle of the eighteenth century. It was anciently the capital of the Nervii, and was the residence of some of the Frankish kings of the first dynasty. This city has often been taken in the wars between the French, English and Flemings.

TOURNEFORT, JOSEPH PITTON DE, an eminent French botanist, born at Aix, in Provence, in 1656, was educated at the Jesuits' college in that city. His passion for botany disclosed itself at an early age, so that in a short time he had made himself acquainted with all the plants in the vicinity. Though destined for the church, he continued his botanical researches by stealth; and, encouraged by an uncle, who was an eminent physician, applied to the study of anatomy and chemistry. In 1677, being left, by the death of his father, to pursue his own inclinations, he determined to adopt the medical profession, and for that purpose repaired, in 1679, to Montpellier. In 1683, he was appointed professor of botany to the garden of plants at Paris, and soon after visited Spain, Portugal, England and Holland. In 1691, he was elected a member of the academy of sciences, and, in 1694, published his first work, entitled *Elémens de Botanique* (3 vols., 8vo., with numerous plates). The method established by Tournefort was founded upon the varieties of the petals of flowers, taken in conjunction with the fruit. It became rapidly popular by its facility and elegance, although imperfections were pointed out in it by Ray. In 1696, he was admitted a doctor of the faculty of Paris, and composed the History of Plants in the Neighbourhood of Paris (first edition, 1698; reprinted by Jussieu in 1725, in 2 vols.; an English translation was given by professor Martyn, in 1732). In 1700, he gave a Latin version of his Elements of Botany, with many valuable additions, and a learned preface, under the title of *Institutiones Rei Herbariæ* (3 vols., 4to.). In the same year, he received an order from the king to travel into the Levant, for the purpose of examining the plants mentioned by writers of antiquity, and accordingly visited Greece and its islands, and Asia Minor as far as the frontiers of Persia. He returned to France by way of Smyrna, in 1702; and the first botanical fruits of his travels appeared the following year, in a supplement to his Elements of Botany. He died in 1708, leaving his cabinet of curiosities to the king for public use, and his botanical books to the abbé Bignon. The first volume of his travels was printed at the Louvre before his death and the second being completed from his manuscripts, both were published in 1717, with the title of *Rélation d'un Voyage du Levant* (2 vols., 4to.). Of this work, which stands high among books of the class, there have been several editions, and it has been translated into English.

TOURNIQUET; an instrument employed in the practice of surgery to stop bleeding. It can, however, only be applied to the limbs, and its use is only intended to be temporary.

TOURNOIS, LIVRE. See *Livre*.

TOURS; a city of France, capital of Indre-and-Loire, on the Loire; 140 miles south-west of Paris; lon. 41′ E.; lat. 47° 24′ N.; population, 20,920. It is situated in a delightful plain, in one of the finest parts of France, the surrounding country being remarkably beautiful. It is an archiepiscopal see, and contains a cathedral, remarkable for its lofty spire, and library (30,000 vols.), fourteen churches, three hospitals, a botanic garden, and a museum. The houses are generally low, and the most of the streets are narrow and gloomy. But the *Rue neuve*, or *royale*, is a street of great elegance, the houses being built of stone, on a uniform plan. The bridge over the Loire, 1400 feet long and forty-five wide, consists of fourteen arches. The approach to the town is remarkably fine, the avenues being bordered with rows of trees. The principal manufacture is that of silk, which formerly employed in the town and neighbourhood 20,000 people; but at present not more than one third of that number. Tours was formerly more populous than at present. Before the revolution it was the capital of Touraine. In 732, the Saracens were defeated, by Charles Martel, near this town, with the loss of 10,000 men.

TOUSSAINT-LOUVERTURE, the celebrated black chieftain, was born a slave, in the year 1745, upon the plantation of count de Noé, situated near cape Français, now cape Haytien. His amiable deportment as a slave, the patience, mildness and benevolence of his disposition, and the purity of his conduct amid the general laxity of morals which prevailed in the island, gained for him many of those advantages which afterwards gave him such absolute ascendency over his insurgent brethren. His good qualities attracted the attention of M. Bayou de Libertas, the agent on the estate, who taught him reading, writing, and arithmetic—elements of knowledge which hardly one in ten thousand of his fellow slaves possessed. M. Bayou made him his postilion, which gave him advantages much above those of the field-slaves. When the general rising of the blacks took place, in 1791, much solicitation was used to induce Toussaint to join them; but he declined, until he had procured an opportunity for the escape of M. Bayou and his family to Baltimore, shipping a considerable quantity of sugar for the supply of their immediate wants. In his subsequent prosperity, he availed himself of every occasion to give them new marks of his gratitude. Having thus provided security for his benefactors, he joined a corps of blacks, under the orders of general Biassou, in the capacity of his lieutenant; but was soon raised to the principal command, Biassou being degraded on account of his cruelty and ferocity. Indeed, Toussaint was every way so much superior to the other negroes, by reason of his

general intelligence and education, his prudence, activity, and address, not less than his bravery, that he immediately attained a complete ascendency over all the black chieftains. Thus it happened that, in June, 1794, when the British, under general Whyte, captured Port au Prince from the French commissioners Santhonax and Polverel, the latter, on retiring into the country, found the whole island in the possession of Rigaud, at the head of the mulattoes, and Toussaint-Louverture, with his negroes. They contended with various success against the British, until 1797, when Toussaint received from the French government a commission of general-in-chief of the armies of St Domingo, and, as such, signed the convention with general Maitland for the evacuation of the island by the British. From 1798 until 1801, the island continued peaceable and tranquil under the government of Toussaint, who adopted and enforced the most judicious measures for healing the wounds of his country, and restoring its commercial and agricultural prosperity. His efforts would have been attended with much success, but for the ill-judged expedition which Bonaparte sent against the island, under the command of Le Clerc. This expedition, fruitless as it was in respect of its general object, proved fatal to Toussaint, solely in consequence of the sincerity and good faith which marked his character. Toussaint was noted for private virtues; among the rest, warm affection for his family. Le Clerc brought out from France Toussaint's two sons, with their preceptor, Coisnon, whose orders were to carry his pupils to Toussaint, and make use of them to work on the tenderness of the negro chief, and induce him to abandon his countrymen. If he yielded, he was to be made second in command to Le Clerc; if he refused, his children were to be reserved as hostages of his fidelity to the French. Notwithstanding the greatness of the sacrifice demanded of him, Toussaint remained faithful to his brethren. We pass over the details of the war, which, at length, ended in a treaty of peace concluded by the black chief Toussaint, Dessalines and Christophe, against their better judgment, but in consequence of the effect of Le Clerc's professions upon their simple followers, who were induced to lay down their arms. Toussaint retired to his plantation, relying upon the solemn assurances of Le Clerc, that his person and property should be held sacred. But, notwithstanding these assurances, he was treacherously seized in the night, hurried on board a ship of war, and transported to Brest. He was conducted to close prison in Chateau de Joux, on the top of the Jura, near Pontarlier, where he was plunged into a cold, wet, subterranean prison, which soon proved fatal to a constitution used only to the warm skies and free air of the West Indies. He languished through the winter of 1802—1803; and his death, which happened in April, 1803, raised a cry of indignation against the government which had chosen this dastardly method of destroying one of the best and bravest men of the negro race.—See Malo, *Histoire de Haiti*, published 1825, p. 181—225; also the article *Hayti*.

TOWER OF LONDON. This ancient edifice is situated on the north bank of the Thames, at the extremity of the city. The antiquity of the building has been a subject of much inquiry; but the present fortress is generally believed to have been built by William I., and garrisoned with Normans, to secure the allegiance of his subjects; although it appears, that the Romans had a fort on this spot. The Tower is governed by the constable of the Tower, who, at coronations and other state ceremonies, has the custody of the regalia. The principal entrance on the west consists of two gates on the outside of the ditch, a stone bridge over it, and a gate within it. The keys are kept during the day at the warder's hall, but deposited every night at the governor's house. The Tower is separated from the Thames by a platform, and by part of the ditch. The ditch, of considerable width and depth, proceeds northwards on each side of the fortress, nearly in a parallel line, and meets in a semicircle; the slope is faced with brick, and the great wall of the Tower has been frequently repaired with that material. Cannon are planted at intervals round the line, and command every avenue leading to Tower hill. The space enclosed by the walls measures twelve acres five roods, and the circumference on the outside of the ditch is 3156 feet. On the south side of the Tower is an arch called the *traitor's gate*, through which state-prisoners were formerly brought from the river. Near the traitor's gate is the *bloody tower*, in which it is supposed the two young princes, Edward V. and his brother, were smothered by order of Richard III. In the south-east angle of the enclosure were the royal apartments; for the Tower was a palace for nearly 500 years, and only ceased to be so on the accession of queen Elizabeth. The principal buildings within the walls are the church, the white tower, the ordnance office, the old mint, the record office, the jewel office, the horse armoury, the grand storehouse,—in which is the small armoury,—the lion's tower, containing the menagerie, and the Beauchamp tower. The church called *St Peter in Vinculis*, is remarkable as the depository of the headless bodies of numerous illustrious personages who suffered either in the Tower or on the hill, amongst these are Fisher, Anne Boleyn, Thomas Cromwell, Catharine Howard, the duke of Somerset, and the duke of Monmouth (1685). The white tower, a large, square, irregular building, erected in 1070, consists of three stories. On the first story are the sea armoury, consisting of muskets for the sea-service, and other warlike implements of every description, and the volunteer armoury, for 30,000 men. Within the white tower is the ancient chapel of St John, originally used by the English monarchs, which now forms a part of the record office. South of the white tower is the modelling room, in which are models of Gibraltar and other places; but no strangers are admitted. The parade near the white tower is much frequented as a promenade. The office of the keeper of the records contains the rolls from the time of king John to the beginning of the reign of Richard III. Those since that period are kept at the Rolls chapel, Chancery lane. The price of a search is 10s. 6d., for which you may pursue one subject a year. The jewel office is a strong stone room, in which are kept the crown jewels, or regalia. The imperial crown, and the other emblems of royalty, such as the golden orb, the golden sceptre and its cross, the sceptre with the dove, St Edward's staff, state salt-cellar, curtana or sword of mercy, golden spurs, armilla or bracelets, ampulla or golden eagle, and the golden spoon, also the silver font used at the baptism of the royal family, the state crown worn by his majesty in parliament, and a large collection of ancient plate, are kept here. The horse armoury is a brick building, east of the white tower, adorned with suits of armour of almost every description,

but the most striking are the effigies of the English kings on horseback, armed cap-à-pie. The line commences with William the Conqueror, and extends to George II. Several of the cuirasses and helmets taken at Waterloo are also kept here. The grand storehouse, north of the white tower, about 345 feet in length and 60 in breadth, is composed of brick and stone, was begun by James II. and finished by William III. The upper story is occupied by the small armoury, containing arms for about 200,000 men, all kept bright and clean, and numerous historical curiosities. The Spanish armoury is principally occupied by the trophies taken from the Spanish armada, such as thumb-screws, battle-axes, boarding-pikes, &c. Here also are shown a representation of queen Elizabeth in armour; the axe which severed the head of Anna Boleyn, as well as that of the earl of Essex; the invincible banner taken from the Spanish armada; a wooden cannon used by Henry VIII. at the siege of Boulogne, &c. The Beauchamp tower is noted for the illustrious personages formerly confined within its walls. Amongst them were the ill-fated Anna Boleyn and the accomplished lady Jane Grey. The former is said to have written her memorable letter to Henry VIII. in the apartment called the *mess-house*. The lion's tower, built by Edward IV. was originally called the *bulwark*, but received its present name from being occupied as the menagerie. It is situated on the right of the inner entrance to the Tower; but the animals kept here are not numerous.—See Bayley's *History of the Tower* (2 vols., 4to., 1821), and Britton and Brayley's *Memoirs of the Tower* (1 vol., 12mo., 1830).

TOWNLEY, CHARLES, a gentleman of large fortune, which he employed in the collection of antiquities, was born at Townley hall, in Lancashire, in 1737. The religious opinions of his family preventing his receiving a university education in England, he was sent to the continent; and a residence at Rome enabled him to form a museum, replete with valuable manuscripts, specimens of the finest sculpture, medals, vases, urns and other relics of ancient art. These he transported, eventually, to England, and bequeathed to the British museum. (See *Terra Cotta.*) His death took place January 3, 1805.

TOWNS. We have already given an account of the rise and growth of towns in modern Europe, and of their moral and political influence upon society, in the articles *City*, and *Community*. (See these articles, and also *Hanse Towns*, and *Free Cities.*) In a general sense, *town*, in England, is a walled place, or borough, and comprehends the several species of cities, boroughs, and common towns or villages; but in a narrower sense, it is restricted to the latter class of places, a city being a place which is or has been a bishop's see, and a borough a place which sends members to parliament.

TOWTON; a village of England, in Yorkshire, three miles south-east of Tadcaster. A sanguinary battle was fought here, between the forces of the houses of York and Lancaster, in 1461, in which the latter were completely defeated. See *Edward IV.*

TOXICOLOGY (from τοξικὸν, properly the poison which the ancients put upon arrows and spears); the science of poisons and antidotes. The works of Frank and Orfila are distinguished in this branch, also Buchner's and Witting's. See *Poisons.*

TRACHEOTOMY, OR BRONCHOTOMY (from *trachea*, or βρόγχος, the windpipe, and τέμνω, to cut); also LARYNGOTOMY (from λάρυγξ, the larynx, and τέμνω). This is an operation in which an opening is made into the larynx, or windpipe, either for the purpose of making a passage for the air into and out of the lungs, when any disease prevents the patient from breathing through the mouth and nostrils, or of extracting foreign bodies, which have accidentally fallen into the windpipe; or, lastly, in order to be able to inflate the lungs, in cases of sudden suffocation, drowning, &c. Its practicableness, and little danger, are founded on the facility with which certain wounds of the windpipe, even of the most complicated kind, have been healed, without leaving any ill effects whatever, and on the nature of the parts cut, which are not furnished with any vessel of consequence.

TRACKSHUYT. See *Treckshuyt.*

TRACTORS, METALLIC. See *Perkins.*

TRADE OF THE WORLD. See *Commerce of the World.*

TRADE-WINDS (so called from their favouring commerce); easterly winds which constantly prevail, with slight variations, in certain regions within the tropics. It is a common notion, that the north-east trade-wind blows exactly from the north-east point nearly to the equator, when it gradually becomes more and more easterly, till at length it blows due east; and so with the south-east trade. This notion is, however, erroneous. The trade-winds, in the Atlantic and Pacific oceans, extend to about 28° of latitude each side of the equator; so that a ship, after passing 30°, may expect to enter them every day. But, on first entering them, they will be found to blow from the east, or even a little southerly, and, as you advance, to draw round gradually to north-east, and even north, at the southern limit of the north-east trade, where it is commonly represented as being due east. This limit varies with the position of the sun, reaching, when the sun has a southern declination, to within three or four degrees north latitude, and, as the sun acquires a more northern declination, receding ten or twelve degrees from the equator. At this point, the mariner enters the region of *calms* and *variables*, as they are called, where the wind has a more or less southerly direction, and sometimes blows freshly from the south-south-west. This region varies from 150 to 550 miles, and is subject to heavy rains. On passing this range, the south-east trade begins, and displays the same phenomena as the north-east. To the north and south of the north-east and south-east trades, westerly winds will be found generally to prevail, though less regular in the northern than in the southern hemisphere; and it has been remarked that the average of the passages made by the Liverpool packets from New York to Liverpool, for a period of six years, was twenty-three days, and from Liverpool to New York, that is, from east to west, thirty eight days.

TRADITION, in its general application, is any knowledge handed down from one generation to another by oral communication. This is the shape in which history appears before the art of writing is invented or introduced; and the later this takes place, the farther back does tradition extend, till it loses itself in mythology. Any person who has noticed the manner in which facts are distorted, even at the present day, if not protected against gradual change and misrepresentation by unquestionable documents, although the sources of correct inf—

mation have been so greatly increased, will easily understand why historical tradition is to be received with the utmost caution. Every person, every country, every age, involuntarily gives a colouring to facts, to say nothing of intentional misstatements. But there is a species of historical tradition which exists even after the invention not only of writing, but of printing. It is the repetition of hearsay, by which misrepresentations of facts, or downright inventions, creep into notice, and soon become widely repeated and believed, either because they suit the purposes of a party, or because they are presented with an air of credibility. How many stories, believed for centuries, have at last been proved utterly false! how many are yet in the mouths of millions, and, nevertheless, untrue! It becomes the historian, therefore, to examine into the origin of every statement, and the character and situation of those on whose authority it rests: did they know with certainty what they relate? were they not actuated by interest, passion or prejudice? The same caution which the historian must observe in regard to traditions, politicians and citizens of a free government ought to exercise in regard to those party rumours which we might term *political traditions*. Without such caution, a free people becomes the tools of demagogues. Every statement in print receives, from this very circumstance, a kind of authority; and what has not been said in print? Newspapers (q. v.), much as they contribute to general information, also contribute much to the propagation of these unfounded reports. The counterstatements of opposite papers serve, indeed, in some measure, to correct each other's misrepresentations; but, as the mass of people read only the papers of their own party, misstatements will inevitably gain a footing; and a man who is desirous of believing only the truth, must subject the stories admitted on hearsay by his party to a critical scrutiny. It was long believed that a female was raised to the papal chair, under the name of *John VIII.* (see *Joan the Papess*); and how many persons have credited the newspaper stories that Napoleon used to beat his wife, and had criminal intercourse with his daughter-in-law! The story of the beating is, in fact, still repeated in some histories of Napoleon, so called! It is a very common mistake to ascribe to the statements of ancient writers full credibility, though the writer may have lived in a time or country so distant from that to which his narrative relates, that he had no better opportunity of judging than ourselves. See Niebuhr's *Roman History*.

Tradition, in another sense, forms one of the chief points of disagreement between the Roman Catholics and Protestants, perhaps the most important. The Catholic understands by tradition the unwritten word of God, that is, sacred truths orally communicated by Jesus and the apostles, which were not written down, but by the assistance of the Holy Ghost, were preserved in the church from one generation of bishops to another. The chief sources of it are considered to be the fathers of the church, who, indeed, introduced rites not prescribed by the Bible, and some of which, as the baptism of children, confession, the celebration of certain festivals, &c., have been retained by many Protestant sects, yet with different views from those entertained by the Catholics respecting their importance, or necessity for salvation. The Catholics ascribe to their tradition divine authority, and thus make it a principle in their dogmatics. They maintain that the church has always remained in possession of the revelation of the Holy Ghost, which the apostles enjoyed, and that this revelation or belief of the church is ascertained by the decrees of the councils (q. v.), the concurrence of the fathers of the church, and the decrees of the popes (the Gallican church, however, does not give this authority to the decrees of the pope, unless they are acquiesced in by the church universal, though it admits that this acquiescence may be tacit). The Bible, indeed, is adopted as a rule of faith by the Catholics as well as by the Protestants; but the former consider it as to be explained and understood according to the construction which the church puts upon the doctrines contained in it—a principle sanctioned by the council of Trent. A reverence for tradition, therefore, is taught in all Catholic catechisms; and it is the foundation on which the Catholic believes in his rites, and the characteristic parts of his religious worship. The council of Trent ascribes equal authority to tradition and the Bible. It has been said, indeed, that it ought to have given greater authority to the former, as the latter can only, by the council's own decree, be legitimately explained by the church or traditions. From all that has been said, it appears that tradition is to the Catholic what reason is to the rationalist, and the literal text of the Bible, scientifically and conscientiously settled, to the supernaturalist. See *Roman Catholic Church*.

TRADITORES; a name given, in the first ages of the church, to those Christians who during the persecutions, especially those under Diocletian, gave up the sacred books and utensils to the heathen authorities, to escape the dangers which threatened them. They were generally timorous priests, and were punished by the church with dismissal from office. The Donatists (q. v.) considered the Traditores on a level with the worst heretics, and separated from the Catholic church on the ground that it tolerated them. See *Donatists*.

TRADUCIANS (from *traduco*, transmit); a name which the Pelagians anciently gave to the Catholics, because of their teaching that original sin was transmitted from father to children. At present, the term is sometimes applied to those who hold that souls are transmitted to children by the parents.

TRAFALGAR, Battle of. See *Navy*, where it is described.

TRAGEDY (from the Greek and Latin *tragedia*). The Greek word is derived from τραγος, and ᾠδη, a song. It is an old, but not, therefore, less absurd opinion, says Adelung, in his *Wörterbuch*, that the first part of the word τραγος signifies, in this composition, a he goat, and the whole, a song in honour of Bacchus, sung at the sacrifice of a he goat, or a play, for which the poet received a he goat—a derivation occasioned by its being generally known that τραγος signifies a *he goat*, while it is not so commonly known that is also signifies *melancholy*, of which the Latin *tragicus* is a clear proof, otherwise that word would have signified *goatish*. Hesychius explains τραγωδω, explicitly, by αυτομολω, αυλουμαι, he weeps. In the ancient Upper German, the word *Trego* signifies grief; in Lower Saxon, *träge* is weary, sad; and in Swedish, *trägna* means to mourn, and *träge*, grief; all of which are connected with the Greek τραγυειν or τραγος. Tragedy, therefore, properly signifies a melancholy song, as comedy signifies a gay one. But that τραγος, in Greek, signifies both a he goat and melancholy, is

as accidental as that *ram*, in English, means a male sheep, and also to drive down. So far Mr Adelung. The invention of tragedy, in its first rude form, is ascribed to Thespis, who lived in the time of Solon. According to Herodotus, the people of Sicyon introduced tragic choruses before the times of Thespis, first in honour of Bacchus, then of Adrastus; to them, therefore, the invention of the Greek tragedy is generally ascribed; its developement is due to Æschylus. As Aristotle found it, he described it as a dramatic poem, which has for its object to purify by terror and pity, awakened by the poetical imitation of an action. To understand this oft-repeated explanation, we must examine the meaning of purifying passions by means of passions. The artificial production of those passions which affect us disagreeably, cannot well have any effect in purifying the soul, except by strengthening the mind, and exercising it in governing the passions in general. For such a purpose, indeed, a state of mind seems proper, in which man feels at the same time the influence of strong emotions, and the power to free himself from their influence at pleasure. Into this state tragedy strives to bring us. It aims to awaken in us those passions which rest on sympathy (and which, therefore, impede our inward freedom less than the purely selfish ones), by an artificial appearance, by truth of conception without reality of action, and whilst it does not hide the want of reality, it leaves us the feeling of ability to free ourselves from the influence of the scene at pleasure, even if it were only by the consciousness that the whole is but appearance. Who could calmly witness the performance of a tragedy if he really thought, but for a moment, the sufferings represented on the stage were real? The poet strives to operate upon us by the liveliness of his creations, and thus to arouse within us those powers which counteract the passions. As the exercise of these powers is the object in view, he must avoid carrying the sympathetic emotion so far, that we can escape the pain only by a complete destruction of the illusion; because, as soon as we take this means, that exercise of the moral faculty ceases. We must be able to suffer the conception of being in the situation of the actors, even when we see them perish, by feeling in ourselves the existence of those powers, of which they, for the moment, seem to be deprived. From this point of view, the definition of Aristotle is perhaps to be reconciled with what has been said, in modern times, on the essence of tragedy. Even dramatic writers have confounded the melancholy with the tragic; but it may be deduced from what has been said, that the essence of tragedy does not depend on the melancholy end, on the tears extorted, but on the greatness and elevation of the chief idea contained in the fable, and which it illustrates, as by a living example. Whilst we pity the suffering depicted, we must be able to delight in the nobleness of its cause, as, otherwise, no feeling is excited in us but a purely painful one, from which we can only escape by the idea that the whole spectacle is an illusion. Many theories have been started to explain what is properly the tragical in tragedy, some very obscure, others less so; as that the tragical is founded on the struggle of human freedom with necessity, of the will with fate, &c. But the comic, the true comic, is, in many cases, nothing else. This struggle belongs to the drama in general. See *Drama*.

TRAJAN. M. Ulpius Trajanus, a Roman emperor, born in Italica, in the Spanish province of Bætica, was the son of Trajanus, a distinguished Roman commander, under Vespasian. He accompanied his father in a campaign against the Parthians, and also served on the Rhine, where he acquired so high a character, that when the excellent and aged Nerva came to the throne, he adopted him, and raised him to the rank of Cæsar, in 97, being then in his forty-second, or, according to some, in his forty-fifth year, and of a most dignified appearance and commanding aspect. His elevation immediately curbed the insolence of the pretorian guards; and Nerva dying a few months after, he peaceably succeeded to the throne. He was at that time in Germany, where he remained for more than a year, to settle a peace with the German states, and, in 99, set out with a numerous escort to Rome. After a liberal largess to the soldiers and people, he took measures for supplying the capital with corn; in which he was eminently successful. He then proceeded to punish and banish the pernicious tribe of informers, and to reduce some of the most odious of the taxes, and showed the most praiseworthy solicitude to fill the most important posts with men of talent and integrity. Like Augustus, he cultivated personal friendships, and visited his intimates at their houses with entire confidence, and as a private person. His palace was open to his friends and to all who chose to enter it, and his audiences were free to all the citizens. At his table were always some of the most respectable Romans, who indulged in the ease of mixed conversation. Although his early military experience had prevented him from acquiring the accomplishments of learning, he was sensible of its importance, and founded libraries; and under his patronage, the studies were revived which had suffered from the persecution of Domitian. His virtues procured for him, by the unanimous voice of the senate, the title of Optimus. In the third year of his reign, he accepted of a third consulship; and during his possession of this magistracy, the celebrated panegyric upon him was pronounced by Pliny, which is still extant. In the following year, a war broke out with Decebalus, king of the Dacians, whom he subdued. He then returned to Rome, and enjoyed the honours of a triumph, with the name of Dacicus. The two following years he passed at Rome, and in the last of them, 103, Pliny was made governor of Pontus and Bithynia, which circumstance gave rise to a series of official letters between him and Trajan, which, beyond any rhetorical panegyric, afford proof of the liberal spirit of the government. Among these are the famous epistles respecting the Christians, whom he directs Pliny not to search for, but to punish if brought before him; and on no account to listen to anonymous charges. In 104, Decebalus renewed the war with the Romans, which immediately called out the warlike emperor, who, with a view to form a road for his troops, constructed a bridge over the Danube, which was deemed one of the greatest works of antiquity. He then marched into Dacia, and reduced the capital of Decebalus, who, in despair, killed himself; and Dacia became a Roman province. His passion for war—the only fault which can be charged on Trajan as a sovereign—exhibits him, for the remainder of his reign, rather as a victorious commander, engaged in distant expeditions for the enlargement of the empire, than as a sovereign ruler. The disposal of the crown of Armenia led, in the first instance, to a contest with Chosroes the Parthian, of whic[h]

the reduction of Armenia to a Roman province was the result. The succeeding Eastern campaigns of Trajan, and the renewal of the war with Parthia, cannot be detailed in summaries of this nature. The year 114 is said to be that in which he dedicated the magnificent forum which he built in Rome, and erected the column sculptured with his exploits, which still remains under his name. In a final campaign in the East, after giving a king to the Parthians, he laid siege to Atra, the capital of an Arabian tribe, but was obliged to withdraw to Syria. In the following year, 117, he proposed returning into Mesopotamia, but was attacked by a paralytic disorder, attended by a dropsy, which induced him to repair to Italy, leaving the army under the command of Adrian. He had proceeded no farther than Selinus, in Cilicia, when he died. The empress Plotina took advantage of his last moments to secure the adoption of Adrian for his successor, not without some suspicion of a gross deception. Trajan died in his sixty-fourth year, after a reign of nearly twenty years. As a sovereign, the only blemish in his character was his great passion for war, the extension of empire produced by which—the greatest that ever acknowledged Roman sway—scarcely lasted longer than his own lifetime. In his private character he was said to be addicted to sensual indulgences, of which a passion for wine was by far the least disgraceful. His good qualities as a ruler, however, were such that, at the distance of two hundred and fifty years from his death, the senators, in their acclamations on the accession of a new emperor, were accustomed to wish that he might be more fortunate than Augustus and better than Trajan.

TRAJAN'S COLUMN. See *Column*.

TRALEE; a market town in the county of Kerry, Munster, Ireland, situated on the river Lee, distant from Dublin, 187 miles. This was the capital and residence of the old earls of Desmond. The town was totally destroyed during the civil wars of 1641, and suffered seriously during the revolution. A monastery for Dominican friars was founded here, under the invocation of the holy cross, A. D. 1260, by the Lord John Fitz-Thomas, who, with his son, was slain at Callen, by Maccarthy More, and both were interred on the north side of this friary. It is supposed that there was also a commandery here, belonging to the Knights of St John of Jerusalem. Of the four strong castles of Tralee, which belonged to the Desmonds, only one survives, which is the property of Sir Edward Denny, to whose ancestors it was granted by queen Elizabeth. The name, Tralee, signifies the strand, or estuary of the Lee. The country trade of this place is considerable, and an import and export is conducted at the quay of Blennerville, one mile and a half distant, upon the margin of Tralee Bay. Butter, corn, and agricultural produce, are shipped there for the English market. Coals and manufactured goods brought as a return; and the harbour affords a valuable herring-fishery. An act was passed in the 9th George IV. for the improvement of the harbour and river of Tralee, under which commissioners were appointed with sufficient power to construct a ship-canal from the town to the sea. The population of Tralee, as given in the tables for 1841, was 11,363.

TRAMONTANA. The Italians give this name to the north wind, because it comes to them over the Alps, and for a similar reason, they call the north or polar star *stella tramontana*. This gave rise to the saying *perder la tramontana*—applied to one who loses his way—a metaphor taken from mariners, who are guided in their course by the pole-star. The phrase has even passed from the Italians to the French (*perdre la tramontane*), and the Germans (*die Tramontane verlieren*), though, in its original signification, it has no application to France and Germany.

TRANCE; an ecstasy, a state in which the voluntary functions of the body are suspended, and the soul seems to be rapt into visions. For the state of apparent death, which sometimes takes place to such a degree as to have led to the interment of people under the supposition that death had actually taken place, see *Asphyxia* and *Death*; and for the means of restoring suspended animation, see *Drowning*.

TRANENT; the name of a small town and parish in Haddingtonshire, Scotland, the former situated ten miles east from Edinburgh. The parish is five miles in length and 2½ in breadth; the soil is good, and highly cultivated. Besides Tranent, the parish includes the villages of Elphinstone, Seaton, St Clement's Wells, and Wester Falside, besides the small fishing-towns of Cockenzie and Port Seaton, situated on the coast of the Frith of Forth, each long the seat of a considerable manufacture of salt, and noted for the numerous oyster-beds in the vicinity. A great abundance of coal is wrought in this parish. At St Clement's Wells there is a large distillery, and a school, supported by voluntary contributions. The battle of Preston Pans, in 1745, was fought half a mile north of the church, in which the remains of Colonel Gardiner, who there received his death-wound, lie buried. Population of parish in 1841, 3887.

TRANQUEBAR; a seaport of the Carnatic, in Tanjore, fifty-six miles south of Pondicherry; lon. 79° 54′ E.; lat. 11° 1′ N.; population, 20,000. It belonged to the Danes, having been purchased by them in 1616, and was the seat of a governor, and the capital of the Danish possessions in India. (See *East India Companies*.) It is situated on the coast of Coromandel, with a harbour at the mouth of one of the branches of the Cauvery, defended by a fortress. The town is between two and three miles in circumference, and surrounded with a wall and several bastions, well provided with artillery. Within the walls are three Christian churches, one Lutheran, one missionary, and one for Roman Catholics (descendants of Portuguese who were in possession of the town before it was possessed by the Danes), a large mosque for the Mohammedans, and five pagodas for the Hindoos. The fort called Daneborg is kept in neat order. Feb. 22, 1845. Tranquebar, and the other Danish possessions in India, were sold to the British E. I. Co. for 1,125,000 crowns.

TRANSCENDENT AND TRANSCENDENTAL are technical terms in philosophy. According to their etymology (from *transcendere*), they signify that which goes beyond a certain limit; in philosophy, that which goes beyond, or transcends, the circle of experience, or of what is perceptible by the senses. Properly speaking, all philosophy is in this sense transcendental, because all philosophical investigations rise above the sensual, even if they start from that which is perceptible by the senses. But philosophical inquiries are to be distinguished according as they proceed from experience, or from principles and ideas not derived from that source. The latter sort are called, in a narrower sense, *pure*, or *tran-*

scendental. The school of Kant makes a still further distinction: it gives the name of *transcendental* to that which does not indeed originate from experience, but yet is connected with it, because it contains the grounds of the possibility of experience; but the term *transcendent* it applies to that which cannot be connected with experience, but transcends the limit of possible experience and of philosophizing. The *transcendent*, therefore, is properly opposed to the *immanent*. *Immanent* principles are those the application of which is confined entirely within the limits of possible experience. "I call all knowledge *transcendental*," says Kant, in the Critique of pure Reason, "which occupies itself not so much with objects as with the way of knowing these objects, as far as this is possible *a priori*. A system of such notions would be called *transcendental philosophy*, and would be the system of all the principles of pure reason;" or, as he says in another passage, "the philosophy of the pure, merely speculative reason, from which the practical is separated." Accordingly, metaphysics, in particular, has received the name of *transcendental philosophy*. But, in another passage, he distinguishes the metaphysical from the transcendental. The former presents notions as obtained *a priori;* the latter explains the principles from which the possibility of other synthetic knowledge can be understood *a priori*.

In mathematics, *transcendental* or *transcendent lines*, are those curves the nature of which cannot be explained by algebraic equations. Descartes called them *mechanical lines*, and refused them a place in mathematics; but Leibnitz received them again, inventing a peculiar kind of equations, by which their nature is as well explained as that of algebraic curves.

TRANSEPT. See *Architecture*.

TRANSFERRING. The following is the mode of transferring lithographic prints or copperplate engravings from paper to wood. The print is first placed in a vessel of water, until it is completely saturated, which will be about five or ten minutes, and then placed between blotting paper, to remove the superabundant water from its surface. It is then varnished by a brush, and applied immediately to the wood, which has been previously varnished, and allowed to dry. The print thus applied may be subjected to the pressure necessary to effect its complete adhesion, by spreading over it a sheet of paper, and rubbing this with the hand. The paper on which the print was made may then be peeled off by rubbing it cautiously with the moistened fingers, and, when wholly removed, a coat of varnish must be applied to the print. When coloured prints are to be transferred, an acid solution must be used instead of water, to destroy the size which exists in the paper. This solution may be composed of two-thirds of vinegar and one-third of water, and is to be applied only to the back of the print. If the article is to be polished, apply several coats of varnish, allowing each to dry before the application of another; and then rub the surface with a piece of woollen cloth and pumice stone reduced to impalpable powder. When the surface becomes smooth, the process may be continued with a fine cloth and the finest tripoli, with olive oil.

TRANSFIGURATION, in the language of the church; the glorification of Christ on mount Tabor, in memory of which the Roman Catholic church celebrates a feast of the first rank on August 6, which seems to have been established as late as the twelfth century. Pope Calixtus III., in 1456, attached to this many indulgences, in memory of a victory gained over the Turks. One of the most beautiful pictures of Raphael is known under this name. It is in the Vatican. Dorigny and Morghen have given fine engravings of it.

TRANSFUSION (*transfusio*, from *transfundo*, to pour from one vessel into another); the transmission of blood from one living animal to another. Harvey was thirty years before he could get his discovery admitted; but as soon as the circulation was acknowledged, people's minds were seized with a sort of delirium: it was thought that the means of curing all diseases was found, and even of rendering man immortal. The cause of all our evils was attributed to the blood: in order to cure them, nothing more was necessary but to remove the bad blood, and to replace it by pure blood, drawn from a sound animal. The first attempts were made upon animals with complete success. A dog, having lost a great part of its blood, received, by transfusion, that of a sheep, and became well. Another dog, old and deaf, regained, by this means, the use of hearing, and seemed to recover its youth. A horse of twenty-six years, having received in his veins the blood of four lambs, recovered his strength. Transfusion was soon attempted upon man. Denys and Emeres, the one a physician, the other a surgeon of Paris, were the first who ventured to try it. They introduced into the veins of a young man, an idiot, the blood of a calf, in greater quantity than that which had been drawn from them, and he appeared to recover his reason. A leprous person, and a quartan ague, were also cured by this means, and several other transfusions were made upon healthy persons without any disagreeable result. However, some sad events happened to calm the general enthusiasm caused by these repeated successes. The young idiot we mentioned fell into a state of madness a short time after the experiment. He was submitted a second time to the transfusion, and was immediately seized with a *hæmaturi*, and died in a state of sleepiness and torpor. A young prince of the blood royal was also a victim of it. The parliament of Paris prohibited transfusion. A short time after, G. Riva having, in Italy, performed the transfusion upon two individuals, who died of it, the pope prohibited it also. From this period, transfusion has been regarded as useless, and even dangerous.

TRANSIT, in astronomy. By a transit over the disk of the sun, we understand the phenomenon which occurs when Venus or Mercury, in their revolution round the sun, pass between the sun and the eye of the observer on this earth, and appear to move like black spots over the sun's disk, their illuminated portion being the side turned from the spectator. If this phenomenon is observed by different persons at points considerably distant from each other, it will not be of equal duration at all of these points; and as the differences of time depend on the parallax (q. v.) of the planet as well as the sun, the former will enable us to determine the latter. The transits of Venus are particularly suited to this purpose. Such a transit of Venus over the sun's disk, accompanied with very favourable circumstances, occurred last, June 3, 1769, and forms an epoch in the history of astronomy. The royal society of London had it observed at Hudson's bay and Otaheite; the French court, by Chappe, in California; the Danish, by Hell, at Wardhus, in Lapland; the Swedish, by Planmann, at Kaja-

borg, in Finland; and, by these five observations, the sun's parallax, which is one of the most important elements of astronomy, was determined with great exactness. The next transits of Venus fall in the years 1872 and 1884.—See the ninth book of Lalande's *Astronomy;* the *Mémoire sur le Passage de Vénus* (Paris, 1772, 4to.); Bode's *Abhandlung vom Durchgang der Venus* (Hamburg, 1769). A good general view of the subject may be found in Lalande's *Abrégé d'Astronomie* (Paris, 1795, p. 264 seq.).

TRANSIT TRADE; such as arises from the passage of goods through one country on their way to another. It is sometimes of great importance, as, for instance, when most of the commodities of the East which were consumed in the north of Europe passed through Germany. The transit trade leaves the commission, and other expenses attending the forwarding of the goods, in the country through which they pass; besides which they sometimes also pay a duty.

TRANSITION FORMATIONS. See *Geology.*

TRANSMIGRATION OF THE SOUL. The doctrine of the passage of the soul from one body into another has its foundation in the belief of the connexion of all living beings, and of the gradual purification of the spiritual part of man, and its return to the common source and origin of all things —God. The earthly life, according to this system, is only a point in the succession of states through which the soul, proceeding from God, has to pass, in order, at last, to return to its original source. Even some modern European writers have inclined to the doctrine of transmigration, as enabling the soul in one condition to supply the deficiencies of another, and to fit itself better for a more perfect state. Pious and reflecting men, for example, Herder, have thought that many reasons were to be found for a belief in such a transmigration, which is also taught in the Talmud. Faint images of divine magnificence once witnessed in a higher state, and revived in the soul by the view of the true, the good, and the beautiful, which are met with in this life, and which fill the spirit with admiration and delight, are thought to be presentiments of those feelings which will again be awakened in us, when we return to the original source of all truth, goodness, and beauty. The religion of the ancient people of India, in which the first traces of a belief in a transmigration of the soul are found, considers it partly as the course of destiny, partly as a punishment for the neglect of religious duties, in consequence of which the soul is made pass, after death, through the bodies of various animals, by way of penance and purification. With this doctrine is connected the regard which the Indians have for animals. From the Indians this belief passed into the secret doctrine of the Egyptian caste of priests, who believed that the soul had to continue 3000 years, after death, in the bodies of animals, before it could reach the habitations of the blessed. From them the Greeks received the doctrine, and termed it *metempsychosis* (change of soul), and *metensomatosis* (change of body). (See *Metempsychosis.*) Pythagoras adopted it into his philosophy, as indicating the immortality of the human soul. The later Pythagoreans taught that the mind, freed from the fetters of the body, will enter the realm of the departed, there remain in an intermediate state for a longer or shorter time, and again animate other human or animal bodies, until the time of its purification is finished, and its return to the Fountain of life has become possible. The mind of Pythagoras himself was conceived to have been already four times on earth. The stories of these Pythagorean notions rest on comparatively late reports. The Greek mysteries enveloped the doctrine of the transmigration of the soul in agreeable mythuses, which represent Dionysos or Bacchus as the lord and leader of the soul. In these, also, the belief in a pre-existence is to be discovered. For this esoteric doctrine distinguishes souls, which, according to the organization of the universe, are driven from their former ethereal or heavenly life down to the earth, to appear for the first time as men, from the souls in a state of penance, which were obliged to enter a human body a second and third time; and also from those souls which voluntarily come to the earth from curiosity, or delight in individuality. The Greek poets and philosophers have given various forms to these mythuses. Pindar, the Pythagorean, lets the soul arrive at the isles of the blessed after passing three unblemished lives on this earth. Plato extends the period for the entire return of souls into the Godhead to 10,000 years, during which they have to abide in the bodies of animals and men. Plotinus treats of two kinds of transmigrations, a passage of souls from invisible ethereal bodies into earthly ones, and from earthly into other earthly bodies. Among the Romans, Cicero and Virgil have alluded to this doctrine. The rabbins treat the subject of transmigration in their peculiar way, maintaining that God created but a certain number of Jewish souls, which therefore constantly return on earth as long as Jews are to be found here, and are sometimes made to dwell in the bodies of animals for the sake of penance, but, at the day of the resurrection, will *all* be purified, and in the bodies of the just revive on the soil of the promised land.—The Christian sect of the Manichæans also considered the transmigration of the soul as a means of penance. This belief was widely diffused. It existed among the ancient Italians, the Celtic Druids, the Scythians, and Hyperboreans, and is still entertained by the heathen nations of Eastern Asia, the Caucasian tribes, the American savages, and African negroes. With the ancient Egyptians it led, as it still does with the Hindoos, to the veneration of certain animals, and the fear of eating their flesh, since their bodies may be the abode of departed ancestors or friends. The Pythagoreans would not kill animals, for the same reason. This belief in the transmigration of the soul, as a means of purification and penance, may have been attended with good consequences in certain states of society; but the Christian is content to leave undrawn the veil which the Creator has placed over the particular circumstances of our future condition. Whatever may be the means for purifying and perfecting the human soul after death, the Christian rests assured, that a life passed according to the commands of God will fit the soul to enjoy his presence; and that a life passed in the neglect of his commands will lead to future misery.

TRANSOMS; certain beams or timbers extended across the sternpost of a ship, to fortify her after-part, and give it the figure most suitable to the service for which she is calculated.

TRANSPARENCY; the property of bodies by which they admit the passage of light through them. It does not consist, however, simply in transmitting light in sufficient quantity, but in transmitting it in straight lines. Water and oil,

for instance, are each separately transparent substances, but, mixed together, are untransparent, because they refract light differently. On the other hand, paper, which by itself is opaque, becomes transparent by moistening it with water or oil. The transparency of a body has no connexion with its hardness or softness, or porosity, as one would at first imagine. The hard diamond is transparent: the softest kinds of wood, on the contrary, are not so, because the rectilinear direction of the rays of light in the mass does not depend on the properties just mentioned. The unchangeableness of this rectilinear direction of the rays of light must therefore be regarded as the proper fundamental cause of transparency. Newton, in his optics, has proposed acute inquiries and conjectures respecting transparency in the sense just given. Bouguet, in his *Traité d'Optique* (Paris, 1760, 4to.), has given the results of his experiments on the diminution which the light suffers in its passage through different bodies. The newly invented photometer of Lampadius depends upon this principle of the diminution of light by transparent bodies. It is a tube in which plates of the transparent substances are inserted, till the light at last becomes invisible through it. See a *Practical Treatise on Gas Light*, by Accum.

TRANSPORTATION is a kind of punishment, or more properly an alleviation or commutation of punishment, for criminals in England convicted of felony; who, for the first offence, unless it is an extraordinary one, are generally transported to New Holland or Van Diemen's Land, there to bear hard labour for a term of years.

TRANSUBSTANTIATION. See *Lord's Supper*.

TRANSYLVANIA; a grand principality, forming part of the Hungarian estates of the imperial house of Austria, lying between Hungary, Walachia, and Moldavia; 23,500 square miles; population, 2,000,000. It is called by the Germans *Siebenbürgen*, from Siebengebirge, whence a colony of German colonists removed to the former region in 1143. The Latin name *Transylvania* is derived from its situation beyond the Carpathian forests; and the Hungarian name *Erdely* signifies the *mountainous forest*. Transylvania is surrounded on the east, south, and partly on the north, by the Carpathian mountains, from which lateral chains branch off, and cross the country in every direction. It consists chiefly of alternate mountains and valleys, with few extensive plains. The principal rivers are the Maros, Samos, and Aluta. The lakes are deep. The soil is generally fertile, but badly cultivated; the climate cold for the latitude, but healthy. The productions are wheat, oats, barley, potatoes; maize and vines are raised in favourable situations; orchards are not neglected; hay, and all artificial grasses, are unknown, and cattle subsist upon natural herbage; cattle and sheep are numerous; there are extensive forests. The mineral productions are various. There are salt mines producing annually from 30 to 40,000 tons; iron mines, yielding 3000 or 4000 tons of iron; mines of lead, copper, silver, and gold; quarries of marble, jasper, porphyry, slate, limestone, coal, sulphur, and petroleum; precious stones, as topazes, chrysolites, opals, garnets, &c.; and mineral springs in abundance.

Transylvania is a part of the ancient Dacia. From the fifth century downward, it was successively occupied by different nations; and, in 1004, it was made a province of Hungary. John Zapolya, in 1535, was acknowledged by the king of Hungary sovereign prince of Transylvania; and he and his successors were often supported by the Turks against the Hungarian princes of the Austrian dynasty. Leopold I. finally conquered the country in 1689; and by the peace of Carlovitza, in 1699, the sovereignty of Austria over Transylvania was acknowledged by Turkey. The country, however, continued to be governed by its own princes, until the extinction of their line, in 1713, when it was incorporated with Hungary. Maria Theresa erected it into a grand principality in 1765.

The population is composed of thirteen nations. The three principal people are the Hungarians, Szecklers (supposed to be descendants of the Petschenegurs), and Saxons (the German colonists above mentioned). The country is accordingly divided into three main divisions: 1. the Land of the Szecklers, in the east, thinly peopled, and subdivided into three seats or jurisdictions; 2. the Land of the Hungarians, in the west, which comprises half of the population and extent of the country, and is divided into eleven counties (*comitatus*) and two districts; 3. the Land of the Saxons, in the south and north, which is the best cultivated, and is divided into nine seats or jurisdictions, and two districts. These three nations are called the *United* (*Uniti*); the others, called the *Tolerated* (*Tolerati*), are Walachians, Armenians, Greeks, Moravians, Poles, Russians, Bulgarians, Servians or Rascians, Jews, and gipsies. The last mentioned, called also *Pharaohs*, and *New Peasants*, lead a roving life, and cannot be induced to cultivate the land in a stationary place of residence. The Walachians are the most numerous of the *Tolerati*. Trade is chiefly in the hands of Greeks and Armenians. The Saxons are the most industrious part of the population, and in their *Land* lie Hermannstadt, the capital, with 16,000 inhabitants, and Cronstadt, the principal commercial and manufacturing place in Transylvania, with 30,000 inhabitants. The Transylvanian nobility enjoy exemption from taxes, and from the county jurisdiction, and other privileges. The higher nobility, barons, and counts, are styled *magnates*. The lower nobility are not altogether exempt from taxes: this class includes those nobles who have no manor, the citizens of the free cities, and the officers of the chase to the sovereign. The rest of the people consists of the citizens of the other towns, emancipated peasants and serfs. The Transylvanian estates are divided, in regard to nations, into the Hungarian, Szeckler, and Saxon benches; in respect of religion, into the Catholic, Reformed (Calvinistic), Evangelical (Lutheran), and Unitarian or Socinian benches; and in regard to character, into those of the prelates, of the magnates, and of the nobles. The diets are held in Hermannstadt. The estates have the right, in connexion with the crown, to make laws, impose taxes, and confer the rights of citizenship on foreigners. The revenue of the principality amounts to 5,000,000 guilders. The four religions above mentioned are privileged; others are only tolerated. See *Military District*.

TRAPEZOID, or TRAPEZIUM; a quadrilateral figure of unequal sides, and, consequently, unequal angles. It is different from parallelograms, which are quadrilateral figures, with the opposite sides always equal. The word is derived from the Greek τραπεζιον, which had the same meaning in Greek geometry.

TRAP-ROCKS; an important class of rocks in geology, which derive their name from the Swedish word *trappa*, a stair, because they frequently divide into regular forms, resembling the steps of stairs. These rocks vary in texture, from an apparently simple rock to a confusedly crystalline compound, in which crystals of feldspar are disseminated. The predominant substance in the members of the family is a simple rock, of which indurated clay (wacke) may be placed at one extreme, and compact feldspar at the other, the intermediate members being claystone or clinkstone. In some cases it forms the whole mass; in others, it is mixed with other materials in various proportions, producing great diversities of aspect, without any material variations in the fundamental character. It often appears as if quartz, feldspar, and hornblende, composed the mass, and various circumstances determined their union in such a manner as to produce a large proportion of the different compounds known as trap-rocks, sometimes the hornblende being in mass, at others the feldspar, while the quartz rarely predominates. In other situations, confusedly crystalline compounds have been the result. Quartz, feldspar, and hornblende united form *sienite;* or feldspar and hornblende, without the quartz, constitute *greenstone*. The compounds occasionally contain disseminated crystals of feldspar, and thus become what are called *greenstone porphyries* (*diabase porphyroide*, French; *Grunstein Porphyr*, German). A paste of green hornblende, containing crystals of feldspar, constitutes the *antique green porphyry* (the *ophite* of the French). Some of the trappean rocks are often vesicular, in the manner of modern lavas; the vesicles, however, being generally filled up by some mineral substances, which have been infiltrated into them subsequent to their formation. Such substances are either agates, calcareous spar, or some of the zeolitic minerals. From these cavities frequently being of an almond shape, or rather from the appearance of their solid contents resembling almonds in form, the term *amygdaloid* has been applied to rocks of this description. It must be understood that the base, or paste of the amygdaloids, is not constantly the same, but is liable to vary materially. A trap-rock is sometimes both amygdaloidal and porphyritic at the same time. Other minerals besides those above enumerated occur in the trappean rocks, but cannot be considered as forming an essential part of them, with the exception of augite and hypersthene, which, with the mixture of either common compact, or glassy feldspar, constitute the *augite* and *hypersthene rocks*. It would be inappropriate to the present article to attempt a notice of the various aspects under which these rocks present themselves. It should, however, be remarked, that the term *basalt* is applied to substances which are not precisely the same, being sometimes given to a fine compound of augite and compact feldspar; at others, to a minute mixture of hornblende and compact feldspar; sometimes to dark indurated claystones; and finally to a compound of feldspar, augite, and titaniferous iron. The last mixture seems that now most commonly termed *basalt*. Basalt is possessed of a greenish, or brownish, and sometimes of an iron-black colour. It is difficult to break, and possesses a considerable degree of hardness. It is fusible into a black glass, and is magnetic. The iron which it contains, as is the fact also with greenstone, passes, when exposed to the air, into a further state of oxygenation; and they are consequently generally covered with a reddish-brown incrustation.

The whole family of trap-rocks have, on the one hand, a close alliance with volcanic rocks, and, on the other, with the more ancient rocks of porphyry and granite. The gradation of trap-rock having, in some parts, a volcanic character, into true granite, has been observed in a mountain near Christiania, in Norway. The lower rocks are gneiss, over which occurs dark slate, in which are beds of blackish limestone, containing organic remains. These beds are covered by an enormous mass of porphyry, varying in thickness from 1600 to 2000 feet. In the lower part of the bed, the porphyry becomes vesicular, and changes into an amygdaloidal basalt, containing crystals of augite. Basalt, associated with porphyry in enormous masses, often covers the primary mountains of the Andes. They are arranged in regular columns, which strike the eye of the traveller like immense castles in the sky. Porphyritic rocks may, in general, be regarded as more ancient than basaltic rocks, as porphyry most frequently occurs intermixed with, or covering, transition rocks, and basalt is most commonly associated with the secondary strata, which it either cuts through in the form of dikes, or covers unconformably. Sometimes it appears to have broken the strata confusedly, and to have enveloped large portions of other rocks. All the trappean rocks give decisive indications of an igneous origin, not only in the shapes of their masses, but in their action on the adjacent rocks. Where basalt is in contact with gneiss, it becomes nearly compact, and approaches to the character of hornstone; and where greenstone rests on sandstone or clay, these rocks have a red and burnt appearance, and a hardness superior to what they possess in other places. Where they cross the coal strata, and come in contact with the seams of coal, the substance of the coal is, for several feet, converted into soot. At a greater distance from the trap, the coal is reduced to a coke or cinder, which burns without smoke, and with a clear and durable heat. At the distance of fifty feet from the dike, the coal is found in its natural, unaltered state. The thickness of trap dikes varies from a few inches to twenty or thirty yards. The extent to which they reach across a country, has seldom been explored beyond the mining districts. The longest in England extends from the western side of Durham to Berwick, in Yorkshire. These dikes are generally harder than the rocks they intersect, and, when the latter are partly decomposed, often remain, forming vast walls of stone, that rise above the surface of the ground. They also extend into the sea, and give rise to reefs of rocks; and, when they cross the beds of rivers, they form fords, and sometimes hold up the water, and occasion cascades, of which there are frequent instances on the river Tees. From these circumstances, it seems conclusive that basalt and greenstone (and the same may be affirmed of the other varieties of trap-rocks) were thrown out in a melted state, like lava, and poured over the surface of the ground. The frequent occurrence of trap-rocks forming isolated caps on distant mountains, was for a long time considered as opposing the hypothesis of the igneous origin of basaltic rocks; but a more attentive observation of such districts has established the fact, that these isolated caps are parts of continuous beds, which have, in remote ages, been excavated by valleys, in the same manner as the beds of other rocks, which

frequently form isolated caps on detached mountains.

The occurrence of thick beds of basalt, divided into regular pentagonal or hexagonal columns, and disposed in ranges of vast extent and height, early attracted the attention of mankind, and gave rise to various theories respecting their formation. Few countries in the world present more magnificent deposits of columnar basalt than the north part of Ireland and some of the Hebrides. (See *Giant's Causeway* and *Staffa*.) The Giant's causeway, in the county of Antrim, constitutes a small part of a range of this description. The promontories of Fairhead and Borge, in the same range, are situated eight miles from each other. These capes consist of various ranges of pillars and horizontal strata, which rise from the sea to the height of 500 feet. From their abruptness, they are conspicuous, and form a pile of natural architecture, in which the regularity and symmetry of art appear to be united with the wild grandeur and magnificence of nature. Many of the columns in the ranges at Fairhead are 150 feet in height, and five feet in breadth. At the base, along the shore, is a wild waste of rocky fragments which have fallen from the cliffs, resembling the ruins of enormous castles. At the Giant's causeway, the columns rarely exceed one foot in breadth and thirty in height. They are sharply defined, and the columns are divided into smaller blocks, or prisms, of one foot or more in length, which fit neatly into each other, like a ball and socket. The basalt is close-grained, excepting the upper joint of the column, which is often cellular. The columns usually have five or six sides; but some have seven or eight, and others only three. Beds of basalt that are not columnar, in some places lie over, and also under, the columns. The basalt of the beds is amygdaloidal. The columns at Fairhead are not articulated like those of the Giant's causeway; but blocks, which are of great length, lie flat on each other. The trap formation appears to extend on the coast and inland about forty miles in length and twenty in breadth. The basaltic columns of the island of Staffa are too well known to require a description. No formation of genuine basalt has hitherto been found on the North American continent, at least north of Mexico. But localities of the greenstone trap are found in several districts, and present nearly all the peculiarities of the true basalt, differing from it only in possessing a lighter green colour, a less compact fracture, and a less decided columnar structure.

The trappean rocks, when free from vesicular cavities, are valuable for architecture, especially the greenstone trap, which is quarried with little or no expense, since it breaks naturally into angular pieces, with smooth faces. Basalt is wrought into vases, tables for inscriptions, &c.; but its working is attended with great expense. The ophite, when handsome, is much prized.

TRAPPE, LA, TRAPPISTS. In a valley of Normandy, thirty-four leagues north-west of Paris, Rotrou, count of Perche, founded a Cistercian abbey, in 1140, which, from its difficult access, he called *La Trappe* (trap-door). It was approached by no path, and the traveller was obliged to direct his course by the sun and the appearance of the trees. The deep silence of the wild valley, surrounded by woods and rocks, was sufficient to satisfy the most ascetic disposition. In the sixteenth century, the monks, however, had become so licentious, that they were the terror of the surrounding country, robbing, murdering and kidnapping young females: this wild and lawless conduct procured them the epithet of the "bandits of La Trappe." In the seventeenth century, the abbey, then containing but six or seven monks, was conferred on De Rancé, then (1636) ten years old, as a sinecure benefice. In 1664, after a youth passed in dissipation, he became regular abbot of La Trappe, and accomplished a most rigorous reform of the monastery. The Trappists prayed eleven hours daily, and passed the rest of their time in hard labour and silent meditation. Beyond the sacred hymns and prayers, and their usual salutation, *Memento mori*, no word passed their lips, but even their wishes and wants were indicated by signs. Their meagre diet consisted solely of fruits and pulse; flesh, wine and butter being entirely prohibited. They received no information of what was going on in the world, and no news from their relations; all their thoughts were devoted to penance and death, and every evening they dug their own graves. Louisa, princess of the Condé, founded a female order of Trappists. The Trappists were obliged to leave France at the time of the revolution; but they returned in 1815, when their house was restored to them. A traveller, who visited them, 1818, found their number to amount to a hundred, of whom more than half were lay brothers and *frères donnés*, who pass only a certain time at La Trappe for the performance of some acts of penance. The professed brothers wear a dark-coloured frock, cloak, and hood, which covers the whole face. The order has, besides, three other houses in France, the abbey Jara, near Amiens, Mellerai, in the department of the Loire Inferieure, and an abbey at St Aubin. There is, likewise, a female convent not far from La Trappe.

TRASS. See *Cements*.

TRASTEVERE. See *Tiber*.

TRAVELS AND VOYAGES. Travelling has always been one of the means of forming the character for the business of life, and for promoting scientific knowledge. By travelling, the ancients prepared themselves to become legislators and philosophers, as, for instance, in the cases of Lycurgus, Solon and Pythagoras. Herodotus travelled to study history. The statesman and the man of the world, the scholar, the naturalist, the geographer, the physician, the artist, the merchant, the political economist, the soldier, &c., each has his own objects in travelling. Young men who travel extensively by way of completing their education, should be well acquainted with the ancient and modern classics, mathematics, the principles of trade, political economy, history, statistics and geography, and with one or more foreign languages. The main object of the tour should be, in the first place, well settled, and all others be made subordinate to it. The young traveller should not strive so much to observe a great variety of things, as to learn accurately what is essential. See Reichard's *Guide des Voyageurs*.

In the history of scientific expeditions, the five following divisions may be made.

1. The earliest age of the Phœnicians, down to Herodotus, 500 B. C. The Phœnicians undertook the first voyages of discovery for commercial purposes, or to found colonies. Their colonies did the same. Unhappily, the accounts of these voyages are very obscure (as, for instance, of the circumnavigation of Africa), or couched in figures (like the first navigation of the straits of Gibraltar),

or entirely lost. We know but little of their discoveries out of the Mediterranean sea. They discovered the island Cerne (Arguin), on the western coast of Africa, the Red sea, Madeira, and the Tin islands (England); they imported amber (probably obtained in their dealings with the Jutes). Their caravans to Asia and Africa gave them a knowledge of certain countries, beyond what we now possess. The Tyrian colony, the powerful Carthage, undertook still more extensive expeditions of discovery; but they are forgotten, and their results have perished with the state itself.

2. The travels of the Greeks and the military expeditions of the Romans, from 500 B. C. to 400 A. D. The Greeks made journeys to enlarge the territory of science. Besides the earlier travels of Herodotus, who has given faithfully the results of experience, and besides the almost contemporary voyages of the Carthaginians, Hanno and Himilco, we are acquainted with the voyage of Scylax of Caryanda, who lived about the time of the Peloponnesian war. About 300 B. C., Pytheas of Marseilles first instituted astronomical observations, to determine more exactly the situation of places: he undertook two expeditions to the north; but we unhappily possess only fragments of the accounts of them. He proceeded even to Thule (*Thual*, in Irish, signifies the *north*), probably Iceland, where the floating ice filled him with surprise, and north-easterly as far as the Dwina, which he believed to be the Tanais, connecting, like a canal, the North sea with the Black sea. Instructed by the accounts of Alexander's expeditions, and by the sight of the subjects which this king sent him, Aristotle enlarged the territory of geographical science. Soon after Alexander's death, the materials that had been collecting since Herodotus were employed by Eratosthenes, whom we know only from Strabo, who, 300 years after (A. D. 10), produced a new edition, as it were, of the works of Eratosthenes, in seventeen books. Since Alexander's wars, Asia, as far as the Indus and Ganges, had become better known, and the Greek Macedonian empires, that sprang up there, still farther extended the knowledge of it. The armies of Rome supplied, in this period, many materials for the knowledge of countries. Asia was directly known to them of India; they obtained a knowledge from Egypt by means of the commercial intercourse between the two countries; the northern part of Africa was opened to them from Egypt to the Niger; and in Europe they became acquainted with the peninsula of the Pyrenees, Gaul, South Britain, Germany as far as the Elbe, Dacia and Pannonia.

3. The expeditions of the Germans and Normans till 900 A. D. The migrations of the nations in the fifth and sixth centuries brought with them information respecting countries which had been unknown or merely the theatre of wild fictions. The Byzantines came in contact with many new tribes, respecting which its writers have left us much valuable information. The Arabians have done much for the more accurate knowledge of the earth by their campaigns, their commerce and their scientific investigations. The sword opened to them a portion of North-eastern, Central and Western Asia, Northern Africa and Spain; and their commercial expeditions, by sea and land, extended as far as the Indian islands, China, and the interior of Africa; but they have done less for the scientific improvement of geography than for the knowledge of different nations. What the Arabs contributed by their conquests to this knowledge in the eastern part of the known world, the Germanic tribes effected in the west, by coming in close contact with the more cultivated nations of the Western Roman empire. Farther to the north, the Normans did more than the Germans; for we are indebted to them for new, though but accidental discoveries. In their voyages, they discovered the Faroes, Iceland in the year 861, Greenland in 982, the western coast of which was immediately occupied by Norman settlers; and, twenty years later, the Norman Björn, being driven to the south-west by a storm, discovered Winland (Wineland, so called from the wild grapes found there), probably the eastern coast of Labrador, with which the whole description agrees. The great Anglo-Saxon king Alfred, who died in 901, set on foot, about that time, two voyages of discovery under two Normans, viz. Other, who proceeded from Norway round the North cape into the White sea to Biarmen (Permia), and Wulstan, who went from Sleswick to the gulf of Finland.

4. Besides the commercial and military voyages of the Arabs and Mongols, the travels of the Christian missionaries and some Europeans, down to 1400, furnish much valuable information. Pilgrims undertook long journeys; the crusaders diffused a more correct knowledge of Sclavonian Germany and of Asia; and the popes even sent envoys to the Asiatic sultans, and subsequently to the khans of the Tartars, to avert the further advances of these hordes. Boniface did much for the better knowledge of Germany by his travels as a missionary in 775, St Otho for Northern Sclavonia in 1124, and Ansgarius, who died in 865, for Denmark and Sweden. There were also individual secular travellers, such as John Mandeville of England, in 1327; John Schildberger, a German soldier, who was taken prisoner at Nicopolis, in 1396, by the Turks, and afterwards by the Mongols, and thus had an opportunity to become better acquainted with those nations. A hundred years before, about 1270, the Venetian Marco Polo travelled through all Asia as far as Cathay (China); and at the same time with Schildberger, the brothers Zeno, two Venetian nobles, undertook a journey to the north.

5. The fifth period (from the year 1418) now begins with Henry the Navigator, and Columbus: and we now first meet with voyages of discovery properly so called. The invention of the mariner's compass, between 1250 and 1320, by the aid which it furnished to navigation, led to extensive voyages. The Italians, especially Venice and Genoa, first set the example; but their commercial jealousy has deprived us of much of the benefits of their acquisitions. Their commercial gains excited other nations to similar enterprises. The Portuguese wars with the Mohammedans made them acquainted with Africa, and the eagerness for further discovery was encouraged and guided by the Infant Henry the Navigator, who pointed out the path to be pursued. Porto Santo, Madeira, the Azores, were discovered between 1418 and 1450; in the latter year, Senegal also, and, soon after, Arguin (Cerne of the ancients). In 1462, Guinea was reached; and, in 1486, Bartbol. Diaz doubled the southernmost promontory of Africa, which he named the *cape of Storms*, but which his king, John, called the *cape of Good Hope*. The Portuguese Vasco da Gama, discovered the passage to the Indies around Africa in 1498; but Genoa continued to conduct its commerce through the ancient chan-

nels, and Spain was so much occupied with the Moors of Grenada, that the enthusiastic Columbus could no where obtain a hearing for his plan of seeking a new way to India towards the west. The Spanish queen Isabella finally gave him her support, and he put his project in execution. Oct. 12, 1492, he came in sight of land, which he named St. Salvador. It is believed (1846) to have been Turk's Island. On his third voyage, in 1498, he reached the main land. About the same time (1497), Sebastian Cabot, an Englishman, discovered the coasts of North America, from Labrador to Virginia. In 1500, Cabral, driven by a storm, discovered Brazil; Bastidas discovered Terra Firma, and Cortereal visited Labrador and Hudson's bay. In 1512, Ponce de Leon discovered Florida, and Balbao crossed the isthmus of Darien, and came in sight of the Pacific ocean. It was now first known that a new continent had been discovered, separated from Asia by a vast ocean, in which it was deemed probable a second new world might exist. The learned Florentine Amerigo Vespucci (who died at Seville, 1512) now made Europe acquainted with the character of the newly-discovered countries by his description. In 1519 et seq., Fernando Magellan sailed round the southern extremity of America, through the straits named from him, and discovered the western passage to the Indies. By degrees the interior of America emerged from obscurity; Cortez and Pizarro, Almagro, Cartier and Orellana, made the most important discoveries respecting it, from 1525 to 1541. More accurate information respecting the northern and eastern parts of America was furnished from 1559 to 1616 by Francis Drake, Frobisher, Heemskerk, Hudson and Baffin. Whether Asia was connected with America was as yet unknown; but, in 1648, the Cossack Semen Deshnew proceeded from the river Kolyma, around the peninsula of the Tchouktsches, through Beering's straits, to the mouth of the Anadir. What had been rendered tolerably clear by this voyage was reduced to a certainty, in 1726, by captain Beering, who proceeded from the river of the Kamtschadales, through the straits named from him, to the peninsula of the Tchouktsches. This was confirmed by several subsequent voyagers, and by Cook, in his third voyage. They and Vancouver explored more particularly the western coast of America. The North American revolutionary war made the country still more known; and much information was diffused respecting South America by the missionaries, such as the Jesuit Dobrizhofer, in Paraguay. The most light, however, has been shed on that part of the western continent by the travels of Alexander von Humboldt, the prince of Neuwied, and those of several Englishmen and Germans in Brazil.

The expeditions of discovery into the interior of Africa have been less productive. The Portuguese explored those countries only which were situated near the coast, in the prosecution of their commerce with India. Prior to Vasco da Gama, the western coast was explored, and after him the eastern coast (since 1497); but they did not discover the Red sea till the sixteenth century, although they were acquainted with Abyssinia.—See Damien da Goes, *De Rebus Æthiopicis, etc.* (Cologne, 1574). Egypt was visited by pilgrims, but the knowledge of it remained, nevertheless, very imperfect. The south cape of Africa was particularly explored, indeed, by the Dutch; but farther to the north, the Swedes Sparmann and Thunberg first penetrated, afterwards Levaillant, and, finally, Lichtenstein. James Bruce travelled to Abyssinia and Nubia, 1768—1773; and his account of the sources of the Nile was confirmed by Salt in 1809. A comprehensive plan for exploring the interior of Africa was projected, and has been hitherto pursued by the African association, formed in England in 1788. Under the patronage of this association, Mungo Park, Laing, Clapperton, the Landers, and others, have each successfully explored large portions of the interior of Africa, but have all eventually fallen victims to their efforts in the cause. Much light has been thrown upon particular countries by the travels of Burckhardt, Bowditch, Mollien, Campbell, as well as those of lord Valentia and Salt to Abyssinia, those of Belzoni, Gau, Menu von Minutoli, to Egypt, and those of J. R. Pacho to Cyrene, in 1824. In April, 1828, Caillié, a young French traveller, is alleged to have reached, and to have resided for some time in, Timbuctoo (see *Timbuctoo*), and the Landers, in 1830, traced the Niger, and discovered that it emptied itself into the Bight of Benin. See *Africa*, and *Niger*.

Asia was first visited by the Portuguese, but subsequently chiefly by the English and Russians. As early as 1498, Vasco da Gama discovered the coast of Malabar; and, before 1542, almost all the south coast, with its islands, and even Japan, were discovered by the Portuguese. But the coast alone was known, till, in the middle of the sixteenth century, the English laid the foundation of their dominion in India, by which the interior of Asia has been opened to civilized Europe. Farther to the north, the Russians undertook important expeditions. In 1577, Siberia was explored by the Cossack captain Jermak Timosejeff and the Russian merchant Stroganoff. In 1639, Kopiloff reached the eastern coast of Asia, and soon after, Kamtschatka was discovered. Since 1745, the Kurile, and the Aleutian, or Fox islands, on the coast of America, have come to light; and in the north of Asia, Müller, Gmelin, Lepechin, Güldenstädt, Falk, and, above all, Pallas, have made the most important expeditions, under the patronage of the Russian government. After Lapérouse had already accurately determined the north-eastern coasts of Siberia, the Russians explored the Caucasus and the Caspian sea, by means of Gärber, Reineggs, Klaproth, Parrot, and Engelhardt; Golownin described his residence in Japan. The other regions of Asia also became better known; Arabia, by the travels of Carsten Niebuhr, who visited it under the direction of the Danish government, in 1761, to add to the means for illustrating the Bible; Persia, chiefly by those of J. Chardin, from 1664 to 1677, and, of late, by those of Morier and Ouseley; Cabul by Elphinstone; Syria and Palestine, by means of pilgrims and explorers of antiquities. But the north parts of India, Thibet, and the interior of the great East Indian islands, are still little known. In the Southern ocean, the Portuguese suspected the existence of a new world; and the French jurist Bodinus, in his Introduction to History, in 1610, gives five grand divisions of the world—Europe, Asia, Africa, America, and Australia. In 1511 the Portuguese reached New Guinea; and Magellan, in his circumnavigation of the earth, likewise visited the Southern ocean. But these discoveries, like those of Mendoza, Mindana, and Guiros (1568—1605), remained for the most part unimproved, till the Dutch, in 1615, sent out Lemaire, Schouten, Her-

toge, and Tasman, on voyages of discovery, and became acquainted with New Holland, New Zealand, and the Friendly isles. Dampierre shed new light, in 1698, on the countries in the Southern ocean; and Cook explored this new world so accurately, in 1768 and the following years, that little was left for Vancouver, Lapérouse, Krusenstern, and Kotzebue. The discovery of a coast near the south pole, made by British navigators in 1819, which was called New South Shetland, promises to add to the science of geography. Respecting the latest scientific travels of British adventurers to the north pole, see *North Polar Expeditions*.

It would perhaps be the best method of studying geography, if the extension of geographical knowledge, gradually produced by travels since the times of Moses and Homer, could be brought before the youthful understanding in an orographical and hydrographical description. Many good materials for this object are contained in Zeune's *Ansichten der Erdkunde* (Berlin, 1815), and his *Gäa*, as well as in Sprengel's *Geschichte der Geograph. Entdeckungen*, in Von Zimmermann's writings, and in Malte Brun's History of Geography. Murray published a Historical Account of the Discoveries and Travels in Africa (Edinburgh, 1817, 2 vols.); a Historical Account of the Discoveries and Travels in Asia (Edinburgh, 1820, 3 vols.); and an Account of Discovery in North America (1829). A chronological view of travels, with literary and biographical notices, is a desideratum; for the attempts of Stuck (in his *Verzeichnisse*, reaching to 1735), Boucher de la Richarderie, and Beckmann, are imperfect. Even the great collections of travels which have been published by Ehrmann, Sprengel, Bertuch, &c., at Weimar—*Bibl. der Wichtigsten Reisebeschr.*, extending already to 94 volumes—by Pinkerton, in London, 1808—1813, by Robert Kerr, in London, 1814, and by others, as well as Spiker's *Journal der Land und Seereisen*, are not compiled on a strictly scientific plan. This is also the case with the *Hist. Générale des Voyages*, by Walkenaer (Paris, 1826), of which three volumes have been published.

The first germs of geography are contained in the Mosaic records, and the book of Joshua (1400 B.C.); in Homer, Hesiod (1000 B. C.); Herodotus and Aristotle (444 and 320 B. C.); Hanno, among the Carthaginians (440 B. C.). (Respecting these works, see the modern critical geographers, Rennel, Gosselin, Mannert, Voss, Bell, &c.) Polybius, Hipparchus, Artemidorus, added, 300 years afterwards, new accounts of travels; Juba, king of Mauritania, described Lybia as it was in the age of Augustus; and Strabo, A. D. 10, collected all former discoveries in a comprehensive work. The same thing was done by Pomponius Mela, A. D. 50, and, twenty years afterwards, by the industrious Pliny. Under the emperor Adrian, Arrian described Lybia; and Marinus of Tyre, in Phœnicia, A. D. 150, with his contemporary Ptolemy, fixed, with much more exactness, the situation of places. After them, geography ceased to be scientifically cultivated for upwards of a thousand years; but the knowledge of particular countries gained much by excellent books of travels; for instance, those of Pausanias (A. D. 170), Agathemer (A.D. 200), Marcianus of Heraclea (A. D. 200), and Agathodæmon. To this time, also, probably belongs the Table of Peutinger. All that was learned from the migrations of the German tribes, and from the crusades, was collected by the fathers of the church, from whose (often fictitious) narrations, an Egyptian monk, Cosmas, commonly called *Indopleustes* (Indus navigator) though he did not personally go beyond Æthiopia, compiled his Christian Topography (A.D. 450). About two centuries afterwards, lived the geographer of Ravenna (Sprengel calls him Guido, but this is only a corruption of his popular name, for he was a Goth), whose geography we know only from the careless abridgment of Gualdro. Several instances of maps now occur. The map of Charlemagne was a silver tablet.

Besides these Christian geographers, there were the Arab writers. Wahad and Abuzeid travelled through the Eastern countries of Asia, and have left descriptions of their travels (A.D. 851—877); Abu Isbak published (A.D. 920) his travels from Khorasin to Sina. Masoudi Kothbeddin of Cairo described (A. D. 947) the most celebrated kingdoms of the three parts of the world then known, under the title, the Gilded Meadow, and the Mine of Precious Stones. In the year 980, Ibn Haukal gave a description principally of the Mohammedan countries. About 1140 appeared the travels of the Almagrurim (the wanderers), and in 1153 appeared the celebrated Nubian geographer, the Sherif Edrisi.

We ought to mention, moreover, the travels of the Jew Benjamin of Tudela, of the Syrian Ibn al Wardi, and the Persian Hambullah, from 1160 to 1240. Ruisbroeck (Rubriquis), a Minorite of Brabant, travelled, as ambassador from saint Louis to the great Mogul, through the chief part of Central Asia, and has left an account of the most interesting of his adventures. Almost twenty years after Ruisbroeck, in 1277, Marco Polo of Venice travelled through all Asia to Cathay (China). Fifty years afterwards, Abulfeda, prince of Hamah, in Syria, wrote his geographical work, Description of the Inhabited Earth. In 1390, the brothers Zeno of Venice made a journey to the north, which one of their descendants has described. At this time there also appeared several maps by the Persian Nasir Eddin, by Picigno, Mart. Sanudo, Andrea Bianco, Benincasa, Roselli, Brasl, Behaim, and Ulug Beg, a grandson of Tamerlane, in Samarcand. The first map containing America was executed by the brothers Appiani; another was soon after prepared by Ribero. About this time, 1526, lived Leo of Grenada, who composed a description of Africa. Fifty years afterwards, the famous Gerard Mercator, a German, published his charts, and the measurement of a degree was now made, for the first time in Europe, by Ferrel, Schnell, Norwood, Riccili, and Picard, between 1550 and 1669, 700 years after the Arabian Caliph Al-Mamun had caused the first measurement of a degree in Asia. In the beginning of the seventeenth century, the Austrian ambassador, Von Herberstein, rendered a great service to the geography of Russia by his Commentaries. At the end of the same century, Engelbrecht Kämpfer travelled to Japan, and has left us the description of his travels, which are still very valuable. In the beginning of the eighteenth century, the measurements of a degree by Condamine and Maupertuis, and the maps of Sanson and Homann, must be noticed. The attempts of the French, Swedish, and Spanish mathematicians, to measure a degree under different latitudes, have been pursued in the nineteenth century, and in 1818, the British astronomers united their exertions with the French. Maps have been very much improved by this means, as well as by the trigonometrical surveys of various countries. See the *Monat. Corre-*

pondenz of Zach, the *Algemeine Geographischen Ephemeriden*, the *Astronomisches Jahrbuch* of Bohnenberger and of Lindenau; see, also, the article *Geography*.

TRAVESTY (from the French *travestir*, to disguise) designates a comic treatment, particularly in poetry, of a subject which has been already handled gravely, so that it is, as it were, divested of its grave dress, and a comic one put on. Travesty presupposes weak points in the travestied subject; it takes for granted, that an air of grandeur has been attempted to be given to littleness. But, in fact, most travesties purposely degrade the subject treated, in order to make it appear ridiculous. In its proper character—that of ridiculing littleness, which has assumed the shape of greatness—it differs essentially from parody, which employs the existing poetical dress of a grave subject, for clothing a ridiculous one. Both depend on contrast, and though they may excite a laugh, hold a very inferior place among the various species of poetry. It has been asked whether they are at all admissible. As respects parody, which only imitates the form of a grave composition, but without ridiculing its subject, there seems to be no sufficient reason for condemning it entirely. But travesty, being a direct attempt to throw ridicule on subjects of an elevated character, seems less entitled to indulgence. Still, however, when the poet merely seizes upon the weak points which he actually finds in the midst of greatness and dignity, and exposes them in a form adapted to produce a comic effect, he will divert his reader, without degrading the truly noble, or impairing the effect of works of an elevated character—a reproach which has been so often brought against travesty since the time of La Mothe.

The finest comic productions of the Greeks sprung from this freedom of mirth; and though the Grecian spirit inclined more to the parody (for instance, the *Batrachomyomachy*, the parodies of Matron, and his fragments, in Athenæus ii. 5, and innumerable passages of Aristophanes), travesty was yet by no means unknown by them, but showed itself with equal boldness in the productions of the fine arts, and in comic poetry; the highest of their gods were made to appear in works of sculpture, and on the stage, in a comic character. The question, however, still remains, whether travesty is not a dangerous game, and especially in the case of such nations as have a natural tendency to levity, or in ages when taste has degenerated, lost its susceptibility for the great and noble, and become eager for amusement solely. In such cases, travesty undoubtedly tends to encourage a tendency which is already excessive; and even in those cases in which it may be allowable for the sake of the satisfaction to be found in a hearty laugh, it requires a sound judgment, both in the writer and reader, and should be enjoyed with much caution, to prevent it from exciting a sickly craving for amusement. Travesty is either purely comic, the free effusion of a sportive humour, or it unites with the object of mirth that of satire. It may exhibit the ridiculous side of a subject, or may merely attack the form in which it is presented, and show the incongruity between the two. Either mode is consistent with the general aim of satire, the lashing of folly and vice. In respect to its form, the travesty is either lyrical, epic, or dramatic. Among the moderns, the French have the most writers of travesties, as Marivaux, Scarron (who travestied Virgil), and Moreau; the Italians possess a travestied Iliad, by Loredano, which does not, however correspond to the true object of travesty; the Germans have, besides several smaller lyrical poems of the kind, a travesty of the Æneid, by Blumauer, which often runs into vulgarity, but is not without wit. Cotton and Philips have travestied Virgil's Æneid in English. There are also various other English travesties, but generally too vulgar to be worthy of mention.

TREADMILL, an instrument of punishment lately introduced, consisting of a large wheel, about twenty or twenty-five feet wide, with steps on its external surface, upon which the criminals are placed. Their weight sets the wheel in motion, and they maintain themselves in an upright posture by means of a horizontal bar fixed above them, of which they keep hold. The power thus obtained may be applied to the same purpose as water power, steam, &c. The exercise is very fatiguing, and the prisoners are relieved every eight or ten minutes.

TREASON. Treason, the *crimen læsæ majestatis* of the Roman law, is considered to be the greatest crime that can possibly be committed. All crimes are regarded by the law, and punished, as offences against the peace and dignity of the community; and that crime which attacks directly the supreme authority of the state, is the most aggravated and heinous. Such is treason, or high treason; the minor species, or *petty* treason, being a treachery to some political or religious superior, who is not the chief of the state. In a monarchy, it is considered to be the betraying or the forfeiting of allegiance to the monarch; but in a community not governed by a supreme hereditary chief, it has reference to the government, or the whole body of the community. This crime can be committed only by a subject of the sovereign power, or a citizen of the state to which he owes allegiance, and only against such sovereign or state; and it consists essentially in renouncing his allegiance, and putting himself in the attitude of enmity or hostility. A traitor puts himself in the same relation to his own sovereign or state that a pirate holds to all states and governments. As all violations of the laws are acts of disrespect and disobedience to the authority by which these laws are enacted and administered, Socrates considered the act of escaping from prison, and so avoiding the punishment of death, which awaited him, as inconsistent with his allegiance to his state, and a sort of treason, and, for this reason, refused to make use of the means offered for his escape. But whatever opinion may be formed of the force and extent of the obligation of obedience to the laws in general, there is a characteristical distinction between other violations or evasions of the laws, and treason, which crime consists in betraying, setting at defiance, or making war against, the supreme authority.

Such is the distinguishing characteristic of treason, in the application of which to particular acts, there has been a great diversity. No one subject of legislation and juridical interpretation has been more fruitful of abuse, oppression and cruelty. The more arbitrary governments, whether popular, aristocratical or monarchical (for all these species may be equally arbitrary), have construed the most indifferent and insignificant acts into treachery to the government, and a forfeiture of the sacred obligations of allegiance. In the reign of Edward IV., in England, a citizen of London said he would make his son heir of the crown, meaning the sign of the house in which he lived. For this pun, he

suffered death, under a conviction for high treason. In the same reign, a gentleman, whose favourite buck had been killed by the king, in hunting, said, in his vexation, he wished its horns in the belly of the person who had counselled the king to kill it; and, as the king had killed it of his own accord, and was so his own counsellor, this expression was construed to be high treason, for which the party suffered death; though one of the justices of the court in which the judgment was given, justice Markham, chose rather to leave his place on the bench, than to assent to such a judgment. Those convictions were had under the species of treason, which consists in compassing or imagining the king's death. It was under the same description of this crime, and in pursuance of a still-broader interpretation of it, that Dionysius, the tyrant of Syracuse, ordered a man to be executed, for *dreaming* of the tyrant's death, on the pretence, that he would dream of only that which had occupied his waking thoughts. This was construing to be treason what was not even the act or thought of the party executed. But, when some act of the party accused has been considered requisite to constitute this crime, instances have occurred, of constructive treasons, which were little more than dreams. Algernon Sidney was condemned in the court of king's bench for treason, while the infamous Jeffreys was chief justice, and executed in pursuance of the sentence, in the time of Charles II., on the proof of some abstract speculations on the subject of government, found in his hand-writing, in his private cabinet, and not proved to have been shown to any other person, or intended for publication. These were construed to be an *act* of treason, because *scribere est agere* (to write is to act); and, upon this construction, he was executed for what was little more, in a juridical view, than a waking dream reduced to writing. The legislation of parliament, during the reign of Henry VIII., seconded the capricious and arbitrary disposition of that monarch, by creating a multitude of descriptions of high treason, such as stealing cattle by Welshmen; counterfeiting foreign coin; wilful poisoning; execrations against the king, and calling opprobrious names by public writing; licentious solicitation of the queen or a princess; a woman's becoming married to the king without first disclosing any deviations from chastity, which she might have committed; judging or believing the king to have been lawfully married to Anne of Cleves; derogating from the king's royal style or title; assembling riotously, to the number of twelve, and not dispersing on proclamation. It would be tedious to enumerate all the acts, which by legislative enactments or judicial construction, have been brought under the denomination of treason, and, on the imputation of which, men have been barbarously put to death.

The present law of treason in England rests substantially upon the statute of the twenty-fifth year of Edward III., which comprehends seven descriptions, viz. 1. compassing or imagining the king's death; 2. violation of the king's companion (meaning the queen), his eldest daughter, unmarried, or the wife of his eldest son and heir; 3. levying war against the king, in his realm; 4. adhering to his enemies in his realm, and giving them aid and comfort in the realm or elsewhere; 5. counterfeiting the great or privy seal; 6. counterfeiting the money of the realm, or bringing into the realm any counterfeit of the national coin; and, 7. slaying the chancellor, treasurer, either of the justices of the court of king's bench or common pleas, or of the justices in eyre or of assize, when in the discharge of their judicial functions, in open court. To the provisions of this statute others have been added, by other statutes, relating, 1. to Papists; 2. to falsifying the coin; 3. to the Protestant succession in the house of Hanover. Some of these laws have become obsolete by the extinction of the Pretender's branch of the reigning family, and the laws in relation to Popery have been materially modified and mitigated.

It is evident, from the preceding enumeration of acts, now or heretofore considered in Britain as constituting treason, that this is a subject of legislation and juridical administration, in which the liberty of the subject or citizen is very deeply concerned. "The natural inclination," says Mr Rawle, "of those who possess power, is to increase it. History shows that to enlarge the description of treason has often been resorted to, as one of the means of increasing power. The governors, whether for life or fixed periods, or by hereditary right, or election, or merely the right of the strongest, in estimating what acts of disrespect, indignity, or hostilities to themselves, or to the government of which they, for the time being, form a part, shall be considered as treachery to the state, and a dissolution of the ties of allegiance are, very naturally, liable to err on the side of exaggerating the treasonable character and tendency of conduct. As far, therefore, as the influence of self-esteem, and a love of the exercise of power, are to be guarded against, it is important to limit the discretion of the governors, in putting a construction upon the conduct of the governed, in this respect.

The punishment of treason is nothing less than death, and, by the laws of some states, a peculiarly cruel death; as in the cases of Ravaillac and Damiens in France. The English law condemns the convict to be drawn to the place of execution, there hanged, and cut down alive, and embowelled, and his entrails burned while he is yet alive; then he is to be beheaded and quartered. But the more barbarous and revolting parts of this punishment are usually remitted, the convict being drawn to the place of execution, it is true, but on a hurdle, and not on the ground, and, when he arrives there is simply beheaded. By the English law, a convict of treason works forfeiture of lands and goods to the crown, and attainder of blood; so that no person can inherit an estate to which he must derive a title through the person convicted of this crime. This attainder may be reversed, that is, the punishment of the traitor's heirs for his offence may be remitted by act of parliament, as was done in respect to the heirs of Algernon Sydney. In the French *code pénal*, the term *high treason* no longer occurs. Crimes against the peace and safety of France, and against the person of the king, or of the royal family, are punished with death and the confiscation of property (*Code Pénal*, A. 75—102). The Prussian code defines high treason as that crime which has for its object a subversion, by violence, of the government of the state, or which is directed against the life or liberty of its sovereign, and is distinguished, both from the *Landesverrätherei*, § 100 (by which the state is exposed to danger from foreign powers), and from crimes against the internal tranquillity and security of the state, and from the *crimen laesæ majestatis*, or of personal injury to the

dignity of the head of the state. The Austrian penal code of 1805 defines high treason to be, 1. the violation of the personal safety of the sovereign, and, 2. undertakings for effecting a violent revolution of the government, or for producing or increasing a danger to the state from abroad. The Bavarian code (1813, of Freuerbach) assumes a kind of treason, without giving a definition of it, of which the first degree is called high treason, and is committed by attacks on the person of the king, with the intention of killing him, taking him prisoner, or delivering him into the hands of the enemy, and by attacks on the independence and constitution of the state. Assisting the enemy is treason of the second degree: treachery to the state, by the delivery of papers, &c., belongs to the third class: in the fourth, very different acts are brought together, such as applying to a foreign power, on account of a legal claim against the state, injuring foreign sovereigns, and ambassadors, inducing subjects to emigrate, and levying soldiers for foreign powers. In the new plan of 1822 (by Gönner), these ideas are somewhat differently arranged. The second class of treasons is united with high treason; the idea of treason against the state is limited to the third class; and the fourth is brought under the title of actions dangerous to the security of the state. High treason is distinguished from other crimes, inasmuch as it is regarded as wholly perpetrated, i. e. is obnoxious to the full punishment of the law, so soon as the design is evinced by actions, and inasmuch as those are participators in it who are acquainted with treasonable projects and do not reveal them.

TREASURY. In England there was formerly a lord high treasurer, who was the principal officer of the crown, and under whose charge was the treasure in the royal exchequer. He was invested with his office by the delivery of a white staff to him by the king. But for upwards of a century, the management of the treasury has been put in commission. There are five commissioners, among whom are the first lord of the treasury, and the chancellor of the exchequer. The former is considered as prime minister, and has the appointment of all offices employed in collecting the revenues of the crown, the disposal of all places relating to the revenue, and power to let leases of crown lands. The latter, to whom is specially intrusted the revenue and expenditure of the nation, commonly takes the lead of the ministerial party in the house of commons, in which the seats occupied by that party are called the *treasury benches*. The offices of the first lord of the treasury and chancellor of the exchequer are sometimes united in the same person, when the former is a commoner, as in the case of Pitt and Canning.

TREBBIA; a river of Italy, duchy of Parma, which falls into the Po above Piacenza. It is noted as the scene of Hannibal's second victory over the Romans (see *Hannibal*), and was also the scene of Suwarrow's victory over the French in 1799.

TREBISOND, or TARABOSAN (anciently *Trapezus*); a city of Asiatic Turkey, capital of a pachalic, with a harbour on the Black Sea, founded by a Greek colony of Sinope; lon. 39° 28′ E.; lat. 41° 3′ N.; population estimated at about 15,000. The houses, mostly built of stone and lime, are of a mean appearance. It contains eighteen mosques, eight khans, five baths, and ten Greek churches, and is the residence of a pacha and a Greek metropolitan. The trade is considerable. The present walls are built of the ruins of the ancient edifices. The castle, which is much neglected, is situated upon a rock, and its ditches are cut in the rock. Trebisond was, at one time, the capital of a small kingdom, erected by Alexius, a Byzantine prince, at the time when the capital of the empire was captured (1204) by the Latins or crusaders from the West. (See *Byzantine Empire*.) His successors assumed the imperial title, and continued to bear their family name, Comneni. (q. v.) After this little state had existed for two centuries, Mohammed II. besieged and captured the king in his capital (1461), and incorporated the kingdom with the Turkish territories.—See Fallmerayer's *History of the Empire of Trebisond* (in German, Munich, 1827.)

TREBUCHET, or CUCKING-STOOL. See *Cucking-Stool*.

TRECHT, DRECHT, TRICHT; termination of many Dutch names (derived from the Latin *trajectum*, passage, ford), as *Dordrecht*, *Utrecht*, *Mastricht* (passage of the Mass, Meuse). It is the same as the German *Furt*.

TRECKSCHUYT; a sort of covered vessel, sixteen to twenty-six paces long, and three to six broad, drawn by horses, and used in the Netherlands on the canals. They go at fixed times from one town to another, and have generally a large apartment for all the travellers, together with a cabin for those who wish to be private.

TREE. See *Botany*.

TREE-NAILS; certain long, cylindrical wooden pins, employed to connect the planks of the ship's side and bottom to the corresponding timbers. They are superior to spike nails or bolts, which are liable to rust and loosen. The thickness of the tree-nails is usually proportioned to the length of the ship, allowing one inch to every hundred feet.

TREE OF LIBERTY. See *Liberty Tree*.

TREMOLITE. See *Hornblende*.

TRENCHES are, in general, all those works which are used in attacking a fortress; hence, when a siege is commenced, the trenches are said to be opened. Ditches are dug from three to five feet deep, from ten to twelve feet broad, and the earth taken from them is thrown up on the side toward the fortress, to afford a defence against the shot. In order to protect the flanks, the ditches are so extended as to reach beyond the fortress. This gives to the trenches a zigzag form. Trenches of this kind were first used by the French, at the siege of Harfleur, 1449. The idea of this mode of proceeding is found even among the ancients. Sometimes the besieged construct counter trenches (*contre approches*), to the extreme point of the trenches of the besiegers, and place cannon on them.

TRENCK, Frederick, baron von der, a Prussian officer, born at Königsberg, in 1726, was the descendant of an ancient family. In his youth he displayed an adventurous disposition, and, at the age of sixteen, was admitted to the court of Frederic the Great, as a cadet in the regiment of guards. The king made him his aid-de-camp, and, in the seven years' war, Trenck greatly signalized himself. An intrigue with the sister of Frederick involved him in severe misfortunes, and he was at length imprisoned in the fortress of Glatz, under pretext of his carrying on a correspondence with his cousin, Francis von der Trenck, commander of the Pandoors in the service of Austria. Having effected his escape, his relation, general Lieven, who was in the service of Russia, persuaded him to go to Moscow, where he was exceedingly well received. Having visited Sweden, Denmark, and Holland, he returned

to Vienna to take possession of the property of his cousin, who died in 1749, and then took a journey to Italy. On his return, he was appointed a captain of Austrian cuirassiers, and, joining his regiment in Hungary, he contributed materially to its improvement in discipline. The death of his mother taking place in 1758, he went to Dantzic to arrange the disposition of her property, when he was arrested, and conducted to the fortress of Magdeburg, where he remained in close confinement till 1763. His involuntary seclusion was devoted to ineffectual projects for effecting his escape, to study, and to writing verses. Being at length set at liberty, probably through the interference of the princess Amelia, he went to Aix-la-Chapelle, where he fixed his residence, and, in 1765, married the daughter of a burgomaster of that city. Literature, politics, and commerce as a wine-merchant, then alternately engaged his attention. He wrote a piece entitled the Macedonian Hero, the professed design of which was to unmask the character of Frederick II., and edited a weekly paper called the Friend of Men. In 1772, he commenced a gazette at Aix-la-Chapelle, which he conducted for some time with considerable success. His wine trade failing, he returned to Germany, and was employed in various political missions. At Vienna he received new favours from the empress, Maria Theresa, who bestowed a pension on the baroness Trenck, which, however, she lost on the death of that princess, for whom Trenck composed a funeral oration and ode. He then retired to his castle of Zwerback, in Hungary, where, for six years, he devoted himself to agricultural pursuits. He also published, by subscription, various works in prose and verse, including the history of his own life. After an exile of forty-two years, he was permitted to revisit his native country in 1787, when he was kindly received by the successor of the great Frederick; and he had an interview with the princess, to whose favour he had owed so many of his misfortunes. The revolution in France found a ready partisan in Trenck, who published some political pamphlets, which involved him in disgrace with the Austrian government; and he not only lost a pension which he had hitherto received, but also suffered a short imprisonment. Towards the end of 1791, he revisited France, but was arrested on suspicion of being a secret emissary of the king of Prussia, and imprisoned at St Lazarus. There being no evidence to support this charge, he was accused of having taken part in a conspiracy in the prison, for which he was guillotined, July 25, 1794.

TRENT; a city of Tyrol (in Latin, *Tridentum*, called by the Italians *Trento*, and by the Germans *Trient*), formerly capital of a princely bishopric of the same name, sixty-five miles north-west of Venice; lon. 11° 4′ E.; lat. 46° 6′ N.; population, 9603. It is situated on the Adige, in a delightful valley among the Alps; but its climate is subject to great extremes, being intensely cold in winter, and hot in summer. It is surrounded with walls, and contains a cathedral, two other churches, an hospital, a gymnasium, and a lyceum, or central school. The streets are tolerably wide and well paved, the houses generally old. The inhabitants are employed partly in the manufacture of silk, and partly in the culture of vines and tobacco. Trent is remarkable for a famous council, commenced in 1545, terminated Dec. 4, 1563, having continued, with more or less interruption, during eighteen years. See the next article.

TRENT, Council of. The reformation of the church, which had been the object of the councils of Constance and Basle, the policy of the popes would not suffer to be carried into execution. Pius II., in 1460, forbade an appeal to a general council, and Julius II. renewed this prohibition in 1512. But to such a council only could Catholic Christendom look for the accomplishment of its earnest wish for a thorough reformation of the church; and in the course of the German reformation, even the Protestant princes expressed their desire for such an assemblage of the clergy. The emperor Charles V. urged it zealously. He found it a very effectual mode of alarming the pope, and curbing the Protestant princes, and thus controlling both parties, to persevere in demanding that a council should be convoked on German soil; for whilst the pope justly feared the questions which might come under investigation, the German Protestants dared not, on account of the Catholic states, refuse at least to accept a proposal, which, in reality, was of importance only for the latter. Charles solemnly announced a council to the states at the diet of Augsburg, in 1530, and, in order to prevent his summoning it also, preparations for it were made in Rome. Accordingly, Clement VII., in that same year, decreed it, but without fixing the time; and Paul III., his successor, appointed it to be held, May 27, 1537, at Mantua. As the conditions offered by the duke of Mantua were not acceptable, the place was changed to Vicenza, and May 1, 1538, was fixed upon, when, as no prelates arrived, it was again delayed till Easter, 1539; and, as neither France nor Germany consented to the place selected, it was again postponed to an indefinite period, in consequence of the resolutions of the diet of Ratisbon, in 1541. Paul summoned it again for November 1, 1542, and showed his willingness to choose a German city by naming Trent. His legates arrived there November 22; but a war of the emperor with France gave occasion to another postponement to a more convenient time. Such a time the pope believed he had found amidst the preparations of Charles against the Protestants, and summoned the council to meet on March 15, 1545. The cardinals Del Monte, Cervino della Croce, and Pole, arrived at Trent, at the appointed time, as presiding legates; but as the number of bishops (twenty) and envoys who followed was but small, the time was spent in disputes about rank, and in pleasure excursions; the summer passed away, during which the prelates came and went, till at length, at the command of the pope, December 13, 1545, the general council of Trent (*Sacrosancta oecumenica et generalis synodus Tridentina, præsidentibus legatis apostolicis*, thus called in the papal brief) was solemnly opened, twenty-five bishops and some other prelates being present. In the succeeding confidential conferences, it was agreed that committees of bishops and doctors of theology should prepare the subjects to be treated in particular and general meetings (not public sessions of the fathers), the proposed decrees and canons should be decided by a majority of votes (the votes being reckoned, not by nations, as at Constance, but by heads); the public sessions in the cathedral, with mass and preaching, should be merely ceremonial acts, for publishing and confirming the resolutions that had been adopted. The method of voting by heads, of which the Italian prelates and the titular bishops (who were both on the side of the pope) formed the majority; and the circumstance that the committees were chosen and

instructed by the legates, was sufficient to give a turn to the council according to the will of the pope, who had formed at Rome a particular assembly of cardinals to consult upon the affairs of the council. Add to this the vigorous, proud, and domineering spirit of the cardinal Del Monte, entirely devoted to his master; his daily, nay, hourly, correspondence with him by means of an uninterrupted line of couriers, which brought to him, according to the changing resolutions of the pope, public and private directions for every aspect of affairs, and many other arrangements by which the Roman policy was able to influence the assembled prelates according to circumstances. Hence even the Italian bishops were heard to complain, that the council was not a free one. Princes and people expected from this union of holy men the abolition of abuses which had been long complained of, and an improvement of the church in its head and members, which would obviate the objections of the Protestants, and induce them to return to the bosom of the Catholic church. The imperial envoys openly urged that this should be the chief object of their labours, yet, in the second and third sessions, January 7 and February 4, 1546, nothing was done except the reading of rules for the regulation of the fathers while at Trent, of exhortations to extirpate heretics, and of the Nicene creed. From the fourth to the eighth of April, when five archbishops and forty-eight bishops were already assembled, two decrees were enacted, in which the reception of the Apocrypha into the canon of the Holy Scriptures was taken for granted; tradition was declared of equal authority with the Bible; the Latin translation of the Bible, known by the name of *Vulgate*, was received as authentic; and the church was declared the only legitimate interpreter of them. From these, as well as from the decrees of the fifth, sixth, and seventh sessions, June 17, 1546, January 13, and March 3, 1547, on the doctrines of original sin, justification, and the seven sacraments, till then not confirmed by a statute of the church, it was evident that the pope and his legates had the intention of placing Catholicism in pointed contrast with the doctrines of Protestantism. To each of these decrees, several canons, that is, anathemas against those who dissented from them, were added. In order to pay some attention to the wishes of the nation, strenuously supported by the emperor, the legates added some decrees, for the purpose of reformation, to those intended merely for the settlement of doctrines. The duties of preachers, and the administration of the inferior offices, from the bishops downwards, were more suitably arranged, without, however, radically attacking the prevailing abuses. Even by these half measures, the legates feared they had yielded too much; and as the violent contentions between the prelates and the clergy of various orders, the bold assertions and proposals of the imperial envoys and German bishops, made the course of the deliberations continually more doubtful, and a speedy vacancy of the papal chair was anticipated, the legates made use of the false rumour of a pestilence in Trent, and, in accordance with a power long since received from Rome, in the 8th session, March 11, 1547, resolved upon transferring the assembly to Bologna, which was immediately followed by the departure of the Italian fathers. The solemn protestations of the emperor against this measure compelled 18 bishops, from his states, together with the bishop of Trent, cardinal Madruzzi, to remain in that city, whilst the legates, with six archbishops, thirty-two bishops, and four generals of religious orders, contented themselves, at Bologna, in the ninth and tenth sessions, April 21 and June 2, with publishing repeated decrees of adjournment, without deciding further upon the subject of the council. The nominal council at Trent, in the meantime, held no session; and as the emperor firmly refused to consider the assembly at Bologna as a council, and as the bishops departed, one after another, the pope at length declared, in a bull of Sept. 17, 1549, the council adjourned. After his death, the cardinal Del Monte, Feb. 8, 1550, ascended the papal chair, under the name of Julius III., and formally announced, at the desire of the emperor, the reassembling of the council of Trent in that very year. His legate, the cardinal Marcellus Crescentius, a man of a passionate temper, came with two nuncios to Trent, and opened the council, May 1, 1551, with the 11th session. This second period commenced with little splendour, on account of the small number of prelates present; and even when the influence of the emperor had brought together the German archbishops, besides many Spanish, Italian and German bishops, in all sixty-four prelates, yet, on account of the deficiency of theologians, only the subjects of future deliberations could be decided upon in the twelfth session, September 5, 1551. France kept back its bishops, as in the first period of the council, and presented, in this session, protestations against the continuation of it, by its envoy, James Amyot, on account of the then existing political contentions between king Henry and the pope. Nevertheless, the fathers proceeded in their work. The Jesuits Lainez and Salmeron, who had been sent as papal theologians, had a decisive influence upon the decrees, which now, laying aside scholastic differences, were briefly and precisely drawn up respecting the Lord's supper, penance, and extreme unction, and were published, the first with eleven canons, in the thirteenth session, October 11, the two last, with nineteen canons, in the fourteenth session, November 15. They added to this two decrees of reformation on the jurisdiction of the bishops, in which the limits of the episcopal authority, and the causes admitting of appeal to the pope, were determined, encroachments in foreign dioceses, and abuses in exercising the rights of patronage, and in the dress of the clergy, were prohibited; and the privileged ecclesiastical bodies, universities, monasteries, hospitals, &c., were exempted from the jurisdiction of the bishops. The canons, connected with the dogmatic decrees, contained only sentences in condemnation of the opinions of Luther and Zwingli; and yet the pope had invited the Protestants, by several nuncios, to take part in this act of the council, as the emperor insisted on their admission. Some envoys of the Protestant powers appeared, indeed, at Trent; those of Brandenburg in order to obtain from the pope the confirmation of prince Frederic in the archbishopric of Magdeburg, those of Würtemberg, and deputies from the cities of Upper Germany, to please the emperor, and perhaps also at the instigation of the elector, Maurice, whose own envoy arrived there January 7, 1552, and obtained an audience January 24, in a general assembly. To his extreme vexation, the cardinal legate was obliged to consent, that the Protestant theologians also should be heard, and provided with safe conducts. In order to cut off every possibility of an agreement with the Protestants, he had composed a decree on the consecration of priests, ex-

tirely in the spirit of Gregory VII.; yet the emperor gained his object, and, in the fifteenth session, January 25, this decree was not published, but only a postponement of the deliberations was resolved upon till the arrival of the Protestant divines. Under the imperial protection, the divines of Würtemberg and Upper Germany (from the cities) now also came to Trent, and the Saxons were already on their way thither, under the conduct of Melanchthon. These measures, however, were only a stratagem on the part of Saxony, in order to lull the emperor into security, as was soon evinced by the sudden commencement of hostilities on the part of the elector, Maurice, who forced the emperor to fly, and the members of the council to disperse. They resolved, accordingly, in the sixteenth session, April 8, upon its adjournment for two years, without having even commenced negotiations with the Protestants. Amidst these circumstances, of the greatest disadvantage for the authority of the pope, the treaty of Passau, and the religious peace of Augsburg, were concluded, and two Catholic princes, the Roman king Ferdinand, and the duke of Bavaria, even ventured, at their own risk, to grant to their Protestant subjects the privilege of the cup, though the council had refused them permission so to do. In France, the increasing power of the Protestants threatened to extort similar, and still greater privileges; and because pope Paul IV. (1555—59) would hear nothing of any council held without the city of Rome, the French bishops thought of summoning a national synod, for the settlement of the religious disputes. Paul's successor, Pius IV., saw himself compelled, in 1560 and 1561, to reassemble the general council. Although the Protestants did not accept the invitation, and the French government, rejecting the previous decrees of the council, demanded an entirely new and independent council, yet it was re-opened, January 8, 1562, by six legates of the pope, under the presidency of the cardinal, prince Hercules Gonzaga, of Mantua, with 112 bishops, mostly Italians, four abbots, and four generals of religious orders. In the eighteenth session, February 26, a decree was merely published for preparing an index of prohibited books; but, in the nineteenth, May 4, and in the twentieth, June 14, it was again resolved to delay the publication of new decrees. This delaying was a common means of the Roman policy to avoid opposition; for France, as well as the emperor and Bavaria, repeated their propositions for the reformation of the church, and for the admission of the laity to the cup in the Lord's supper, the marriage of the priests, and a revision of the laws concerning forbidden meat; and, besides, all the bishops, except those from Italy, agreed in the opinion so odious to the pope, that the episcopal power and rights were not of papal but of divine origin. But, in consequence of the majority of the Italian bishops, the results of the votes were always in favour of the views of the Roman court. Thus there were passed, in the twenty-first and twenty-second sessions, July 16 and September 17, 1562, the decrees respecting the celebration of the Lord's supper, and the sacrifice of mass, allowing preparatory explanations in the vernacular languages; but the laity were referred to the pope, as respected their demand for the cup in the Lord's supper. In these sessions, there were present 230 prelates, besides the ambassadors of the Catholic courts; and the number was increased, November 13, by the arrival of the cardinal of Lorraine, with fourteen bishops, three abbots and eighteen theologians, f... France, who not only gave new strength to the opposition, but also proposed thirty-four articles reformation, which could not but be exceedin offensive to the Papal party. This party, therfore, resorted again to delays, and postponed th next session from one month to another. Gonzag who was generally esteemed for his uprightness, b who was fettered in every step by the direction which he received from the Roman court, die meanwhile, March 2, 1563; and, in his place, th new legates Moroni and Stavageri presided, wh amused the fathers with empty formalities and theological disputes, so that at length the imperial an French courts were convinced that no reformatio of the church was to be expected from this counci and still less a peace with the Protestants, who entirely rejected the council. Moreover, the cardinal o Lorraine was won over to the Papal party by secret promises of personal advantage; and, although the German, Spanish and French bishops had hitherto zealously maintained the divine origin of their power, yet, at length, either tired out by length of time, or influenced by intrigues, they consented to a decree respecting the consecration of the priests and the hierarchy, entirely in accordance with the views of the pope, which received public confirmation in eight canons, in the twenty-third session, July 15, 1562. With equal pliability, they suffered to be passed, in the twenty-fourth session, November 11, the decree respecting the sacrament of matrimony, in twelve canons, in which the celibacy of the clergy was enjoined: and, in the twenty-fifth and last sessions, December 3 and 4, the hastily-composed decrees respecting purgatory, the worship of saints, relics and images, the monastic vows, indulgences, fasts, prohibition of certain kinds of food, and an index of prohibited books; the last of which, together with the composition of a catechism and breviary, was left to the pope. In the decrees of reformation, published in these last five sessions, which contained mostly insignificant or self-evident ordinances, or at least the same repeated only with different words, provision was made for the removal of the prevailing abuses, for the conferment and administration of spiritual offices and sinecures, &c. The most useful provision was that for founding seminaries for the education of the clergy, and the examination of those to be ordained. At the close of the last session, the cardinal of Lorraine exclaimed, "Cursed be all heretics!" and the prelates joined in the cry, "Cursed, cursed!" so that the dome resounded with their imprecations. Thus ended the council of Trent, the decrees of which, signed by 255 prelates, perpetuated the separation of the Protestants from the Catholic church, and acquired, with the latter, the authority of a symbolical book. The pope confirmed them, January 26, 1564, in their whole extent. The chief object of this council, the gaining back of the Protestants to the Catholic church, was not attained, and the points of dissension between the Roman and the Greek churches were marked out so distinctly, as to leave no hope of any future reconciliation. By its decrees, the Catholic doctrines were more exactly determined, and many abuses remedied, though the worst and most pernicious were left. These decrees were received without limitation in Italy, Portugal and Poland; in the Spanish dominions they were restricted by the statutes of the kingdom; in France, Germany and Hungary, on the contrary, they met with an opposition which gradually ...

sulted in a silent approbation of the doctrinal decrees on the part of the Catholics, but has always prevented the reception of the decrees of reformation, as irreconcilable with many laws of the respective countries, although the real improvements ordained were cheerfully received and put in execution. For the explanation and interpretation of the decrees of this council, Sixtus V., in 1588, instituted a council of cardinals, the continuation of which was found necessary by his successors. The works which have been written in support of, and opposition to, the council of Trent, the last that has been held, are very numerous, and many exhibit great talent. During the sessions of the council, Calvin wrote his antidote against the council of Trent, and, in 1560, when pope Pius VII. ordered the reassembling of the council, the Lutheran princes of Germany issued their *Concilii Tridentini decretis opposita Gravamina*, and even down to recent times, works have continued to be written on it, though the notions of Protestants are now too well settled to induce them to spend much time in refuting its decrees. The fundamental error connected with this council was, that Catholics and Protestants could suppose it possible to reconcile their differences by means of a council, which could only bring them out in stronger relief. It was, in fact, the great mistake of the time to suppose that truth could be settled by religious disputations. But, though it is easy to see now that a union between the Catholics and Protestants was impossible, it was not easy to see it then; and we can hardly blame men for wishing to produce harmony in Christendom. Even at a much later period, men like Leibnitz believed in the possibility of a reunion of the churches.

TREPANNING; the operation of opening the skull, by means of a surgical instrument, adapted for the purpose. The instrument used is called a *trepan*, or *trephine*, and consists of a handle, to which is fixed a circular saw, or hollow iron cylinder, of about an inch in diameter, called the *crown*, from the centre of which projects a sharp perforator, called the *centre-pin*. The upper part of the centre-pin screws into a hole at the top of the crown; its use is to steady the trepan before the teeth of the saw have made a sufficient furrow to prevent it from slipping; for which purpose it is pushed down below the level of the teeth of the saw, and fixed in the centre of the bone to be removed. The trephine differs from the trepan in having its crown fixed upon and worked by a common transverse handle, like a gimlet, instead of being turned by a handle, like a wimble or centre-bit, as is the case with the trepan. The former is used in England: the latter is preferred by the surgeons of continental Europe. The trephine performs only a semicircular motion, imparted by the pronation and supination of the hand, the teeth being so arranged as to cut, whether the instrument is turned from right to left or the reverse. The trepan is turned completely round and round on its own axis. The operation is performed in the following manner:—The hair is first removed from the portion of the skull to be taken out, and incisions, in the form of a cross, or of the letter T or V, are made quite through the scalp, in order to expose the bone. The centre-pin is then fixed, the trephine or trepan is put in motion, as above described, and the operation is continued until the bone is sawn through, which is then removed by the forceps. The divided scalp is finally placed, as nearly as possible, in its natural situation, and dressed. The aperture in the skull gradually becomes closed with soft granulations, which slowly acquire a hard consistency. Until this is the case, the patient must wear a thin piece of horn, or plate of metal over the aperture. The operation of trepanning is resorted to only for the purpose of relieving the brain from pressure. Such pressure may be caused by the depression of a portion of the cranium, or it may be produced by an extravasation of blood, or by the lodgment of matter betwixt the skull and the *dura mater*, occasioned by a blow upon the head, or the inflammation of the membranes of the brain.

TRESSAN, Louis Elisabeth de la Vergne, count of, was born in 1705, at Mans, went at an early age to Paris, and became acquainted with Voltaire, Fontenelle, and other celebrated men, by whom he was confirmed in his love of literature. In 1723, he entered the army, and afterwards travelled in Italy. When the war broke out between France and Austria, he was appointed aid-de-camp to the duke de Noailles, with whom he was at the siege of Kehl. He also distinguished himself at Esslingen and Philipsburg, in 1734. In 1741, he was employed in Flanders. In 1744, he was made maréchal-de-camp, and served at the sieges of Menin, Ypres, and Furnes. He was aid-de-camp to the king at the battle of Fontenoi, where he was wounded. In 1750, he was appointed governor of Toulouse and French Lorraine, and, soon after, made grand marshal to the ex-king of Poland, at Luneville, where he remained till the death of that prince. In 1781, he was admitted into the French academy, and took up his residence in Paris, where he died, October 31, 1783. He published a translation of the Orlando Furioso of Ariosto, which, together with extracts and translations of many other Italian and old French romances, appeared in *Les Œuvres Choisies de Tressan* (Paris, 1787—91, 12 vols., 8vo). He also wrote *Reflexions sur l'Esprit; Discours, prononcé à l'Acad. de Nanci; Eloges*, &c.

TREVES (in German, *Trier*; anciently, *Augusta Trevirorum*); a city in the Prussian province of the Lower Rhine, capital of a government of the same name, formerly capital of an electorate and archbishopric, on the Moselle; lon. 6° 38′ E.; lat. 49° 47′ N.; population, 9608. It has a picturesque situation in the centre of a large valley lying along the Rhine, and open to the north-west and south-east, but confined on the other sides by gentle eminences covered with vines; and the environs abound with gardens. It contains the late elector's palace, now converted into barracks, a cathedral, nine churches, seven convents, three hospitals, a lyceum, and a public library. A university was founded here in 1454, but converted by the French, in 1794, into a central school, now styled a gymnasium. Treves is the most ancient, and among the most celebrated, cities of Germany. It contains many Roman antiquities: coins, medals and inscriptions are frequently dug up; and the remains of the baths are extensive. The archbishopric of Treves was the oldest in Germany; the archbishop was the second elector of the empire, and had the title of "arch-chancellor of the holy Roman empire, for Gaul and Arles." By the peace of Luneville (1801), Treves was annexed to France, but, since the peace of Paris, has belonged to Prussia. The gymnasium has a library of 70,000 volumes and 2000 manuscripts. Among the churches, that of Our Lady is one of the finest monuments of German architecture. The arch called the *black*

gate, from its colour, is the most important Roman monument in Germany.

TREVISO, DUKE OF. See *Mortier*.

TREWES. See *Highlands*.

TRIAD (*three in one*). The number three was thought holy in the earliest antiquity. (See, for instance, Numbers xix, 12.) This must have its reason in the nature of the number. The number three represents to us unity and opposition, the principle and the moments of developement, or opposition, and the connecting unity (synthesis). It is the first uneven number in which the first even one is contained; herein lie its peculiar signification and perfection. Even in antiquity, it could not escape attention, that this number is to be found wherever variety is developed. Hence we have beginning, middle, end, represented in the heavens by rise, point of culmination, and setting; morning, noon, evening, and evening, midnight, morning; and in general, in the great divisions of time, the past, the present, and the future. In space, also, this number three occurs, as in above, midst, and below; right, midst, and left; and in general, in the dimensions of space, as length, breadth, and thickness or depth. To the eye, the number three is presented in the regular figure of the triangle, which has been applied to numberless symbolical representations; the ear perceives it most perfectly in the harmonic triad. (See the next paragraph.) As the triple is also the basis of symmetry, the three-figured form is found in architecture and in simple utensils, without any particular reference to symbolical or other significations. Of this kind are the triglyphs in architecture, the tripod, the trident, the three thunder-bolts of Jupiter, the ancient three-stringed lyre; though the number three has in these objects, as well as in the three-headed Cerberus, other more symbolical relations. Even in our thoughts, we meet the triad in position (thesis), opposition (antithesis), and union (synthesis).

Triad, Harmonic; a compound of three radical sounds, consisting of a fundamental note, its third, and its fifth. Of these three sounds, the gravest is called the *fundamental*, the fifth the *excluded sound*, and the third the *harmonical mean*. This division of the fifth into two thirds is performed in two ways; first, harmonically; as when the greater third is lowest, in which case, the triad is said to be perfect and natural; secondly, arithmetically; when the lesser third is lowest; and then the triad is called flat or imperfect.

TRIAL. See *Jury*, and *Process*.

TRIANGLE, in geometry; a figure of three sides and three angles. Triangles are either plane or spherical. A plane triangle is one contained by three right lines; and a spherical triangle is one contained by three arcs of great circles of the sphere. Triangles are denominated, from their angles, *right*, *obtuse*, and *acute*. A right-angled triangle is that which has one right angle; an obtuse-angled triangle is such as has one obtuse angle; and an acute-angled triangle is that which has all its angles acute. The triangle is the most important figure in geometry; and its various lines bear the most interesting relations to each other. See *Trigonometry*.

TRIANGULAR COMPASSES are such as have three legs, or feet, whereby to take off any triangle at once; much used in the construction of maps, globes, &c.

TRIANGULAR NUMBERS are a kind of polygonal numbers, being the sums of arithmetical progressions, the difference of whose terms is 1. Thus, from the arithmetical numbers 1, 2, 3, 4, 5, 6, are formed the triangular numbers 1, 3, 6, 10, 15, 21.

TRIANGULATING. In surveying, the larger the space the more complicated is the labour. A number of points are taken as the apexes of the angles of triangles, into which the space is supposed to be divided. This process is called *triangulating*. Triangles are chosen on account of the ease with which, if some parts of these figures are given, the others can be calculated. In those surveys in which the spheroidal form of the earth must be taken into consideration, astronomical operations are necessary; accurate instruments are to be prepared for measuring angles, such as theodolites, reflecting sextants, &c. The longitude and latitude of places, at least 140 miles distant from each other, must be accurately determined, and their meridians must be marked on the ground. These points then form a network, to be afterwards filled up, and are supported by a great basis, obtained as well from accurate measurement as from trigonometrical calculations or careful triangulating. This basis is situated, if possible, in a meridian, and is astronomically determined. In each of the chief triangles, a system of smaller triangles is calculated; the whole is then divided into square sections, each of which contains some of the points trigonometrically ascertained in what we have called the *network*. These furnish the means of surveying in detail, and of examination.

TRIANON; the name of two palaces near Versailles. Great Trianon (*le Grand Trianon*) has a front of 384 feet, and is remarkable for the beauty and luxuriance of its gardens, laid out by Lenôtre. The palace, built by Mansard in the Oriental style, is but one story high. At the end of the park of Great Trianon is *le Petit Trianon* (Little Trianon), which consists merely of a pavilion in the Roman style, with English gardens. This little palace was the favourite resort of Marie Antoinette, and was therefore exposed to the violence of the populace during the revolution. Great Trianon was much visited by Napoleon, and the decree of August 5, 1810, was dated here. See *Continental System*.

TRIBE (*tribus*). Romulus divided the inhabitants of Rome into three bodies, thence called *tribes*, each of which had a presiding officer (*tribunus*), and was divided into ten *curiæ*. Servius Tullius divided the inhabitants into four parts, which still retained the name of *tribes*. To these four city tribes (*tribus urbanæ*) were added the rural tribes (*tribus rusticæ*), the number of which was gradually increased to thirty-one. In the *comitia tributa*, in which the people voted by tribes, the lower magistrates, the ordinary magistrates, as the provincial magistrates, were chosen, laws were made, and criminal trials, not capital, conducted, &c.

TRIBONIAN, a celebrated statesman under Justinian, a native of Side, in Pamphylia, was distinguished for his great learning, particularly in jurisprudence, which gained him the favour of the emperor, and raised him to the highest offices of state. He became questor of the palace and consul; but his vices made him obnoxious, and he was removed (532), in consequence of a sedition, but again restored to his former dignities. He was notorious for avarice and taking bribes; but his learning and ability preserved him the confidence of

Justinian, who named him, with nine other civilians, to prepare the new *code*, with sixteen others to compose the *digest* or *pandects*, and with two others to draw up the institutes. (See *Civil Law*.) Tribonian was charged with being the secret enemy of Christianity, with atheism, and attachment to paganism; but these charges are not sustained by sufficient proof. He died 545.

TRIBRACHYS. See *Rhythm*.

TRIBUNAL, with the Romans; an elevated place where the pretor sat upon his *sella curulis*, when acting as judge: his counsellors sat near him. In the camp, the Roman general had also a tribunal of turf, where he gave judgment.

TRIBUNAT. The French constitution of December 15, 1799, projected by Bonaparte and Sieyes, committed the legislative power, though more in appearance than in reality, to a body (*corps legislatif*) of 300 men, and a *tribunat* of 100 members chosen by the conservative senate, from the three lists of candidates proposed by the departmental colleges. To the three consuls was reserved the right of initiating laws; to the *tribunat*, that of deliberating on subjects thus proposed, and to the legislative body that of accepting or rejecting measures thus proposed by the first, and discussed by the second. The members of the council of state, as the mouthpieces of the government, had a considerable influence in each body. The *tribunat* had also the privilege of expressing its wishes, and making representations to the government, and sometimes ventured to exercise this right. A *tribun* was to be twenty-five years old, and have a yearly income of 15,000 francs. The *tribunat* was renewed every five years, by the re-election of one fifth of its members yearly. The last voice of freedom in the *tribunat* was Carnot's speech in opposition to the election of Bonaparte, as emperor, in 1804. By the *sénatus-consulte organique* of May 18, 1804, its general meetings were abolished, and it was permitted to meet only by sections, of which there were three (for legislation, home affairs, and finance). In 1807, the *tribunat* was suppressed.

TRIBUNE (*tribunus*), among the Romans; originally, the commander of a tribe, thence a public officer, a commander in general. Thus there were military tribunes, and tribunes of the public treasury (*tribuni militares* and *tribuni ærarii*). The former commanded a division of a legion, consisting usually of about 1000 men; the latter assisted the questors, particularly in the distribution of money. The most important officers with this title were the *tribuni plebis*, or tribunes of the people (i. e. of the commons or plebeians), who were chosen from the plebeians to defend the rights of their order against the encroachments of the patricians. These tribunes were not, strictly speaking, magistrates, or invested with magisterial powers; but they exercised a great influence upon public affairs. The occasion of the creation of this office was the secession of the plebeians, on account of the oppression and injustice which they suffered from the patricians, to Mons Sacer, whence they refused to return into the city, till they had procured the consent of the senate to the creation of tribunes, whose persons should be inviolable, to protect their rights. They had the power of putting a negative upon the decrees of the senate, and of stopping the proceedings of magistrates by their *veto* (*I forbid it*); and in process of time their influence was increased to such a degree, that they often endangered the safety of the state. Their number was at first two, but was afterwards increased to ten; and as they were not dignified with the name of *magistrates*, they enjoyed none of the external marks of distinction which were attached to the magisterial dignities in Rome.

TRIBUNE, in the French houses of legislature; the pulpit or elevated place from which the members deliver their speeches, which they usually read, if they treat a subject at length. In general, only short replies are made *ex tempore*. Hence *tribune* is often used metaphorically. See *Tribunal*.

TRICOLORE. Whenever a great principle or interest, good or bad, brings large bodies of men into direct opposition, it is the common and natural course of things for some distinguishing cry or badge to be adopted by all those who espouse the same side; and the more active and absorbing the opposition is, the more significant becomes the sign. There is not time to give or receive long explanations: the questions will be, Are you whig or tory? patriot or royalist? a friend of the government or of revolution? do you fight for the red or white rose? do you wear the white riband on your sleeve? &c. These are the signs or watchwords in times of great excitement. Such a sign is the French *tricolore* (white, red, and blue). It is the emblem of all who adhere to the principles of the new order of things in France, of all whether monarchists or republicans, Bonapartists or Orleanists, who maintain the principle of equality, under whatever modifications. The white banner is the sign of the ancient aristocracy, the Bourbons, and represents the old order of things, under all modifications. The *tricolore* was adopted, originally, by accident, but has become a historical sign; and even if the elder line of the Bourbons could regain any permanent power in France, it could only be by adopting the *tricolore*; i. e. by yielding to the spirit of modern France, by becoming *national*. Bourrienne's Life of Napoleon contains some interesting facts respecting this badge. The *comte d'Artois* wore it in 1814. Fouché, in 1815, advised Louis XVIII. to adopt it; but an intrigue prevented his so doing. "Why," said the king, when Fouché urged this measure, "should I change my badge for another?" *Afin que personne autre que V. M. ne puisse le prendre*," answered the duke of Otranto. The first thing the duke of Orleans did, when he hastened to Paris, in the revolution of 1830, was to put on the *tricolore*. He gave a pledge by so doing, which was understood by all, and section sixty-seven was immediately added to the constitution, which runs thus: *France resumes her colours: for the future, there will be no other cockade than the tricoloured cockade.* This shows that the *tricolore* is considered the emblem of France, in opposition to the *white*—the colour of a family, the Bourbons, and, of course, all the interests attached to, and represented by, that family.

The *tricolore*, according to the best accounts of the time when it was adopted, owes its rank, as a national colour, to chance. In a moment of enthusiasm, the patriots had ornamented themselves with green leaves; and this colour of hope was about to be retained as the badge of their party, when it was recollected that it was the colour of the *comte d'Artois*, the most unpopular prince of the whole royal family. But a distinguishing sign was wanted; therefore the colours of the city of Paris, blue and red, were taken and planted every where by the citizens. In the mean time, the national guard had been organized; it was not hostile to the king; and

many military men having been, besides, incorporated with them, the white colour of the Bourbons was added to the colours of Paris, and thus arose the famous white, red, and blue ensign, which accompanied the French armies in Egypt, Spain, and Russia. It may not be irrelevant to remark, that the colours composing the *tricolore* have been successively those of the French standard for many centuries. The most ancient national standard of France is what is now called *chape de Saint-Martin*, though probably it did not refer to the garment of the saint, but to the standard of his abbey. St Martin of Tours was one of the first apostles of Gaul; and the religious banners of saints were, at early periods, assumed by the warriors, who commended themselves to their protection. This banner was blue, and became that of France. Probably about the beginning of the "third race" of kings, when the sovereigns resided permanently at Paris, St Denis, the saint of Paris, became more important, and his banner was adopted as the common standard of the country. It is the famous *oriflamme*: the colour was red. During the crusades, the cross took the place of the flag; and we must often look for its colour to find the national colour of that period. The French cross was red, and the English white; and it is difficult to ascertain exactly the period when the interchange of colours between these two nations occurred. It is generally placed under Charles VII.; but we find the white cross even under Charles VI. The change probably happened under Philip of Valois. At this period the English kings began to claim the sovereignty of France, and naturally adopted also the colour of France: they were, moreover, of the house of Lancaster, whose cognizance was the red rose. When the English were in possession of Paris, it was impossible for France to retain the red *oriflamme* as a distinguishing sign. Charles VII., moreover, wished to place France under the protection of the Virgin, whose emblem is often the white lily. Hence France adopted the white colour; and the standard of that time was known under the name of *cornette blanche*. Other changes were made afterwards. The king of Navarre and the Calvinistic party wore white scarfs; and the king himself wore the colour after he became Henry IV. But it seems that from time immemorial, a tricoloured flag was the national banner, as contradistinguished from that of the monarchy. When the Dutch asked Henry IV. to give them the colours of France, he gave them the tricoloured standard, which has ever since remained the Dutch flag, as well as that of the kingdom of the Netherlands. It is, like the French, red, blue, and white, only the colours are in a different order from those of France. The livery of Louis XIV. was tricoloured, blue, with white and red galoon lace. The vain Louis obliged his grandchild to take this livery with him to Spain, where it has descended to this day. The same was continued by the French descendants of Louis till the flight of Charles X. Louis also gave a tricoloured livery to Philip of Orleans, red, with white and blue galoon lace. It is now the livery of the servants of Louis-Philippe. In the eighteenth century, when Spain, France and Bavaria concluded an alliance, a cockade was invented to be worn by the armies of all three, in which the red of Spain, the white of France, and the blue of Bavaria, were united. As early as 1458, the colours of Paris were blue and red. Like many other things produced by the French revolution, the fashion of a national cockade was adopted by other nations; e. g. the Prussian is white and black; the Dutch orange, from the house of Orange; the Russian black and orange; the royal Saxon green and white; and, by the natural influence of great examples, we find that the liberals of all countries on the continent have adopted a tricoloured banner and cockade—the Germans, Italians, Poles, Belgians, &c. The Germans have chosen the three colours of the ancient empire—black, red, and gold.

TRIDENT. See *Neptune*.

TRIENNIAL ACT; the name generally given to the act of parliament, 16 Charles II., "for the assembling and holding of parliaments once in three years at least." This act was confirmed, after the revolution of 1688, by 6 William and Mary, c. 2. Under George I., the septennial parliaments were established. See *Septennial Elections*.

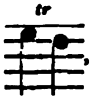
TRIESTE (anciently *Tergestum*; German *Triest*, a seaport of the Austrian dominions, in the kingdom of Illyria, capital of a district of the same name, is an open town, and lies at the head of the gulf of Venice, on the bay called the gulf of Trieste, in lat. 40° 43′ N., lon. 13° 58′ E.; population, 40,530, consisting of a mixture of Germans and Italians. As it is the only seaport of Austria which has a convenient harbour, it has an extensive commerce. Among the exports are quicksilver from Idria and Hungary, linen and woollens, printed cottons from Switzerland, Hungarian and Dalmatian wines, &c. The imports are raw cotton (in 1831, 21,000,000 lbs.), coffee, sugar, spices, fish, indigo, &c. In 1830, 290 vessels entered the port, of which 140 were British, and fifty American.

TRIFOLIUM. See *Clover*.

TRIGLYPHS. See *Architecture*.

TRIGONOMETRY; the art of measuring triangles. The meaning of the word, however, has been much extended, so that it embraces the determination of the situation and distance of all the points in a given space, in which the situation and distance of some points are given. The surveyor measures one or more lines and angles, and finds from these all the other points to be settled, by calculation. The great practical usefulness of trigonometry is obvious. If we imagine the various parts of the space to be surveyed connected by straight lines, besides the length of the lines and angles which they include, those angles also are to be considered which the various planes to which they relate make with each other. If the geometer has chosen some points of mountains, which, for the purpose of the survey, he considers as connected in triangles, they must, as they lie in various planes, be reduced to the horizontal plane; so that a plan may be drawn, on which all these various elevated objects shall appear in one plane. But if we consider the apparent celestial sphere, in the centre of which the observer seems to stand, the various points of the same may be regarded as connected by arcs drawn from this centre; and thus we shall have spherical triangles, as we had before plane ones, which again serve to ascertain the various points on the surface of the sphere. Trigonometry is divided into plane and spherical, and, in general, teaches to find, from three given parts of a triangle (of which, however, in plane triangles, one, at least, must be a side), the three remaining parts. How this is done we cannot show here.—See the articles *Sine*, and *Triangulating*. For further information, see Fischer's *Manual of Plane and*

Spherical Trigonometry (in German, Leipsic, 1819) —a very practical book; Lacroix's *Traité élément. de Trigonométrie rectiligne et sphérique* (6th ed., Paris, 1813); and the great work of Cagnoli, *Traité de Trigonométrie rectiligne et sphérique;* Vince's *Treatise on Plane and Spherical Trigonometry* (Cambridge, 1800); Ingram's *Elements of Plane and Spherical Trigonometry* (1799, 8vo.); Dr Forbes' *Theory of the Differential Calculus, with Applications,* (Glasgow 1837), also the works of Playfair, Bonnycastle, &c. Respecting trigonometrical tables, see *Sine* and *Logarithms.*

TRILL, or SHAKE (in Italian, *trillo*), is, in music, the quick, uniform alternation of two adjoining tones or semitones. The beauty of this grace, in music, depends upon its being equal, distinctly marked, and moderately quick. The lower tone is the chief and essential tone, and supports the shake: it is therefore marked, in writing the notes, and with this the shake closes; for example, . The upper tone is the assistant one, and distant from the lower either a whole or a half tone. Whether a whole tone or only a half tone higher is to be taken, depends upon the key, and the place of the chief note. The whole tone is taken, if the chief tone belongs to a sharp key; the half tone if it belongs to a flat key, or is a lower leading tone. The general rule for the execution of a shake, is to begin with the assistant tone, because thus the shake becomes clearer; hence , when executed, becomes yet there are some who execute it thus: ; that is, they give the chief tone first. Several progressive shakes are called a *catena di trilli.* According to what we have said, it is a fault if, in a shake, the second tone is heard little or not at all. This is called by the Italians *tosse de capra,* or *goat's cough,* and happens when the singer continues to quaver on the same tone, or when the shake is narrower than the interval of half a tone. On instruments, the shake is much easier than for the voice. Some of the best singers have no shake; and, as it is merely an ornament, it is much better to omit it than to perform it badly. Some birds have an exquisite shake, as the lark and nightingale. To learn a shake, it is necessary to begin slowly, in order to hit the distance of the two tones precisely.

TRILOGY; among the ancient Greeks, a union of three tragedies, connected in subject, which, together with a satirical piece, were performed in immediate succession. The trilogy in connexion with this satirical piece was called *tetralogy.* Every tragic poet who became a competitor for the prize at the feast of Bacchus, was obliged to produce such a tetralogy for performance. Such tetralogies of Æschylus were the *Orestias* and the *Lycurgia.* Mr Welcker also assumes the supposition of a trilogy of Æschylus, in his *Prometheus.* But there is only one trilogy of antiquity which we can be certain of possessing complete, namely, the *Orestias* of Æschylus, which contains the *Agamemnon, Coëphori,* and *Eumenides.*

TRIM; the state or disposition of the ballast, cargo, masts, sails, &c., by which a ship is best fitted for the purposes of navigation.

TRINIDAD; an island near the coast of South America, separated from Cumana by the gulf of Paria, which is about seventy-five miles broad. It is of an irregular square form, seventy-nine miles by fifty-six, and belongs to Great Britain. Lon. 60° 6′ to 61° 36′ W.; lat. 9° 48′ to 10° 42′ N. It is the largest, most fertile, and most beautiful, of all the Leeward islands, and was compared by Columbus to a terrestrial paradise. It is full of forest trees, and is situated out of the parallel of hurricanes, which have never as yet shifted so far to the south. The mornings and evenings in the island are delightful; the nights cool and refreshing, although the heat is great during the day; and the climate is healthy. Trinidad is capable of producing every article for the West India market, equal to any of the Windward islands. Here are several sorts of animals, plenty of wild hogs, fish, fowl and fruit. It also produces maize, cassava, and other roots, and, in general, all that is commonly found in America. The island of Tobago is separated from Trinidad by a channel called Trinidad channel. The chief town is Port of Spain. Population, 44,163; 24,006 slaves, 15,956 free coloured, and 4201 whites. Exports to Great Britain, in 1829, £694,001; imports from the same, £361,077.—Trinidad (Spanish, *Trinity*) was discovered by Columbus, in 1498. After having been taken by Raleigh, in 1595, and by the French, in 1676, it was finally reduced by the British, in 1797, and was ceded to Britain by the peace of Amiens. Utensils, vases and pastes have been found here, which some have supposed to have been left by the Carthaginians.

TRINITY. The doctrine of the Trinity, received by the greatest part of the Christian world, teaches that in the unity of the Godhead there are three persons, of one substance, power and eternity, the Father, the Son, and the Holy Ghost. The word *Trinity* does not occur in the Scriptures, nor in the Apostles' Creed, nor in the Nicene creed, but is found in the Athanasian creed (see *Creed*), in the following clause: "The Catholic faith is, that we worship one God in Trinity, and Trinity in unity, neither confounding the persons nor dividing the substance." (See *Antitrinitarians,* and *Unitarians.*) The former clause is directed against the Patropassian and Sabellian heresies, and the latter against the Ebionites, Cerinthians, Photinians, Arians and Macedonians. See *Heretic.*

TRINITY COLLEGE, or DUBLIN UNIVERSITY, was founded by queen Elizabeth, in 1591. It has a provost, who receives £3000 a year, seven senior fellows, with about £1000 income, sixteen junior fellows, who are tutors, and whose income depends on their success, and seventy scholars. The students are divided into three classes, fellow-commoners, pensioners and sizars, about thirty in number, who receive their commons and instruction gratis. Roman Catholics and Dissenters are not excluded, as they are in England. See *Dublin,* and *University.*

TRINITY HOUSE (London). The society of

the Trinity was founded in 1515, for the promotion of commerce and navigation. It is a corporation, consisting of a master, four wardens, eight assistants, and thirty-one elder brethren, selected from commanders in the navy and merchant service; but, as a compliment, some of the nobility are occasionally admitted. They examine the naval pupils in Christ's Hospital, and the masters of king's ships, appoint pilots for the Thames, settle the rates of pilotage, erect light-houses and sea-marks, hear and determine complaints of officers and men in the merchant service, and all business connected with the Thames, &c. The revenues of the Trinity house are supposed to exceed £150,000 a year, derived from light-house dues, pilotage, &c. The present Trinity house, on Tower hill, was built in 1795.

TRINITY SUNDAY. See *Sunday*.

TRINITY TERM. See *Terms*.

TRINKAMALY, or TRINCOMALEE; a seaport of Ceylon, on the north-east coast, seventy miles north-east from Candy; lon. 81° 23′ E.; lat. 8° 31′ N. It is of greater extent than Columbo, but contains fewer houses and much less population. The harbour is one of the best and safest in the island, and, from its convenient situation, of great consequence to a maritime power.

TRIO; 1. an instrumental piece of three obligato voices, or two chief voices and an accompanying bass, or of one chief voice and two accompanying parts. A trio is also called *sonata a tre*, and generally belongs to the class of *sonatas*. But it is not necessarily confined to three parts, as, e. g. if one part is for the piano, which, in a trio, is generally counted but one, though it plays at least two parts, as is the case in many trios of Beethoven, Ries, &c. 2. In a minuet, *trio* signifies the passage which alternates with the proper minuet, and corresponds to it, and which, therefore, was formerly called *menuetto alternativo*, or the second minuet. It is generally written in the corresponding flat key, and was formerly written for three voices; hence the name.

TRIOLETT; a stanza of eight lines, in which, after the third the first line, and after the sixth the first two lines, are repeated, so that the first line is heard three times; hence the name. It is cultivated by the French; less by the Germans; and is suited for playful and light subjects.

TRIPOD; a symbolical instrument in ancient Greece, which is first met with in connexion with the worship of Bacchus. It was also connected with the Delphian oracle, or worship of Apollo (see *Delphi*); in general, a symbol of prophecy, of divine authority and wisdom, &c., particularly at Delphi, Athens, Thebes, Dodona, where it was also used in music. Creuzer observes that the tripod, like the three-stringed lyre, contained an allusion to the three seasons of the primitive calendar. We frequently find it guarded by a griffin. In the age of Homer, and till the beginning of a freer period of art, about the fiftieth Olympiad, the tripod was used chiefly for sacred offerings, or for the prizes in the games connected with religious worship. Thus, Olymp. 48, 3, the first contest was celebrated, in which the victor received a wreath; at the same time the determining of the seven wise men took place, among whom, according to tradition, the tripod was passed round. The tripod was retained as a prize in the *Bacchanalia* to a late period. The traditions of robbed, or presented, or lost tripods, upon which are founded almost every where rights of dominion and other claims, are of the highest antiquity. Of the receiving of the tripod by Hercules, an interesting representation is given upon the *candelabrum* in the collection of antiques in Dresden. The elder group of statues representing this subject (*Pausanias* XIII. 4) was a donation which the Phocians sent to Delphi, on account of a victory over the Thessalians. It consisted of large images of Hercules and Apollo contending for the tripod, and had on one side Minerva, on the other Diana and Latona. See Ottfried Müller's dissertation *De tripode Delphico* (Göttingen, 1820, 4to.).

TRIPOLI; the most easterly of the Barbary states, in Africa, bounded north by the Mediterranean, east by Barca, south by Fezzan and the Desert, and west by Tunis. It consists chiefly of a line of coast extending about 800 miles in length, from lon. 11° 38′ E. to lon. 32° 30′ E.; square miles, about 190,000; population differently stated at from 1,500,000 to 2,000,000. (See *Barbary States*.) The pacha exercises despotic authority. He is nominally subject to the Porte; but the authority of that power is little regarded. The principal officers of state are the bey or generalissimo; the aga, who commands the Turkish troops; the kaya, or grand judge; the kadi, or religious judge; the kaids, or governors of provinces; and the first and vice-admiral. The naval force is small; the armed vessels not being supposed to exceed six, mounting from six to sixteen guns. There is no regular army; not more than five or six thousand men are often called out; but on emergencies, fifteen thousand have been assembled.

Tripoli, the capital, lies on the Mediterranean, 300 miles south-east of Tunis; lon. 13° 18′ E.; lat. 32° 54′ N.; population stated from 20,000 to 25,000. It is built in a low situation, on a neck of land extending into the sea. It is of great extent, but a large portion of the space included within the walls is unoccupied. The caravansaries, mosques, houses of foreign consuls, and of the higher ranks of the natives, are mostly built of stone. The lower ranks construct their houses of earth, small stones and mortar: they never exceed one story, and have flat roofs, which serve as a promenade. With the exception of those belonging to the foreign consuls, they have no windows to the street. Bazars occupy a considerable portion of the city, and are kept in excellent order. The chief monument of antiquity is a superb triumphal arch of marble, erected in the reign of Pius Antoninus. The harbour, though not very spacious, is safe, and will admit small frigates not drawing more than eighteen feet. The castle is an irregular square pile. The town is surrounded by a wall, flanked with six bastions: there are two gates: the batteries are mounted with about fifty pieces of cannon. The trade is chiefly confined to Malta, Tunis and the Levant. The city has a considerable portion of the caravan trade with the interior of Africa; and the exports consist of the productions of the country and articles from the interior.

TRIPOLI, or TARABOLUS (anciently *Tripolis*); a city of Syria, and capital of a pachalic of the same name, seventy-five miles north-west of Damascus; lon. 35° 44′ E.; lat. 34° 26′ N.; population estimated at 16,000. It is situated at the foot of the branches of mount Lebanon, and along the edge of a small triangular plain, which extends between them and the sea. There is no harbour, but a mere road, defended against the action of the

sea by small islands or shoals. The anchorage is neither safe nor convenient. The only fortification consists of an old citadel, a Saracen building, now useless. The plain is covered with mulberry trees, serving for the production of silk, the staple of Tripoli.—The *pachalic of Tripoli* comprises a great part of the ancient Phœnicia, and consists of the declivity of Lebanon, with the plain between it and the Mediterranean. See *Syria*, and *Turkey in Asia*.

TRIPOLI. See *Clay*.

TRIPOLITZA; before the Greek revolution, the capital of the Morea, and residence of the pacha; at present, according to Anderson (Observations on the Peloponnesus), a heap of ruins, affording shelter to about 800 families; thirty miles north-west of Misitra; lon. 22° 18′ E.; lat. 37° 25′ N. It contained several mosques and churches, with 12,000 inhabitants, chiefly Turks. In 1821, it was taken by storm by the Greeks under Colocotroni (see *Greece, Revolution of*), and became the chief city of free Greece, containing a Greek population of 30,000 souls. Ibrahim Pacha took possession of the place in 1825, and, in 1828, exasperated at the destruction of his fleet at Navarino, razed it to the ground, striking the first blow with his own hand. The walls were levelled, the citadel blown up, and the churches, khans and mosques demolished, and whatever was combustible was then destroyed by fire.

TRIPPEL, Alexander, a very distinguished sculptor, was born at Schaffhausen, of poor parents, in 1747, and died at Rome in 1793, where he had lived since 1776. His works are distinguished by deep study of the antique, richness of imagination, accuracy of proportion, and the most delicate working of the marble in the naked parts.

TRIPPING; the movement by which an anchor is loosened from the bottom, either by its cable or buoy rope.

TRIPTOLEMUS, in mythology; a son of Oceanus and Terra, or, according to some, of Trochilus, a priest of Argos. According to the more received opinion, he was son of Celeus, king of Attica, by Nesæa, whom some have called Metanira, or Polymnia. He was born at Eleusis, in Attica, and cured, in his youth, of a severe illness, by Ceres, who had been invited into the house of Celeus by the monarch's children, as she travelled over the country in quest of her daughter. To repay the kindness of Celeus, the goddess took particular notice of his son. She fed him with her own milk, and placed him on burning coals during the night, to destroy whatever particles of mortality he had received from his parents. The mother was astonished at the uncommon growth of her son, and she had the curiosity to watch Ceres. She disturbed the goddess by a sudden cry, when Triptolemus was laid on the burning ashes; and, as Ceres was therefore unable to make him immortal, she taught him agriculture, and rendered him serviceable to mankind, by instructing him how to sow corn and make bread. She also gave him her chariot, which was drawn by two dragons; and in this celestial vehicle he travelled over the earth, and distributed corn to all the inhabitants of the world. In Scythia, the favourite of Ceres nearly lost his life; but Lyncus, the king of the country, who had conspired to murder him, was changed into a lynx. At his return to Eleusis, Triptolemus restored Ceres her chariot, and established festivals and mysteries in honour of the deity. He reigned for some time, and, after death, he received divine honours. Some supposed that he accompanied Bacchus in his Indian expedition.

TRISMEGISTUS. See *Hermes Trismegistus*.

TRISSINO, Giovanni Giorgio, an Italian poet and scholar, born at Vicenza, of a noble family, in 1478, devoted himself to study late in life. Demetrius Chalcondylas, whose memory he honoured with a monument, was his first teacher in Greek. After the death of his first wife, he left his native city for Rome, where Leo X. treated him with great distinction. That prince employed him in several honourable posts, and sent him on embassies to Denmark, the German emperor and Venice. Clement VII. likewise sent him to the emperor Charles V. who received him with favour, and loaded him with marks of his esteem. Meanwhile, Trissino had married a second time, and his son by his first marriage had instituted a suit against him at Venice, which, being decided in favour of the son, deprived the poet of a great part of his fortune. Trissino accordingly left Venice for Rome, where he died in 1550. He acquired great reputation among his countrymen by his Sophonisba, the first modern tragedy composed after the rules of Aristotle (1515). On its first appearance, it was received with incredible admiration, as a revival of the old Greek dramatic spirit, and was exhibited under the patronage of Leo with great splendour. But this enthusiasm could not last, since Sophonisba was a cold imitation of antiquity, and foreign to the national taste. It, however, contains single scenes of merit, but, as a whole, is deficient in vigour, elevation and fire. This tragedy contains the first specimen of Italian blank verse (*verso sciolto*). Trissino attempted to compose an epic in a similar way, after the model of Homer and the rules of Aristotle. But his *Italia liberata dai Goti*, although apparently popular in its subject, was too poor in invention and originality to become a national epic. His lyrical poetry is more happy. He likewise wrote a treatise on the Art of Poetry, which displays much learning. The best edition of his works is that published by Maffei (2 vols., 1729).

TRISTAN D'ACUNHA; the largest of three islands in the South Atlantic ocean, about 1500 miles from any land either to the west or north, very lofty, and about fifteen miles in circumference. A part of the island towards the north rises perpendicularly from the sea to a height apparently of a thousand feet or more. A level then commences, forming what is termed *table land*, and extending towards the centre of the island; whence a conical mountain rises, not unlike, in appearance, to the Peak of Teneriffe, as seen from the bay of Santa Cruz. Lon. 15° 40′ W.; lat. 37° S.

TRITCHINOPOLY, a town of Hindoostan, in the Carnatic, capital of a district, sixty-seven miles west of Tranquebar, one hundred and fifty-six south-east of Seringapatam, lon. 78° 50′ E.; lat. 10° 48′ N., is advantageously situated on the south bank of the Cauvery, built on a hill or rock 350 feet high, surrounded by double walls flanked with towers, encompassed with a ditch, and was esteemed by the natives impregnable. It contains a palace, a mosque, and two magnificent Hindoo temples, has a strong garrison, and is the residence of the civil authorities of the district. It was taken by the British in 1751.

TRITHING. See *Ridings*.

TRITON; son of Neptune and Amphitrite; a

sea god. In the war of the gods with the giants, he put the latter to flight by blowing his shell. Homer does not mention him, but Hesiod speaks of him as the *powerful*. He appears at first merely as the god of the Libyan lake Triton, but was afterwards represented as one of the inferior deities of the sea in general; and finally, we find mention made of many Tritons, who were half man, half fish, and upon whom the Nereids rode.

TRIUMPH. One of the most splendid spectacles of ancient Rome, and the highest reward of victorious generals, was the triumphal procession. The triumphs were of two kinds—the great triumph, and the ovation, or inferior triumph. Both could be celebrated only by order of the senate, with the consent of the people, and the former only by a dictator, consul or prætor, who had gained a victory over a foreign and free enemy, in a just war carried on under his command (*suis auspiciis*): it was likewise necessary that at least 5000 of the enemy should have fallen in open fight. According to the *lex Porcia triumphalis*, the general was required to appear, at the head of his army, before Rome (*ad urbem*), and present it to the senate, assembled in the temple of Bellona. The spectacle then began as soon as he had received permission to triumph from the senate and people. First, the triumphing general, in his triumphal robes, bearing a laurel branch in his hand, distributed, in the presence of the assembled people, money, marks of honour, bracelets, lances and garlands among his soldiers. The whole senate then went out to meet the victor, who, being seated in a gilded chariot, usually drawn by white horses, clad in a purple tunic (*tunica palmata*) and an embroidered toga (*toga picta*), crowned

with a laurel wreath, and bearing an ivory sceptre, with the eagle, in his hand, moved, with the procession, from the *campus Martius* through the streets, decorated with festive ornaments, to the capitol. Singers and musicians preceded, followed by choice victims, highly adorned, by the spoils, by the emblems of the conquered provinces and cities, and finally, by the captive princes or generals, in chains. Next came the victor (*triumphator*), followed by his relations and friends, and a long train of citizens, in festal garments, and uttering acclamations. Lastly followed the victorious army, on foot, and on horseback, crowned with laurel, and adorned with the marks of distinction which they had received, shouting *Io triumphe*, and singing songs of victory, or of sportive raillery. It was an old and touching custom for a slave to stand close behind the triumphing general, bearing a gold crown set with precious stones in his hand, and repeating to him the solemn words, "Remember that thou art a man!" Upon the capitol, the general rendered public thanks to the gods for the victory, caused the victims to be slaughtered, and dedicated the crown and a part of the spoils to Jupiter. He then gave a great feast, and, in the evening, the people accompanied him home with torches and acclamations. It is not, therefore, to be wondered at, that every Roman aspired to the honour of a triumph, and considered it the highest distinction to be esteemed worthy of it. A commander who had gained a victory at sea, was honoured with a naval triumph (*triumphus navalis*). Duillius was the first who received that honour, in consequence of his victory over the Carthaginians. Those who had once triumphed (*viri triumphales*) continued to enjoy some marks of distinction, such as a place of honour on public occasions, &c. In the ovation (so called, as is supposed, from *ovis* (sheep), because a sheep was sacrificed on the occasion), the general entered the city on horseback or on foot, wore a *toga prætexta*, and was crowned with myrtle. It was celebrated with less pomp than the triumph, and was granted when the victory was not of the kind prescribed as worthy of a triumph. From the time of Augustus, few triumphs were celebrated, and those only by the emperors: to the private generals trophies were given.

TRIUMPHAL ARCH; a monument consisting of a grand portico or archway, erected at the entrance of a town, in its principal street, upon a bridge, or in a public road, to the glory of some celebrated general, or in memory of some important event. Several triumphal arches appear to have been erected with the double purpose of serving as monuments to the glory of the chieftain whose name they bear, and as gates of the town to which they belong. The invention of these structures is attributable to the Romans. The earliest specimens are destitute of any magnificence. For a long time, they consisted merely of a plain arch, at the top of which were placed the trophies and the statue of the triumpher. Subsequently, the span was enlarged, the style enriched, and a profusion of all kinds of ornaments heaped on them. The triumphal arches varied greatly in point of construction, form and decoration. Those existing at the present day are of three very distinct species:—First, those which consist but of a single arch, such as that of Titus at Rome, (see Plate IV.) of Trajan at Ancona, &c.; secondly, those which are formed of two arches or arcades, such as those of Verona, &c., which appear to have formed, at the same time, gates for the town; thirdly, the species composed of three arcades, the centre being the principal or grand arch, and the others at each side much smaller. The arch known to us as that of Constantine is the best preserved of all the great antique arches. The arch of Septimius Severus, placed at the foot of the Capitoline hill, and also partly buried, greatly resembles that of Constantine. The arch of Titus is the next most considerable in Rome, after these two. The arch of Benevento, erected in honour of Trajan, is one of the most remarkable relics of antiquity, as well on account of its sculptures as

architecture. The arch of Trajan, at Ancona, is likewise one of the most elegant works of ancient architecture. The arch of Rimini, erected in honour of Augustus, on the occasion of his repairing the Flaminian way, from this town to Rome, is the most ancient of all the antique arches, and, for its size, one of the noblest existing. Many beautiful structures of this kind have been erected in modern times, but principally on the plan, and in imitation of, some one of those above mentioned. Ancient medals often bear figures of this species of architecture; and some of them represent arches which have for centuries past ceased to exist.

TRIUMPHAL COLUMN. See *Column*.

TRIUMVIRATE; an office administered by three men (*triumviri*). When Cæsar was murdered, Antony, Octavius and Lepidus received power to restore order in the state: they were called *triumviri reipublicæ constituendæ*, and their office the *triumvirate*. (See *Augustus*.) The coalition between Cæsar, Pompey and Crassus, is also often, but improperly, called a *triumvirate*, as it was merely a union or conspiracy of three private men, without the public sanction.

TRIVIUM; the name given, in the middle ages, to the first three of the seven liberal arts—grammar, rhetoric and logic. The other four, consisting of arithmetic, music, geometry and astronomy, were called the *quadrivium*. See *Schools*.

TROAD, OR PLAIN OF TROY; a tract in the north-west part of Asia Minor, to which this name has been applied by modern Europeans, and which included the ancient city of Troy. It now contains no great cities, no grand features of nature, nor even any ancient monuments of extraordinary magnitude. The peculiar interest excited by it depends on its being the scene of events celebrated in the immortal verse of Homer. The subject, however, is enveloped in mystery, and it is impossible to identify, with certainty, the various objects mentioned by the poet. The most learned travellers and inquirers, Chandler, Wood, Chevalier, Bryant, Gell, Clarke, Hobhouse, &c., differ widely in their conclusions. Bryant denies not only that any spot can be identified as Troy, but that there was ever such a place as Troy, or such an event as the Trojan war. Other writers have endeavoured to place Troy in a position farther to the south, and on the shore of the Ægean sea. But the general opinion seems now fixed upon that part of the coast of Asia Minor which lies immediately without the narrow sea, anciently called *Hellespont*, and opposite to the island of Tenedos. Every trace of ancient Troy being obliterated, its site can only be guessed by the relative position of the natural objects alluded to by Homer. Here is a plain of considerable extent, watered by several streams, behind which rises a chain of mountains, called by the Turks *Kazdaghi*, but which correspond to the *Gargarus* and *Ida* of Homer. Of the streams, the most considerable is the *Mender*, supposed to be the ancient *Scamander*. A rivulet which flows into the Mender on the east side, called *Callifat Osmack*, is thought to be the ancient *Simois*. The *Thrymbrek*, a larger river, which flows much farther eastward, and joins the Mender at its mouth, is supposed to be the ancient *Thymbrius*, though some take this to be the Simois. Various ruins are found in different parts of the plain, as remains of a citadel, of temples, tumuli, fragments of pottery, terra cotta, medals, &c. The city of Troy (Troja), more properly *Ilious*, or *Ilium*, was situated upon an elevated spot between the Simois and the Scamander. Fable relates, that the name was derived from Tros, son of Ericthonius, and father of Ilos. Paris, son of Priam, one of his successors, having carried away Helen, gave occasion to the Trojan war, which was terminated, after ten years, by the destruction of the city by the victorious Greeks, probably about 1184 B. C. The citadel of Troy was called *Pergamos*, which name is sometimes given to the city.

TROCHEE. See *Rhythm*.

TROCHILUS. See *Humming Bird*.

TROGLODYTES (from τρωγλη, cave, and δυω, to enter); individuals or tribes who live in subterranean caverns. The ancients mention some tribes of troglodytes in Asia, Æthiopia and Egypt, but give little information concerning them. *Troglodytes* is also the name of an ancient heretical sect, who, rejected by all parties, were forced to hold their meetings in caves. Certain Jews who were accused of practising idolatry in secret, have also been termed *troglodytes*. In natural history, *troglodyte* is the scientific name of the chimpanzee (see *Ape*), and of a species of wren.

TROIS RIVIERES, OR THREE RIVERS; a town of Lower Canada, and capital of a district of the same name, at the entrance of the St Maurice into the St Lawrence; eighty-four miles above Quebec, ninety-six below Montreal; lat. 46° 23′ N.; lon. 72° 29′ W.; population, about 3000. It derives its name from the circumstance that two islands near the mouth of the St Maurice divide it into three channels, and give it the appearance of three rivers. The town stands on a light, sandy soil: the houses are generally mean, and the trade of the whole country centres in Montreal and Quebec. It was formerly the capital of the French government of this country.

TROLLHATTA. See *Cataract*, and *Canal*.

TROMBONE, OR TROMBONO. Of this instrument there are three kinds—the bass, the tenor, and the alto. The bass trombone begins at G gamut, and reaches to C above the base-cliff note, producing every semitone within that compass. The tenor trombone begins at A, one note above G gamut, and produces all the semitones up to the fifteenth above. The alto trombone begins at C above G gamut, and produces every semitone up to the fifteenth above. This powerfully sonorous instrument is by some esteemed extremely useful in grand choruses and other full compositions; but many acknowledged judges think it more powerful than musical.

TROMP, MARTIN HARPERTZOON, one of the most celebrated Dutch naval officers, was born at Briel, in 1579. In his eighth year, he was placed by his parents on board a vessel in the East India trade. While very young, he was made prisoner by an English privateer, and had an opportunity of learning, in his new service, all the arts of petty naval warfare. Some years after his return to his country, he was captured by the Turks, in the Mediterranean sea, from whom, however, he escaped. He subsequently entered the service of the states-general, accompanied the celebrated admiral Peter Hein, whose favourite he became, in all his enterprises, and was fighting by his side when Hein was killed. He became in 1639, admiral of Holland, and, upon the information that a Spanish fleet of ten ships of the line, four frigates and several small vessels, had gone out of Randyk, he followed them, and took and destroyed five ships of the line, together with the frigates. In October of the same

year, in connection with admiral Cornelitszoon de Witte, he attacked the powerful Spanish fleet under Oquendo, in the Downs, which was assisted by the English, and obtained a great victory. Oquendo's own ship would have sunk had not Tromp generously sent a frigate to his assistance. This victory made his name famous throughout all Europe, and the king of France conferred on him a title of nobility. In 1652, hostilities commenced between Holland and England, and Tromp and the English admiral Blake fought on the Downs; the Dutch fleet sustained some loss, and was compelled to retire. Soon after, Blake having taken some ships engaged in the herring fishery, Tromp received orders to attack him; but a violent storm dispersed his fleet, just as the signal for attack was given, so that he returned to port. This misfortune, although Tromp was not to blame, gave occasion to the government to dismiss him and appoint De Ruyter in his place. Nevertheless the chief command was again intrusted to him in the same year, and November 29, assisted by Evertzoon and De Ruyter, he defeated the English fleet, which lay, under Blake, in the Downs, so that it was compelled to retire into the Thames, with the loss of five ships. Upon this occasion, Tromp, in the spirit of a true sailor, caused a broom to be fastened to his mast head, as a sign that he would sweep the channel of the English ships. About the close of the year he entered a Dutch port with a large fleet of merchantmen, and received the thanks of the states-general. In 1653, Tromp and de Ruyter, accompanied by a great number of merchant vessels, were attacked by the united fleets of Monk, Dean, and Blake; both fleets were very strong, but the English were superior. An action of three days' continuance followed in which the Dutch lost eleven ships, but retired in good order, and carried their convoy home. Tromp, who suffered no diminution of reputation on this occasion, was sent out to convoy another fleet of merchant vessels, which he carried to the northern coast of Scotland, without losing a single one. He afterwards attacked, in June, the English fleet under Monk, Dean, and Lawson, near Newport, but was compelled to retire to Welingen, with considerable loss. He and De Ruyter saved one another, upon this occasion, from imminent danger. After obtaining additional supplies of ships and men, Tromp sailed with eighty-five vessels towards the coast of Zealand, where he came upon the English fleet of thirty-four ships. A storm delayed the attack; but, August 6, 1653, having been strengthened by the arrival of De Witte, so that his fleet amounted to 120 vessels, the battle began, between Scheveningen and the Meuse. The first day nothing decisive was effected. On the second day, Tromp, according to his usual custom, broke through the enemy's line, but was soon surrounded, and was not supported by his own fleet. He fought desperately in order to escape, till he fell, pierced by a musket-ball. "Courage, my boys," exclaimed he, expiring; "my course is ended with glory." Every effort of De Ruyter and the other officers, after the news of his death, to keep up the courage of the Dutch sailors, was in vain, and the English obtained a dear-bought victory. Tromp is said to have been victorious in thirty-three naval actions. He had desired to die in the service of his country. His body was interred with splendour, in the church at Delft, and a magnificent monument erected to his memory. The state caused medals to be struck in honour of him, and sent a solemn deputation to his widow, to assure her of the public sympathy.

TROMP, Cornelius, the second son of the preceding, born 1629, commanded a ship in his nineteenth year, against the African pirates, and two years later, was made vice-admiral. In 1665, in the war between England and the United Provinces, he was present at the battle of Solebay, where the Dutch fleet was defeated, and the ship of admiral Opdam blown up. The masterly retreat of Tromp, allowed the victors to reap but little advantage from their success. His conduct and courage gave him a reputation little inferior to that of his father; and, like him, he was devoted to the Orange party. On this account, De Witte, although politically opposed to him, thought it advisable to appoint him to the chief command of the fleet, during the absence of De Ruyter. After De Ruyter's return, Tromp refused to serve under him, but was forced to submit. In the battle, which lasted four days, in the Downs, July, 1666, he showed equal courage and ability, without being so fortunate as De Ruyter. In August, of that year, while he was pursuing, with too much ardour, an English fleet which he had defeated, he was cut off from the main body of the Dutch fleet, and was thus prevented from going to the assistance of De Ruyter, who was therefore compelled to retire. Tromp brought his own fleet, with little loss, into the Texel, but, upon De Ruyter's complaint, was deprived of his command. In 1673, however, when the war between Holland and the united kingdoms of England and France broke out, Tromp was again taken into the service, and was entirely reconciled to his rival De Ruyter. In this war he distinguished himself by many victories over the English. In 1675, after the peace, he visited England, where he was received with the greatest honour, and made a baronet by Charles II. In the same year he was sent with a fleet to Copenhagen, to assist Denmark against the Swedes, and was invested by the king of Denmark with the order of the Elephant. After De Ruyter's death, he succeeded him as admiral lieutenant-general of the United Provinces, remained, during the war, in the Danish service, and had a great share in the conquests of this crown in the north. In 1691, on the renewal of the war between Holland and France, he was appointed to the chief command of the Dutch fleet, but very soon after died, at Amsterdam, May 29 of that year, and was buried in the splendid tomb of his father.

TRONA. See *Soda*.

TROPE (from the Greek τροπος, turn): an expression used in a different sense from its ordinary signification, for the sake of presenting an idea in a lively and forcible manner. As the change of expression made by the trope affects immediately the chief idea of the sentence (for instance, when we say, instead of "This cunning deceiver will ruin us," "This old fox will ruin us"), tropes differ from figures of speech. Tropes are as old as the application of language to invisible things. The want of means to designate conceptions obliged men to apply the names of sensual objects, often from very obscure principles of resemblance, to intellectual subjects. Every language possesses many words, borrowed in this way, which have by degrees lost their original meaning, such as *spirit*, *conception*, &c. "Therefore," says Jean Paul, "every language, in respect to intellectual relations, is a dictionary of faded metaphors." But as these metaphors become abstract, the want of new tropes is

felt. And even tropes which do not actually become mere abstract terms, lose their force by constant use, as when a great statesman is called a *pillar of the state*. "With every century," says Jean Paul, in his *Vorschule zur Aesthetik*, div. 2, "some field of poetical flowers loses its freshness, and becomes dead matter;" and lively tropes become more and more rare with the progress of time, because, though changes of circumstances afford opportunities to make new ones, yet the best, that is, the simplest, have been worn out, and every writer is therefore obliged to omit the use of numerous tropes, which his imagination suggests. Writers disagree as to the various kinds of tropes, some reckoning more, some fewer sorts. Quintilian complains of this vagueness, and attempts a new division, but without much precision. Adelung reckons only the metonymy, synecdoche, and metaphor, among the tropes; but this enumeration seems to be too restricted. More modern writers add the allegory and prosopopœia, or personification, which certainly have the character of tropes.

TROPHIES (τροπαια); monuments in commemoration of a victory, formed of captive arms, or, in a more general sense, all memorials of victory. The ancients usually erected them upon the spot where they had gained a victory. In the earliest times, the Greeks were accustomed to hang up the arms taken from the enemy, or the spoils, upon an oak or an olive tree, in such a manner as to imitate the appearance of an armed man. From the nearest

tree, most of the branches were lopped off, a few being left, upon which were fixed swords, shields, spears, &c. Upon the top was placed a helmet, and around the trunk, a cuirass or breast-plate. The trophies were, at a later period, also formed by erecting wooden frames, upon which the spoils were suspended, as the Greeks were unwilling to render the memorials of hostility permanent. At a still later period, they were formed of bronze and marble, or even of gold; and they were often the subjects of medals. In these, the emblem of the conquered province or town was sometimes represented in a mourning posture, under a tree, with some inscription, indicating the victory. Similar representations were also made upon altars. An inscription was also sometimes placed upon a votive shield, to perpetuate the victory. At triumphs, it was usual to bear trophies before the triumphant general.

TROPHONIUS, a celebrated architect, son of Erginus, king of Orchomenos, in Bœotia. He built Apollo's temple at Delphi, with the assistance of his brother Agamedes, and when he demanded of the god a reward for his trouble, he was told by the priestess to wait eight days, and to live, during that time, with all cheerfulness and pleasure. When the days were passed, Trophonius and his brother were found dead in their bed. According to Pausanias, however, he was swallowed up alive in the earth; and when, afterwards, the country was visited by a great drought, the Bœotians were directed to apply to Trophonius for relief, and to seek him at Lebadea, where he gave oracles in a cave. They discovered this cave by means of a swarm of bees, and Trophonius told them how to ease their misfortunes. From that time, Trophonius was honoured as a god: he passed for the son of Apollo; a temple and a statue were erected to him, and sacrifices were offered to his divinity when consulted to give oracles. The cave of Trophonius became one of the most celebrated oracles of Greece. Many ceremonies were required, and the suppliant was obliged to make particular sacrifices, to anoint his body with oil, and to bathe in the waters of certain rivers. He was to be clothed in a linen robe, and, with a cake of honey in his hand, he was directed to descend into the cave by a narrow entrance, from whence he returned backwards, after he had received an answer. He was always pale and dejected at his return; and thence it became proverbial to say of a melancholy man, that he had consulted the oracle of Trophonius. There were annually exhibited games in honour of Trophonius, at Lebadea.

TROPICAL YEAR. See *Year*.

TROPICS, TROPICAL REGIONS. The tropics are those points of the ecliptic in which the sun, having reached his highest southern or northern declination, turns back (Greek, τροπη, to turn), and begins to approach the equator, from which he had been, for three months, receding. The imaginary circles drawn through these points, parallel to the equator, are distant from it 23° 30′, and are also called *tropics* or *tropical circles*. The northern tropic, cutting the ecliptic in the constellation Cancer, is called the *tropic of Cancer;* and the southern, cutting the same circle in the constellation Capricorn, is called the *tropic of Capricorn*. The part of the globe included within these limits, twenty three degrees and a half each side of the equator, and, consequently, forty-seven degrees of latitude in breadth, is called the *torrid zone*, or, to avoid the error of implying, that it is universally scorched by burning heats, *tropical regions*. As a great part of the tropical regions known to us is formed of insular or mountainous countries, the heat is much less excessive than was formerly represented, and is even now generally supposed. See the articles *Climate*, *Temperature*, and *Mountains;* consult also Humboldt and Bonpland's *Tableau physique des Regions Equinoxiales*, and Humboldt's *Views of Nature*.

TROPPAU, a principality, which has belonged, since 1614, to the house of Lichtenstein, is situated partly in Prussia, partly in Austrian Silesia. The

mantic poetry. In their rhymed metre, they have seldom gone beyond the simple iambic, which they exchanged, mostly in those feet of the verse upon which there is no stress, for the trochee, pyrrhichius and spondee; so that if their verses (usually of ten syllables) only had the cæsura and the final syllable sufficiently accented, they cared little about the measure of the other syllables. But they were very fond of complicated rhymes. We find in their stanzas not only the same rhyme repeated through a long series of verses, or the same rhymed word returning at the end of every other verse, but variously intertwined rhymes, in terzinas and other metres, distinctly point out the pattern of Petrarca's canzone and sonnets. As a specimen of the Provençal Romance idiom, and of their metres, we give the following stanza of a sirvente of William de St Gregory, with its translation, taken from Roscoe's translation of Siamondi:—

Be m play lo dous temps de pascor
Que fai fuelhas e floras venir;
E play mi quant aug la vandor
Dels auzels que fan retentir
Lor chan per lo boscatge
E plai mi quan vey sus els prats,
Tendas e pavallos fermats;
E plai m'en mon coratge
Quan vey per campanhas rengats
Cavaliers ab cavals armats.

The beautiful spring delights me well.
When flowers and leaves are growing;
And it pleases my heart to hear the swell
Of the birds' sweet chorus flowing
In the echoing wood;
And I love to see all scattered around,
Pavilions and tents on the martial ground;
And my spirit finds it good
To see, on the level plains beyond,
Gay knights and steeds caparisoned.

What we have left of the poetry of the Troubadours are songs of contention (*tensones*), satires, martial and other serious songs (*sirventes*), and numerous small songs (*chanzos*), war songs, songs of pastoral life and love (*soulas, lais, pastourelles*), morning songs and serenades (*aubades* and *serenades*), *retrouanges* and *redondes*, the latter distinguished by artificial burdens. The poetry of the Troubadours, as in the course of time it became more common, was degraded, not unfrequently, to mere ballad singing, and was exposed to much mockery, of which the nobler singers often bitterly complain. It flourished most at the court of Arles, especially under the counts of Provence, in the twelfth century. The biographies of the Troubadours furnish us with a greater variety of matter than their poetry, which, through all its periods, turns continually upon the same subjects. The works of Nostradamus and Crescimbeni are well worthy of being read, and with them the critical extracts of Millot, from the collection of St Palaye. Some of the most remarkable Troubadours were the following: in the van of the royal and princely singers is William IX., count of Peitou and duke of Aquitaine, equally famous as a poet and a warrior (born 1071). He was followed by the foreign princes and lords, who gladly saw the exotic plant of gallant poetry transplanted to their courts—the emperor Frederic Barbarossa, Roger of Naples, Richard Cœur de Lion, with his famous minstrel Blondel, who composed, also, Provençal verses, and who, according to tradition, discovered the prison of his king by means of his harp; the kings Alfonso and Peter of Arragon, and a vast number of princes and counts in Spain, France and Italy. The most renowned of the rest of more than 200 Troubadours whose names and poems have been preserved, Sordello of Mantua, celebrated for his chivalric exploits and the praises of Dante: Peyrols happy as well as unfortunate servant of the same the dauphin of Auvergne, wife of the baron of Cœur; Bertrand de Born, who is connected with the romantic adventures of Richard Cœur de Lion; Arnald de Maraviglia, who was devoted to the noble lady De Beziers, an eminent Troubadour and valiant knight, whose motto was "*A Dieu mon ma vie au roi, mon cœur aux dames, l'honneur à moi.*"—See Diez, *Die Poesie der Troubadours, gedruchten und handschriftlichen Werken darges.* (Zwickau, 1827—Poetry of the Troubadours according to printed Works and Manuscripts); Sismondi's *Literature of the South of Europe* (1st ed. The chief work on this subject is by Raynouard, *Choix des Poésies originales des Troubadours* (Paris, 1818—21), and contains a grammar of the ancient Romance language and its history, besides biographical notices of 350 Troubadours.

TROUGH, in marine language; the interval between two waves.

TROUT. Many of the species of *salmo*, which pass their lives altogether in fresh water, never visiting the ocean, have received this appellation; it is not however always thus strictly applied, and besides, is often improperly given to fish of entirely different habits and conformation. Trout are found only in the clearest streams, and are particularly fond of mountain torrents and alpine lakes. They are remarkable for the beauty of their colours; are very voracious, and have always been the favourite fish of the angler. (For an account of the generic characters, see *Salmon*.) The common trout is a beautiful fish: the back is mottled; the sides dark brown, with yellow spots, which have a scarlet dot in the centre. It sometimes attains the weight of four and a half pounds, but is usually much smaller. It is much in request for the table. A gigantic species of trout, from lake Huron, has been described by doctor Mitchill. It is said to attain the weight of a hundred and twenty pounds. The flesh is remarkably fat, rich and savoury. The specific name *amethystinus* was applied on account of the purple tinge and hyaline tips of the teeth.

TROVER; an action against a man who is in possession of the goods of another, and refuses to deliver them to the owner, or sells or converts them to his own use, without the consent of the owner. It was originally confined to cases in which one man had actually found the goods of another and refused to deliver them on demand, but converted them to his own use; hence the names *trover* and *conversion*.

TROY. See *Troad*.

TROY, City of; capital of Rensselaer county, New York, 151 miles north of the city of New York, lat. 42° 44′ N.; population in 1801, 150 in 1840, 19,334. There are nine places of public worship, three banks, two insurance companies and a savings bank; a court-house, county jail, female seminary, Lancasterian school, an infant school, and the Rensselaer school, a very respectable institution, intended particularly to teach the practical application of knowledge. Large quantities of lumber, flour, grain, beef, pork, wool, &c. besides manufactured goods, are shipped to the river towns, and New York, New Jersey and Boston. The united Champlain and Hudson canals enter the Hudson at Troy. Steam-boats run daily between Troy and New York, and between Troy and Albany

TRUCE OF GOD, in the Latin of the middle ages, *Treuga Dei* (*Treuge*, or *Treva*, from the German word *Treu*, faithful), was, in the period just mentioned, a limitation of the right of private warfare introduced by the church, in order to mitigate an evil which it was unable to eradicate. This truce of God provided that hostilities should cease, at least on the holidays, from Thursday evening to Sunday evening in each week; also during the whole season of Advent and Lent, and on the "octaves of the great festivals." (See *Festival*.) This salutary regulation was first introduced in 1077, in Aquitaine, where a bishop professed to have received the command of God for its institution; then in France and Burgundy. In 1038, the diet at Soleure deliberated respecting the establishment of it in Germany. Under William the Conqueror, it was introduced into England, and, in 1071, into the Netherlands. In French, it was called *Treve de Dieu*. The clergy were very anxious that it should be generally acknowledged. At many councils, it was a chief subject of discussion; for instance, at the councils of Narbonne (1054), Troyes (1093), Clermont (1095), Rouen (1096), Nordhausen (1105), Rheims (1136), St John of the Lateran (1139 and 1179), and Montpellier (1195), it was enjoined by special decrees. At a later period, the truce of God was sometimes extended to Thursday. Whoever engaged in private warfare on these days was excommunicated. This was all which the clergy could effect in that barbarous age. The truce of God was also extended to certain places, as churches, convents, hospitals, church-yards, &c., and certain persons, as clergymen, peasants in the fields, and, in general, all defenceless persons. At the council at Clermont (1095), it was made to include particularly all crusaders. Thus the clergy effected what would have been impossible for any secular authority, because they wisely demanded no more than they could expect to obtain, and because religion was much the strongest power which could be brought to act on the turbulent warriors of those times. It may be easily imagined, however, that the limits prescribed were not very nicely observed; and we find constant complaints of their violation in the records of the councils and the chronicles of convents.

TRUFFALDINO. See *Masks*.

TRUFFLE (*tuber*); a genus of mushrooms (*fungi*), remarkable for their form, and for growing entirely under ground, at the distance of a few inches from the surface. Unlike the *lycoperdon*, or puff-ball, they are not resolved into a powder at maturity, but their substance becomes gelatinous. Only few species are known, which are found chiefly in temperate climates. Some of them have the rind rough, with small tubercles; others have it entirely smooth. They attain the diameter of two or three inches.

The common truffle (*T. cibarium*), so celebrated in the annals of cookery, is said to inhabit all the warm and temperate parts of the northern hemisphere; but we are in need of further evidence to establish the fact of its existence in North America In certain districts, it is astonishingly abundant, as in Piedmont, and at Perigord, in France, which latter place has, in consequence, acquired celebrity for producing it. They abound most in light and dry soils, especially in oak and chestnut forests; but it would be difficult to procure them any where, were it not that hogs are extremely fond of them, and lead to their discovery by rooting in the ground. Dogs are sometimes taught to find this fungus by the scent, and to scratch it up out of the ground. The season for collecting continues from October to January. The truffle is usually about as large as an egg; is entirely destitute of roots; the skin blackish or gray, studded with small pyramidal warts; the flesh white, gray or blackish, varied with black or brown veins. They are prepared for the table in various manners, but should be eaten with moderation, as they are difficult of digestion. They may be kept in ice, or covered with lard in some countries, they are dried. They were in use among the ancient Greeks and Romans. Several varieties are distinguished, and, besides, some of the other species are much esteemed for culinary purposes.

TRULLAN COUNCIL. See *Constantinople, Councils of*.

TRUMBULL, JOHN, an American poet and patriot, was born April 24, 1750, in the place now called Watertown, Connecticut. His constitution was delicate; and his education was conducted by his father, a clergyman of good classical attainments, and his mother, a lady of superior refinement, until 1763, when he entered Yale college. In 1771, he was appointed a tutor in that institution. In 1773, he was admitted to the bar of Connecticut, but removed to Boston, and continued his studies in the office of John Adams. At that time, the members of the bar in that city were distinguished for the zeal with which they vindicated the rights of the colonies. With Otis and his compeers, Trumbull, though much younger, warmly sympathized and cooperated. In 1775, he published the first part of M'Fingal, a political satire, which he had composed at the request of the members of the American congress. This poem passed through thirty editions, and was very serviceable to the American cause. For many years, Mr Trumbull was a member of the state legislature of Connecticut, and, in 1801, was appointed a judge of the superior court. He received the additional appointment of judge of the supreme court of errors, which he held until the new organization of the judiciary under the constitution of 1818. In 1825, he removed to the city of Detroit, the capital of Michigan territory, where he resided until his death, which occurred May 12, 1831, from gradual decay.

TRUMPET; the loudest of all portable wind instruments, and consisting of a folded tube, generally made of brass, and sometimes of silver. The ancients had various instruments of the trumpet kind, as the tuba, cornu, &c. Moses, as the Scripture informs us, made two of silver, to be used by the priests; and Solomon, Josephus tells us, made two hundred like those of Moses, and for the same purpose. The modern trumpet has a mouth-piece nearly an inch across. The pieces which conduct the wind are called the *branches*; the parts in which it is bent, the *potences*; the canal between the second bend and the extremity, the *pavilion*; the rings where the branches take asunder, or are soldered together, the *knots*, which are five in number, and serve to cover the joints. This powerful and noble instrument, like the horn, only has certain notes within its compass. The trumpet produces, naturally and easily, G above the bass-cliff note, or fiddle G, C on the first leger line below in the treble, E on the first line of the stave, G on the second line, C on the third space, and all the succeeding notes up to C in alt, including the sharp of F, the fourth of the key. Solo performers can also

produce B flat (the third above the treble-cliff note); and, by the aid of a newly-invented slide, many other notes, which the common trumpet cannot sound, are now produced. The trumpet, from its exciting effect, is well fitted for military music; and a band of twenty or thirty trumpets has a peculiarly spirit-stirring sound. It is used for giving signals, and also accompanies flags of truce, heralds, &c. With the ancients, the σαλπιγξ seems to have come nearest to our trumpet. Weidinger, in Vienna, has invented a trumpet with keys; but the instrument, in this way, loses in beauty of tone what it gains in compass.

Trumpet, Hearing. See *Ear Trumpet.*

Trumpet, Speaking, is a tube of considerable length, viz. from six feet to twelve, and even more, used for speaking with, to make the voice heard to a greater distance. In a trumpet of this kind, the sound in one direction is supposed to be increased by the reflection from the sides.

TRUMPETER (*psophia*); a South American bird, about as large as a domestic fowl, referred by naturalists to the waders, of which it has the long neck and legs; but it possesses many characters in common with gallinaceous birds. The feathers of the throat and upper part of the breast have the most brilliant reflections of green, gold, blue and violet: the other parts of the body are black, except the middle of the back and lesser coverts, which are reddish, and the greater coverts of the wings and tail, which are ash-coloured. In the wild state, this bird is found only in the mountainous and woody districts of the hottest parts of South America, where it lives on fruits. It runs swiftly, sometimes walks with a slow pace, or leaps. Its wings and tail are very short, and its flight clumsy. The name has been applied on account of the note which it utters. It is easily tamed, and shows as much attachment and fidelity to its master as a dog. It obeys his voice, caresses and follows him, and recognises him after a long absence. It drives away all strange animals, and fears neither cat nor dog. Those which live in the streets of Cayenne will often attach themselves to a stranger, and follow him wherever he goes. In short, these birds are superior to all others in intelligence and social disposition; and it would be desirable to naturalize them in this country—an experiment which has never been fairly tried, that we are aware of. It is said that flocks of sheep are confided to their charge, and that they constantly bring them home every evening: it is certain that the care of poultry may be safely intrusted to them.

TRURO; a town of Cornwall, situated almost in the centre of the mining district, 255 miles west-south-west from London. Truro has considerably increased in size of late years, and is now a handsome and well-built town; the streets are partially paved and lighted with gas. It contains a county library, a literary society, with a valuable museum, and a neat assembly-room, which is occasionally used as a theatre. Truro is one of the original coinage towns, and is a place of considerable trade; the chief exports consist of tin and copper ore; and the imports are iron, coal, and timber, for the mines. The principal manufactures are carpets and paper; there is also a manufactory for converting block-tin into bars and ingots; the former are exported to the Baltic and the Mediterranean, and the latter to the East Indies; and the best description of crucibles are made from the china stone. Population in 1841, of borough and parish, 3043.

TRUSS, in surgery; a bandage or apparatus employed in ruptures (see *Hernia*), to keep up the reduced parts, and hinder a fresh protrusion. It is essential to the health of a large portion of the human race. A truss ought so to compress the neck of the hernial sac, and the ring, or external opening of the hernia, that a protrusion of any of the contents of the abdomen may be completely prevented. It should make an equal pressure on the parts without causing inconvenience to the patient, and be so secured as not easily to slip out of its right position. Every truss consists of a pad, for compressing the aperture through which the hernia protrudes, and of another piece which surrounds the abdomen: these are sometimes added a thigh-strap and a scapulary, which passes over the shoulder. See *Surgery.*

TRYING; the situation in which a ship lies nearly in the trough or hollow of the sea in a tempest; or it is the act of lying to in a storm, which may be performed under any of the courses reefed, if requisite, or even under bare poles, the helm being lashed a-lee. See *Ship.*

TSCHAIK (Turkish for *ship*) is used in Hungary to signify a sort of light galley, used on the Danube and provided with sail and rudder. The *tschaik* carries from two to twelve cannon, and from ten to one hundred men. The men who serve on board are called *tschaikists*, or *pontoneers*. They occupy a part of the military frontier of Hungary, lying between the Theiss and Danube, and hold their land by rendering service in manning *flotillas on the* Danube, and acting as pontoneers *on the rivers* in Hungary. Their arms are muskets, musketoons, sabres and lances. See *Military Frontiers.*

TSCHIRNHAUSEN, EHRENFRIED WALTER VON; an ingenious mathematician, born in Lusatia, April 10, 1651. He studied some time at the university of Leyden, and, in 1672, entered the Dutch army, in which he served some time as a volunteer, and then travelled into most of the principal countries of Europe. On his return, being desirous to perfect the science of optics, he established three glass-houses in Saxony, and showed how porcelain might be made from a particular kind of earth, and may therefore be considered as the founder of the celebrated Dresden porcelain manufactory. He likewise directed his attention to mathematics, and discovered a particular kind of curves, endowed with very remarkable properties, an account of which he communicated to the academy of sciences of Paris in 1682, which body elected him a member. About the year 1687, he constructed an extraordinary burning mirror (see *Burning Mirror*), and, soon after, a glass lens, three feet in diameter, and convex both sides, which had a focus of twelve feet, and weighed 160 pounds. Its effects were astonishing. (See *Burning Glass.*) The only work which he published separately was his *De Medicina Mentis et Corporis* (printed at Amsterdam, in 1687); but he was the author of several papers on burning glasses, and on his discoveries in regard to curves, which appeared in the Leipsic Transactions, and the Memoirs of the French Academy of Sciences.

TSULAKEES, or TSALAKEES (sometimes also written *Tsalagis*); the proper name of the Indian tribe whom we commonly term *Cherokees*. Their territory originally comprised more than half of what is now the state of Tennessee, the southern part of Kentucky, the south-west corner of Virginia, a considerable portion of the two Carolinas, a large part of Georgia, and the northern part of A-

nma. This tract probably contained more than 5,000,000 acres. Between the close of the revolutionary war and the year 1820, the Cherokees sold to the United States, at different times, more than three quarters of their possessions, and now retain less than 8,000,000 acres, of which Georgia claims 5,000,000 acres as falling within that state, and Alabama nearly 1,000,000 of the residue. The remainder, if a division takes place, will go to Tennessee and North Carolina. Their population is increasing. In eighteen years, ending in 1825, their numbers, including those who emigrated to the Arkansas, had increased more than 7000, or sixty per cent., which varies little from the common rate of increase among the white inhabitants of the Southern States. The number of native Cherokees of pure and mixed blood, east of the Mississippi, was at that time 13,563, and 147 white men and seventy-three white women had intermarried with them, and resided among them. The number of African slaves was 1277. The population in 1832 was 15,060, of whom above 1200 are African slaves. Agriculture and many of the arts of civilized life have been introduced among them, and their progress in civilization has been very considerable. In 1825, they possessed 79,842 domestic animals (horses, cattle, swine and sheep), 762 looms, 2486 spinning-wheels, 172 waggons, 2943 ploughs, ten saw-mills, thirty-one grist-mills, sixty-two blacksmiths' shops, eight cotton gins, eighteen schools, nine turnpike roads, eighteen ferries, and twenty public roads, being a great increase above the returns of 1809.

A well-organised system of government has been established. The executive consists of a principal chief and assistant, with three executive counsellors, all elected by the legislative body. The legislature consists of two bodies, a national committee and a national council, the former containing sixteen members, the latter twenty-four. The members are chosen for the term of two years, by the qualified electors in their several districts. These electors include all free male citizens who have attained the age of eighteen years, except persons of African origin. The rules respecting the nature and powers of the legislature in general, are similar to those of the several states in the Union. Each of the two bodies has a negative on the other, and together they are styled the *general council of the Cherokee nation*. The chief and his assistant hold their offices for four years. The executive counsellors are chosen annually. The judiciary consists of a supreme court, and of circuit and inferior courts. The members of the supreme court hold their offices for four years. There is also a public treasury, a printing-office, and a newspaper, the Cherokee Phœnix, commenced in February, 1828, and edited by a Cherokee. This newspaper is printed partly in the Cherokee character, invented by Guess.*

The press is owned and directed by the Cherokee government. They have founts of types in the Cherokee character. The Gospel of Matthew and a collection of hymns, translated by Mr Worcester, one of the missionaries, have been printed in this character. Intermarriages have in many instances taken place between the Cherokees and the whites in the neighbourhood, and many of the half breeds have large plantations, and carry on agriculture with more spirit than the full-blooded Cherokees. There are very different degrees of improvement among the members of the tribe. Some families have risen to a level with the white population of the United States, while the improvement of others has just commenced. In general, those of mixed blood are in advance of the full-blooded Indians. Not less than a quarter of the people are probably in a greater or less degree of mixed blood. The dress of most of the Cherokees is substantially the same as that of the whites around them. A great part of their clothing is manufactured by themselves, though not a little is of the fabrics of New England and foreign countries—calico, broadcloths, silk. The greater part are clothed principally in cotton, and many families raise their own cotton, out of which the women make substantial cloth. Cultivation by the plough is almost universal. Most families raise enough to supply their own wants, and many have considerable quantities of corn for sale. Suffering for want of food is said to be as rare among the Cherokees as in any part of the civilised world. None of them depend, in any considerable degree, on game for a support. The Cherokees live chiefly in villages, and their dwellings are mostly comfortable log cabins, with chimneys, and generally floored. Many of the houses in the nation are decent buildings of two stories, and some are even handsome dwellings of painted wood or brick. Polygamy is becoming rare, and women are no longer treated as servants, but are allowed their proper place. Superstition is rapidly declining, and the ancient traditions are fading from memory, so that it is difficult to collect them. Conjuring, however, is still practised to a considerable extent. In regard to intemperance, the Cherokees would not suffer by a comparison with the white population around them. The laws rigorously exclude intoxicating liquors from all public assemblies, and otherwise restrict their use. They have among them temperance societies on the principle of entire abstinence. The civil officers enforce the laws against the introduction of ardent spirits, and fine transgressors. In regard to education, the missionaries, in a report dated Dec. 29, 1830 (see *Missionary Herald* for March, 1831), state that they have the names of 200 Cherokee men and youths whom they believe to have attained an English education sufficient for the transaction of ordinary business. This number does not include females, and many men and youths who can barely read and write. An increasing anxiety among the people for the education of their chil-

* The inventor and the invention are thus described in the Cherokee Phœnix:—Mr Guess is, in appearance and habits, a full Cherokee, though his grandfather on his father's side was a white man. He has no knowledge of any language but the Cherokee. He was led to think on the subject of writing the Cherokee language by the conversation of some young men, who said that the whites could put a talk on paper, and send it to any distance, and it would be understood. In attempting to invent a Cherokee character, he at first could think of no way but that of giving each word a particular sign. He pursued this plan for about a year, and made several thousand characters. He then became convinced that this was not the right mode, and, after trying several other methods, at length conceived the idea of dividing the words into parts. He now soon found that the same characters would apply in different words, so that their number would be comparatively small, After putting down and learning all the syllables that he could think of, he would listen to speeches and the conversation of strangers, and whenever a word occurred which had a part or syllable in it which was not on his list, he would bear it in mind till he had made a character for it. In this way he soon discovered all the syllables in the language. In forming his characters, he made some use of the English letters, as he found them in a spelling-book in his possession. After commencing upon the last mentioned plan, he is said to have completed his system in about a month, having reduced all the sounds in the language to eighty-five characters.—Mr Guess was considerably advanced in life when he made this invention.

dren is very apparent. The missionary schools contain about 500 children, learning English. A majority of the persons between childhood and middle age can read their own language, in Guess's alphabet, with greater or less facility. In regard to religion, the mass of the people have externally embraced Christianity; and there is regular preaching at several places, both by missionaries and natives. How far the schools and the preaching have been interrupted by the agitations which have prevailed, we cannot say. During the years 1831 and 1832, the Cherokees were greatly agitated by political troubles. Their government has been hindered in its operations, their laws counteracted by the extension of the jurisdiction of Georgia over their territory; many of their citizens have been imprisoned, and the nation has been threatened with banishment. The missionaries of the board of foreign missions have been prohibited to reside among them by the laws of Georgia. Four of them were arrested in the summer of 1831, for not removing; and two of them, Mr Worcester, and Mr Butler, were, for the same cause, tried and sentenced by the court of Georgia for four years to the Georgia penitentiary. The Georgians have made a law, authorizing the governor to have the Cherokee lands surveyed and divided by lottery. The government of the United States are endeavouring to effect the removal of the Cherokees from their lands by treaty—the only mode in which they can legitimately deal with them, as they have already recognised their independence by several treaties; and their rights under these treaties have been lately confirmed by a decision of the supreme court of the United States, in January, 1831. The terms offered them are an extensive and fertile territory west of the Arkansas, to be secured to them by patent, and to be for ever beyond the boundaries of any state or territory, where they are to be allowed to exercise all the powers of self-government compatible with a general supervision of congress over them, to appoint an agent to reside at Washington, to send a delegate to congress, and to be recognised, when congress shall deem proper, as a *territory*. The general council of the Cherokees, however, have declined accepting the proposal.

The Cherokees of the Arkansas are those who, since the year 1804, removed, at different times, from the east of the Mississippi to a tract on the north bank of the Arkansas river, between lon. 94° and 95° W.; population, about 5000. The greater part of this emigration took place between 1816 and 1820. There is a missionary station among them. By a treaty concluded in May, 1828, they agreed to remove still farther west. This portion of the Cherokees has also made considerable progress in agriculture and the arts of civilized life.—For further information, see the different numbers of the *Missionary Herald* and the *Cherokee Phœnix*; the *Decision of the Supreme Court of the United States in the Cherokee Case* (published at Philadelphia, 1831); also *Essays on the Present Crisis in the Condition of the American Indians* (Boston, 1829). For information respecting the language of the Cherokees, see *Indian Languages*, in this Encyclopedia.

TUAM; an ancient town of Ireland, the seat of an archbishopric, is situated in the county Galway, Connaught, 126 miles W. by N. from Dublin. The rank and consequence of this place are attributable to the institution of an episcopal see at an early period. A bishopric was founded here in the 6th century, to which were annexed the see of Annadown in 1324; the see of Mayo in 1559; and see of Ardagh in 1742. It was erected into a archbishopric in 1152, the suffragan bishops of those of Elphin, Clonfert, Killmacduagh, K— and Achonry. It is the largest diocese in the kingdom, comprehending within it parts of Galway Mayo, and Roscommon counties, extending seventy miles in length, with an average breadth of forty-three, and occupying a superficies of 1,135,650 acres of land. It is divided into eighty parishes. The bishop's lands amount to 49,281 acres. The commerce trade here is brisk; the market extremely well supplied with fish from Galway every day, and meat from the vicinity; Tuam veal is proverbially excellent. There is also a very extensive brewery, public bakeries, several tanneries, flour-mills, and a linen-manufacture. Large quantities of coarse canvass for packing are also made in the town and parish. Population of town and parish in 1821, 13,425.

TUARICKS, called by Hornemann the most interesting nation of Africa, are most extensively spread over Northern Africa, and, indeed, divide with the Tibboos the whole of the Sahara; the latter occupying the wells and the *wadys* of the eastern, and the Tuaricks those of the western portion of this sterile belt. The Tibboos are black, yet without what we generally call negro features; the Tuaricks, on the other hand, are white people of the Berber race, and are Mohammedans of the sect of Maleki, but are believed to be quite as indifferent to religion as the Kabyles. They are a very warlike nation, and often make incursions into the territory of the timid Tibboos to carry off all whom they can catch for the slave market. The late travellers Lyon, Denham, Clapperton and Laing found them hospitable, frank and honest. They inhabit that extensive portion of the Sahara circumscribed on the east by Fezzan and Tibboo, south by the negro nations of Bournou, Haoussa, Gouber and Timbuctoo, and on the west by the oases of Tedeekels and Twat. The country of the Mozabis, Engousah and Ghadames, forms their northern limits, beyond which they never proceed. Being nomadic, they are found in the vicinity of all the negro population from Tibboo to Timbuctoo, where they rove for the purpose of kidnapping. They carry on war and commerce with equal activity. According to Mr Hodgson's interesting letters in the Transactions of the American Philosophical Society, (vol. iv, new series), *Tuarick* comes from the Berber language, in which it signifies *tribes*. Now *kabail* is the Arabian for tribes, borders or families; and thus the Kabyles of the Atlas have an appellation corresponding to the Kabyles of the desert; and they are the same people, as Mr Hodgson shows by a comparison of their vocabularies. They are one people, and the great Libian race still exists in Africa: its language has not been effaced.

TUBA; a wind instrument of the Romans, resembling our sackbut or trumpet, though of a somewhat different form. It was used in war.

TUBERCLES. See *Pulmonary Consumption*.

TUBEROSE (*polianthes tuberosa*). This highly odoriferous and favourite flower was introduced into Europe from the East Indies, about the middle of the sixteenth century. Though almost purely an ornamental plant, its culture is now so extended that the roots form a considerable article of export

from the southern to the northern parts of Europe. The root is a rounded bulb; the radical and inferior leaves long, sessile, entire, almost sword-shaped, and very acute; the stem upright, cylindrical, unbranching, three or four feet high. The flowers are disposed in a simple and more or less elongated spike: they are large, sessile, alternate, tubular, and of a very pure white: the tube of the corolla is a little curved, and divides into six oval obtuse lobes. The flowers expand successively, so that they continue nearly three months. Several remarkable varieties are known. It succeeds best in a warm exposure. The essential oil is used by perfumers.

TUBINGEN; an old town of Würtemberg, circle of the Neckar, situated in a valley on the Neckar, sixteen miles south-west of Stuttgard; lon. 9° 4′ E.; lat. 48° 31′ N.; population, 7600. It contains an hospital, four churches, a theological seminary, a college for the nobility, and a university. The environs are finely diversified by hill, dale and forest. The town has some woollen manufactures, but is supported chiefly by the university, which was founded in 1477, and received very important improvements in 1769. It has a good library, a botanic garden, and, in 1829, had 874 students. It was formerly exclusively Protestant; but a few years since the Catholic university at Elwangen was united with it. In 1828, the Würtemberg chamber of deputies granted it a yearly sum of 80,000 guilders. It has thirty-one professors.

TUCCOA CREEK, Cataract in. See *Cataract.*

TUCKER, Abraham, an English writer on morals and metaphysics, was the son of a merchant of London, where he was born in 1705. After completing his studies at Oxford, he travelled in France. He married in 1736, and, having lost his wife in 1754, he published, under the title of a Picture of Love without Art, her letters to him. Some time after he produced his Advice from a Country Gentleman to his Son, and commenced his great work, the Light of Nature pursued (7 vols., 8vo.), the first three of which appeared in 1768, under the pseudonym of Edward Search: the remaining volumes were printed after the death of the author, which took place in 1774. See Mackintosh's *Essay on Ethical Philosophy.*

TUDOR. See *Britain*, and the articles *Henry VII. VIII. Elizabeth*, &c.

TUESDAY (Latin *dies Martis*); the third day of our week, probably so called from the Anglo-Saxon god of war Tuu, (gen. *Tuues*, whence the Anglo-Saxon *Tuesdæg.*) See *Week*, and, for Shrove-Tuesday, see *Shrovetide.*

TUET. See *Tuiscon.*

TUGENBUND (German, *union of virtue*); the name generally given to an association in Prussia, called also the *moral-scientific union*, founded by some patriots, soon after the fatal peace of Tilsit. Its object was to promote the moral regeneration of the people, and to prepare it for better times. Schools and universities, physical and moral science, the army, the government, the distress of the people, all occupied the attention of the society, which suggested many ideas subsequently adopted. The government formally recognised its existence, and at times received reports from the society. There were no degrees, secrets, signs, or forms of initiation. Any Prussian subject of good character might become a member, on promising in writing to promote the objects of the society, and to be faithful to the reigning family. The minister Stein favoured the society; but when he left the ministry, and Schill, one of the members, had attacked the French, though not at the instigation of the society, the French induced the king to abolish it. Professor Krug of Leipsic, who was himself a member, wrote *Das Wesen und Wirken des sogenannten Tugendbundes und anderer angeblichen Bünde* (Leipsic, 1816).

TUILERIES (from *tuile*, a tile, because the spot on which it is built was formerly used for the manufacture of tiles,); the residence of the French monarchs, on the right bank of the Seine, in Paris. Catharine de' Medici, wife of Henry II. began the building from the designs of Philibert de l'Orme and Jean Bullant (1564). Henry IV. extended it, and founded the gallery (1600), which was intended to connect it with the Louvre, and form a residence for twenty-four artists. Louis XIV. enlarged it (1654), and completed the great gallery. The side towards the Louvre consists of five pavilions and four ranges of buildings; the other side has only three pavilions. In the pavilion of Flora, Napoleon resided, and it was afterwards occupied by Louis XVIII. The exterior of the Tuileries is deficient in harmony, having been built at different times, and on very different plans; but the interior is magnificent. The gallery above mentioned, which connects the Tuileries with the Louvre, is completed on the side towards the Seine; the lower part consists of open arcades; above is the collection of pictures. The second gallery leading to the *place Rivoli* and the *rue St Honoré*, was begun by Napoleon in 1808, but is not finished. To make room for it, many houses and whole streets were levelled; and much of the ground is still occupied by the ruins of the former buildings. On the west of the palace lie the gardens of the Tuileries, forming a quadrangle of the width of the palace, and 1800 feet in length; they are sixty-seven arpents* in superficial area. Upon two sides they are enclosed by long terraces (that on the side to the Seine commands a beautiful prospect) and iron railings. This garden, laid out by the celebrated Lenôtre for Louis XIV. has, in more recent times, been highly ornamented in the French style, and contains alleys of orange trees and other trees, groves, lawns with beds of flowers and shrubberies, fountains and basins of water with swans and goldfish, a great number of vases, and more than sixty statues imitated from ancient works. It is filled at all hours of the day with persons of all classes: chairs and the newspapers may be had at a small price. Towards the city, and separated from the court by an iron palisade, is the *place du Carrousel* which receives its name from a *carrousel* exhibited here by Louis XIV. in 1664. The *arc du Carrousel*, erected by Napoleon in 1806, forms the principal entrance into the court: it was formerly ornamented with the horses of St Mark and a statue of Napoleon, which have been removed. The French court was formerly called the "court of the Tuileries;" but under the three last Louises, who resided at Versailles, that appellation was changed to the "cabinet of Versailles." Napoleon resided some time at St Cloud, and the court then received that name. But since the restoration, the kings have again occupied the Tuileries.

* The Paris arpent is rather more than four fifths of an English acre.

to the northern parts of Europe. nded bulb; the radical and inferior le, entire, almost sword-shaped, the stem upright, cylindrical, un- or four feet high. The flowers simple and more or less elongated large, sessile, alternate, tubular, re white: the tube of the corolla l, and divides into six oval obtuse vers expand successively, so that early three months. Several re- es are known. It succeeds best in e. The essential oil is used by

; an old town of Würtemberg, ckar, situated in a valley on the miles south-west of Stuttgard; lon. 8° 31′ N.; population, 7600. It pital, four churches, a theological ege for the nobility, and a univer- rons are finely diversified by hill, . The town has some woollen ut is supported chiefly by the uni- was founded in 1477, and received improvements in 1769. It has a botanic garden, and, in 1829, had It was formerly exclusively Pro- few years since the Catholic univer- n was united with it. In 1828, the chamber of deputies granted it a 80,000 guilders. It has thirty-one

CREEK, CATARACT IN. See *Ca-*

ABRAHAM, an English writer on taphysics, was the son of a merchant here he was born in 1705. After studies at Oxford, he travelled in married in 1736, and, having lost his , he published, under the title of a ve without Art, her letters to him. fter he produced his Advice from a leman to his Son, and commenced his he Light of Nature pursued (7 vols., st three of which appeared in 1768, eudonym of Edward Search: the re- mes were printed after the death of which took place in 1774. See Mack- *y on Ethical Philosophy.*

See *Britain*, and the articles *Henry Elizabeth*, &c.

AY (Latin *dies Martis*); the third day k, probably so called from the Anglo- of war Tuu, (gen. *Tues*, whence the *Tuesday.*) See *Week*, and, for day, see *Shrovetide.*

See *Taurus.*

BUND (German, union *of virtue*); the ally given to an association in Prussia, the *semi-scientific* union, founded by after the fatal peace of Tilsit. the moral regen- It for bet- and mp- tres

to promote the objects of the society, and to be faithful to the reigning family. The minister Stein favoured the society; but when he left the ministry, and Schill, one of the members, had attacked the French, though not at the instigation of the society, the French induced the king to abolish it. Professor Krug of Leipsic, who was himself a member, wrote *Das Wesen und Wirken des sogenannten Tugendbundes und anderer angeblichen Bünde* (Leipsic, 1816).

TUILERIES (from *tuile*, a tile, because the spot on which it is built was formerly used for the manufacture of tiles,); the residence of the French monarchs, on the right bank of the Seine, in Paris. Catharine de' Medici, wife of Henry II. began the building from the designs of Philibert de l'Orme and Jean Bullant (1564). Henry IV. extended it, and founded the gallery (1600), which was intended to connect it with the Louvre, and form a residence for twenty-four artists. Louis XIV. enlarged it (1654), and completed the great gallery. The side towards the Louvre consists of five pavilions and four ranges of buildings; the other side has only three pavilions. In the pavilion of Flora, Napoleon resided, and it was afterwards occupied by Louis XVIII. The exterior of the Tuileries is deficient in harmony, having been built at different times, and on very different plans; but the interior is magnificent. The gallery above mentioned, which connects the Tuileries with the Louvre, is completed on the side towards the Seine; the lower part consists of open arcades; above is the collection of pictures. The second gallery leading to the *place Rivoli* and the *rue St Honoré*, was begun by Napoleon in 1808, but is not finished. To make room for it, many houses and whole streets were levelled; and much of the ground is still occupied by the ruins of the former buildings. On the west of the palace lie the gardens of the Tuileries, forming a quadrangle of the width of the palace, and 1600 feet in length; they are sixty-seven arpents° in superficial area. Upon two sides they are enclosed by long terraces (that on the side to the Seine commands a beautiful prospect) and iron railings. This garden, laid out by the celebrated Lenôtre for Louis XIV. has, in more recent times, been highly ornamented in the French style, and contains alleys of orange trees and other trees, grown. lawns with beds of flowers and shrubberies, fountains and basins of water with swans and goldfish, a great number of vases, and more than sixty statues executed from ancient works. It is filled at all hours of the day with persons of all classes: chairs and the newspapers may be had at a small rate. Towards the city, and separated from the court by an iron palisade, is the place du Carrousel, which receives its name from a [illegible] exhibited here by Louis XIV. in 1664. The [illegible] erected by Napoleon in 1806, from the [illegible] entrance into the court. It was [illegible] with the horses of St Mark, at a station at Nanterre, which have been removed. The French [illegible] called the [illegible] of the Tuileries, [illegible]

TUISCON. According to Tacitus, the Germans, in their songs, gave this name to the founder of their nation. *Thuisco* or *Tuisco* is probably the adjective of *Theut* or *Teut*; hence *theutisch, teutsch.* (The Germans call themselves *Teutsche* or *Deutsche*, and their country *Teutschland* or *Deutschland.*) *Theut* signifies something original, independent, e. g. earth, nation, father and lord. From *Theut* comes *Teutones*, the people of Theut; hence also *lingua Theutisca, Theodisc, Teutonic, Theutish, Teutsch* (called, in a great part of Westphalia, *Düsk*). In this we recognise the *Thuisco* of Tacitus (*Germ.* 2). The word *Deutsch* first appears in a document of the year 813; and the first king, who was called *König der Deutschen, rex Teutonicorum*, was Otho the Great. (See *German Language.*) In the northern mythology, *Thuiscon, Tuiscon, Taut, Tot, Theot, Tuis*, &c., is a god, from whom the Gauls and Germans believed themselves descended. *Thuiscon*, with the Earth (*Artha* or *Hertha*), gave birth to men; hence called *Teutones.* But only the inhabitants of the Scandinavian islands, between the extreme coasts of Southern Scandinavia and the Cimbric Chersonesus, were properly called *Teutones.* The ancient Germans revered Tuiscon as a man with a gray beard, clad in the skin of an animal, holding a sceptre in his right hand, and stretching out the left with extended fingers. According to Julius Cæsar, they offered to him human sacrifices. The name of *Tuesday* has been derived from the god.

TULA; a town of Russia, capital of a government of the same name on the Upha; 112 miles south of Moscow; lon. 37° 2′ E.; lat. 54° 12′ N.; population, 38,000. It contains several seminaries, but is chiefly distinguished for its manufactures of hardware, on which account it is styled the Sheffield of Russia. It has a cannon foundry, and a manufactory of arms for government, as muskets, bayonets, swords, &c.; besides two iron founderies, and 600 shops of smiths and others for making firearms and cutlery for private use. The ore is supplied in abundance from the vicinity; but the manufacture is inferior to that of England.

TULIP (*tulipa*); a genus of plants belonging to the *liliaceæ*, containing about a dozen species, mostly natives of Europe, or of the neighbouring parts of Asia. Their roots are bulbous; the leaves few in number, and disposed about the base of the stem; the latter simple, and usually terminated by a large solitary flower. The calyx is wanting; the corolla composed of six petals, and the stamens six in number. The most noted species is the common garden tulip(*T. gesneriana*), which has received its name from the celebrated Conrade Gesner, to whom we owe its introduction into the European gardens. It was brought, originally, from the Levant; and Gesner first discovered it in 1559, at Augsburg, in the garden of an amateur, who had received it from Constantinople or Cappadocia. The stem is about a foot or eighteen inches high, provided at the base with three or four lanceolate, glaucous leaves. In the wild plant, the colour of the flowers is uniform, often yellow or reddish, sometimes brownish; but cultivation has modified them in a thousand ways, and produced an immense number of varieties. The tulip has always been a favourite plant with the Belgians and Dutch; and, about a century after its introduction, the mania prevailed to such an extent in these countries that more than two thousand dollars were often given for a single root—in those days an immense sum. It is still extensively cultivated in Holland, from which all Europe is supplied with bulbs; and it is said that nothing equal the magnificence of the gardens in that country, at the time when they are covered with innumerable varieties of these flowers. These varieties are often disposed in a regular figure, according to their size and the different colours. In raising tulips from the seed, florists pursue a mode in some respects the reverse of that practised with other plants. Instead of saving the seed from the finest variegated tulips, they prefer unbroken flowers for breeders, selecting such as have tall, strong stems with large, well-formed cups, clear in the bottom. Plants raised from the seed of the finer varieties or sorts form poor, weak breeders, of no value. The seed is sown on fine, light soil, thinly covered, and protected and shaded by a frame. At the end of the second year, the bulbs are taken up, and transplanted three inches apart; and again at the end of the fourth year. Some will bloom the fourth year, most the fifth, and all the seventh year.

TULIP-TREE (*lyriodendron tulipifera*), one of the most remarkable productions of the North American forest. Among deciduous trees, it is second in size only to the button-wood; and the fine form of the trunk, the beauty and singularity of the foliage and flowers, entitle it to rank among the most magnificent vegetables of temperate climates. It is, besides, valuable, from the numerous and useful applications of its wood. The tulip-tree is readily recognised by the peculiar truncated leaves. It belongs to the same *natural family* with the magnolias. The flowers are large and showy, variegated with different colours, among which yellow predominates, and somewhat resemble those of the tulip. The fruit is a cone two or three inches in length, composed of a number of long, thin, narrow scales, attached to a common axis. The leaves are alternate, supported on long foot-stalks, smooth, and of a pleasing green colour. They are divided into three lobes, the middle one of which is truncated, and slightly notched at the summit. In most parts of the United States, this tree is known only by the improper denomination of *poplar:* sometimes it is called *white-wood*, or *canoe-wood;* but the more appropriate name is seen chiefly in European gardens. It is unknown, in the wild state, east of the Connecticut river, although occurring as far north as latitude 45°, at the southern extremity of lake Champlain. It is most common, and attains the largest size, in the Middle and especially in the Western States. Its comparative rareness in the lower parts of the Southern States is owing to the nature of the soil, which is either too arid or too watery. Every where it is less abundant than the oaks, walnuts, ashes and beeches, for it delights only in deep, loamy, and extremely fertile soils, such as are found in the rich alluvial flats which lie along the rivers, and on the borders of the great swamps that are enclosed in the forests. In some parts of the Western States, it constitutes, alone, pretty extensive tracts of the forest, and here attains its largest dimensions. Its stocks have been measured more than twenty feet in circumference, and whose height was estimated at from 120 to 140 feet; and sometimes the trunk is perfectly straight, and uniform in diameter, for more than forty feet. The heart, or perfect wood, is yellow, approaching to a lemon colour, and the sap white. Though classed among the light woods, it is much heavier than the poplars: the grain is equally fine, and more compact: it is easily

wrought, polishes well, and is sufficiently strong and stiff for purposes requiring great solidity. The heart, if perfectly seasoned, long resists the action of the atmosphere, and is said to be rarely attacked by worms. Its greatest defect is, that, when employed in wide boards, and exposed to the weather, it is liable to shrink and warp, from the alternations of dryness and moisture. The nature of the soil has such an influence upon the colour and quality of the wood, that mechanics distinguish two varieties, the white and yellow poplar, the former of which is always neglected when the other can be procured. Wherever it abounds, it serves for the interior work of houses, and sometimes for the exterior covering in situations where it is difficult to procure pine boards. The panels of doors and wainscots, and the mouldings of chimney-pieces, are made of this wood. In all the large towns of the United States, the boards, which are often two or three feet wide, are exclusively used for the pannels of coaches and chaises. When perfectly dry, they receive paint well, and admit of a brilliant polish. The timber is consumed also in the manufacture of trunks and bedsteads, which last are stained in imitation of mahogany. The circular board and wings of fanning-mills are of this wood. As it is very light, and easily wrought in the lathe, it is much used for wooden bowls: it is also preferred for the head of hair-brooms or sweeping-brushes: farmers select it for the eating and drinking troughs of their cattle: it is found useful in the construction of wooden bridges, from uniting lightness with strength and durability: the Indians of the Middle and Western States preferred this tree for their canoes, which are made of a single trunk, are very light and strong, and sometimes carry twenty persons:—in fine, the tulip-tree affords excellent charcoal, which is employed by smiths in districts which furnish no stone-coal. These are some of the more common purposes to which this wood is applied. It is very cheap, being sold at half the price of black walnut, wild cherry and curled maple.

TULLAMORE, OR KILLBRIDE; a town in King's County, Leinster, Ireland, situated upon the Clodagh river, 63 miles W. by S. from Dublin. Owing to the liberality of its proprietor, Lord Charleville, Tullamore has of late grown from an humble village into a populous trading-town, the best in the county. Population in 1841, 6343.

TULLUS HOSTILIUS; according to the common statement, king of Rome and successor of Numa Pompilius, B. C. 672; a warlike monarch, in whose reign took place the combat of the Horatii and Curiatii. (See *Horatii.*) He afterwards subdued the Albans by treachery. He likewise conquered the Fidenates and Sabines. In his old age he became superstitious. His death, after a reign of thirty-three years, is ascribed by some to lightning, by others, to Ancus Martius, his successor. See Niebuhr's *Roman History.*

TULLY. See *Cicero.*

TUMULI, OR BARROWS, are the most ancient and general of all monuments to the dead. The earliest barrow of which we read is that which Homer mentions as having been formed over the remains of Patroclus. That of Achilles is still, as it was originally designed to be, a distant sea mark. By the Athenian customs, earth was heaped on the dead by the nearest relations, and corn was then sown on the barrow. The Scythians heaped huge barrows over the bodies of their kings. The height of the mound was in proportion to the honour intended to be paid to the deceased. The steppes of Tartary are thickly covered with barrows. In vol. 2d of the *Archæologia*, a Tartarian barrow is mentioned, in which were found two corpses wrapped in four sheets of gold. The weight of the gold was forty pounds. The famous Irish barrow at New Grange, described by governor Pownall (*Archæologia*, 2d, 236), is in the county of Meath. It consists of small pebbles. The base covers two acres. The circumference at the top is 300 feet, height 70. There is a gallery within it sixty-two feet long, leading to a cave, which intersects the gallery transversely, so as to form a cross. The length and height of the cave are each twenty feet, the breadth eleven feet six inches. Barrows of loose stones or of dark mould and flints are very common in England. Ashes, urns, spears, swords and shields, bracelets, beads, mirrors, combs, and hair-pins, are among the principal contents. Denmark, Sweden, Lower Saxony, and many other countries on the continent, abound with sepulchral monuments of this kind. To the north of the Hottentots, innumerable barrows are described as having been seen by doctor Sparrow (*Travels*, 2d, 264). In New Caledonia, Mr Forster met with a barrow four feet high, surrounded by an enclosure of stakes. Mr Oxley, in 1817—1818, found in the interior of New South Wales two native burial-places. The principal one showed much labour. The form was semicircular. Three rows of seats formed one half; the grave and an outer row of seats, the other. The seats constituted segments of circles of from forty to fifty feet, and were raised by the soil being trenched up between them. The grave was an oblong cone, five feet high and nine long. The barrow was supported internally by a sort of wooden arch. The body was wrapped in a great number of opossum skins, covered with dry barb grass and leaves, and lay about four feet below the surface. In the valley of the Mississippi, *tumuli*, or mounds of earth, are found in great numbers, of the origin and uses of which we are yet ignorant. Similar constructions are also found in Mexico. (See Humboldt's *Monuments of the Natives of America.*) The mounds in the Mississippi valley have been found to contain bones, and are said to be composed of earth different from that of the surrounding country. They exhibit no trace of tools, and are, in fact, merely regular piles of earth, without brick or stone. They are commonly situated in rich plains and prairies. There is one near Wheeling, seventy feet in height, and thirty or forty rods in circumference at base, and 180 feet at top. There is a numerous group near Cahokia, stated at about 200 in all, the largest of which is a parallelogram, about ninety feet high, and 800 yards in circuit. It has been asserted the skulls found in these mounds bear a striking resemblance to those found in Peru.

TUNBRIDGE; a town of England, in Kent; thirty miles south-east from London.

TUNBRIDGE WELLS is a large hamlet, thirty-six miles south-east from London, partly in the parish of Tunbridge, and partly in that of Speldhurst. It is nearly two miles in length, and owes its origin and importance to the celebrated mineral waters in the vicinity, consisting of four divisions, Mount Ephraim, Mount Pleasant, Mount Sion, and the Wells, properly so called. The air of this district is remarkably pure and salubrious, the appearance of the country inviting, and the aspect of the villages picturesque, appearing like a large town in a

wood, interspersed with rich meadows, and enclosing a large common, in which are walks, rides, handsome rows of trees, and various other objects. Here are excellent accommodations for visitants, also assembly rooms, a theatre, libraries, chapel, market place, &c. The waters are chalybeate (see *Mineral Waters*), extremely clear and pellucid at the fountain head, and the taste is strongly impregnated with iron. They are of great use in removing complaints arising from sedentary habits, weak digestion, and nervous and chronic disorders. The discovery of their virtue is ascribed to Dudley, lord North, a courtier in the reign of James I., who was restored to health by drinking them. A variety of toys in wood of various kinds is manufactured here, and known by the name of *Tunbridge ware*. The high rocks, one mile and a half from the wells, are much celebrated. In some parts they are seventy-five feet high, and form a very striking and romantic picture. Population of market-town and parish of Tunbridge in 1841, 12,530.

TUNE. See *Tone* and *Melody*.

TUNGSTEN; one of the metals, so named from the Swedish word *tung*, heavy, in allusion to the great specific gravity of the mineral in which it was first detected as an ingredient. The ores of this metal are three, viz. *wolfram*, *tungsten*, and *yellow oxide of tungsten*. 1. *Wolfram* occurs in short, highly modified prisms, whose primary form is a right oblique-angled prism, the larger angle of the lateral planes being 117° 22′. The secondary forms are produced through the replacement of the lateral edges and of the longer terminal edges. Cleavage parallel to the primary form, perfect; surface of the crystals streaked parallel to the axis; lustre metallic adamantine, or imperfect metallic; colour dark grayish, or brownish-black; streak dark reddish-brown; opaque; not very brittle; hardness between apatite and feldspar; specific gravity 7·15. Besides occurring in single crystals, it occasionally presents itself under the form of twin-crystals, and massive. The massive varieties are irregularly lamellar, sometimes columnar. It is also found in pseudomorphs, in the shape of tungsten. It consists of

Tungstic acid,	78·77
Protoxide manganese	6·22
Protoxide iron,	13·82
Silex,	1·25

It decrepitates before the blow-pipe, but may be melted, in a sufficiently elevated temperature, into a globule, having its surface covered with crystals possessing a metallic lustre. It is easily soluble in borax. Wolfram occurs very frequently along with tin ore, in veins and in beds. It is met with also in veins along with galena. Its localities are the Saxon and Bohemian tin mines, as at Schlackenwald, Zinnwald, Ehrenfriedersdorf and Geyer; also many places in Cornwall. It is also found in France and Siberia. 2. *Tungsten* is found in crystals of an octahedral figure, and depending upon a primary form, which is an acute octahedron, the upper pyramid inclining to the lower one under an angle of 128° 40′, parallel with whose faces it cleaves, and also with the faces of an octahedron less acute. The surfaces of the crystals are commonly drusy; lustre vitreous, inclining to adamantine; colour generally white, often inclining to and passing into yellowish-gray, yellowish and reddish-brown; streak white; semitransparent to translucent; brittle; hardness a little above that of fluor; specific gravity 6·07. Besides the crystals, tungsten is found massive. It consists of lime 19·40 and tungstic acid 80·42. Alone upon charcoal, it is infusible in the blow-pipe, except that the thinnest edges are converted, in a very strong heat, into a semi-transparent vitrified mass. It gives a white glass with borax. It is found in similar repositories with wolfram. The principal localities of tungsten are Schlackenwald and Zinnwald in Bohemia, Ehrenfriedersdorf in Saxony, and Cornwall. Splendid specimens have lately been found in a rock in Cumberland. 3. *Yellow oxide of tungsten* is found in the state of an orange-yellow powder, investing tungsten, from whose decomposition it appears to result. It is readily soluble in warm liquid ammonia, and is precipitated white by acids; the precipitate, by standing, reacquiring the yellow colour. It has only been met with at Monroe, Connecticut. The easiest method of obtaining *tungsten* in the *metallic state* is the following:—Fuse together a mixture of wolfram and carbonate of potash in a crucible. Then digest the fused mass in water, which will dissolve the tungstate of potash formed. To this solution add a quantity of a solution of sal-ammoniac in water, and evaporate the whole to dryness. Put the dry saline residue into a Hessian crucible, and heat till the sal-ammoniac is entirely dissipated. The residual matter being now dissolved in hot water, a heavy black powder separates, which is oxide of tungsten. Let it be boiled in a weak solution of potash, and, finally, in pure water. When this powder is heated in an open crucible, it takes fire, and is converted into tungstic acid. The affinity of tungsten for oxygen not being very strong, it is easily reduced to the metallic state by passing a current of dry hydrogen gas over tungstic acid, heated to redness in a glass tube. Thus purified, tungsten (*Scheelium* of the Germans) is of a grayish-white colour, or rather the colour of steel, and is possessed of considerable brilliancy. It is one of the hardest of the metals, it being almost impossible to make an impression upon it by the file. It seems also to be brittle. Its specific gravity is 17·6. It is therefore the heaviest of the metals after gold, platinum and iridium. It requires for fusion a very high temperature. It is not attracted by the magnet. When heated in an open vessel, it gradually absorbs oxygen, and is converted into an oxide. Tungsten seems capable of combining with oxygen in two different proportions, and of forming the brown oxide, *black oxide*, and the yellow, or *tungstic acid*. The first of these is obtained by putting a quantity of tungstic acid in a glass tube, heating it to a very low red heat, and passing through it, while in this state, a current of hydrogen gas. Water is formed, and the acid is deprived of a portion of its oxygen. The oxide has a flea-brown colour, and, when heated in the open air, takes fire, and burns like tinder, and is converted into tungstic acid. This oxide has the power of uniting with soda, and would appear to play the part of an acid. The tungstic acid obtained as described above, has a pale lemon-yellow colour. When strongly heated, it becomes green, as it does also when exposed to the rays of the sun. Its specific gravity is 5·6. It is tasteless, insoluble in water, but is very soluble in the caustic alkalies. It has the property of combining with other acids. When precipitated from tungstate of ammonia by an acid, the precipitate is always a compound of tungstic acid and of the acid employed to throw it down. Tungsten forms three compounds with *chlorine*, all of which are chlorides. It com-

bines also with phosphorus and sulphur. According to the trials of Gmelin, tungsten, even when in the state of an acid, has no injurious effect on the animal economy, when taken internally.

TUNGUSES; a numerous people in Siberia, of Mantchoo origin (see *Mandshures*), dwelling in the lower regions of the Yenisei, on the Tungusca, the Lena and the Amour. Those beyond the Amour are under the protection of China; those to the north under that of Russia. Some of the Runguses are converted to Christianity, and practise agriculture; but the most are devoted to Shamanism, and rove about with horses, reindeer, or dogs, which draw their sledges and serve them for food, rarely spending more than one or two nights in the same place. Hunting, fishing, and in some cases the breeding of cattle, are their employment. The following cut represents the costume of the Tun-

guscs. They use no arms in the chase, except the bow and arrow, in which they are so skilful that they fear not to attack the fiercest and strongest animals. They hunt chiefly for furs. They are divided, according to the nature of the country which they occupy, into the Tunguses of the steppes and the Tunguses of the forests. The former are shepherds, and own horses, neat cattle, sheep, goats and camels. They are active and vigorous, and are remarkable for the flatness of their faces, and smallness of their eyes. They have no money, and are unacquainted with the use of silver and gold. They pay their tribute to the Russian government in furs. Some of the small tribes serve as light troops on the Mongolian frontiers, and are exempt from tribute. All the Tunguses have a common language, and, although so much dispersed, are to be considered as forming one nation. Their number is uncertain.

TUNIC; a garment worn by the Romans of both sexes, under the toga and next to the skin. It was generally of wool, of a white colour, and reaching below the knee. Several tunics were worn one above another. Only slaves and the lower class of the people appeared abroad in the tunic; but at home, the Romans generally wore only the tunic, which they girded up when going out, or when engaged in business. The senators wore a tunic with a broad stripe (*clavus*) of purple sewed on the breast: the equites had narrow stripes. Hence the terms *laticlavii* and *angusticlavii*, applied to persons of these orders. A sort of tunic worn by the women under another made of linen, and having sleeves, was called *indusium*, and much resembled the modern shirt.

TUNICATA. The situation which this class of animals ought to occupy, has not yet been properly ascertained by naturalists. This arises from the obscurity of their organization. They are gelatinous, or coriaceous, biferous, bitunicated animals; that is, provided with two coverings. They exist either in a solitary condition or in groups, or are frequently joined together in a common mass.

Cuvier arranges these animals among his Mollusca, in the class *Acephala*, and places them as the second order of this class, with the title of Acephalus animals destitute of shells; while Lamarck ranks them between the *Echinodermata* and *Entozoa*. Latreille places them after *Entozoa;* and Blainville makes them the fourth order of his class *Acephalophora*, with the name of *Heterobranchiata*. In short, there appears to be, both among the vertebral and invertebral animals, more than one series of forms and structure, which, either in the descending or ascending scale of being, where the most nearly allied groups, in point of organization, are arranged in sequence, will always disconnect any continued series of arrangement.

The animals composing the class Tunicata have an oblong irregular body, which appears as if it were interiorly divided into many cavities. They are destitute of a head, and possess no distinct organs of sensation, and no similar or symmetrical parts in pairs. There have been found some filaments and tubercles in their bodies, which are supposed to form the nervous system. The body is composed of muscular fibres, and a distinct system of blood vessels; the alimentary canal is open at both ends; and they have a mass of gemmæ, or eggs, either solitary or enveloped together in a common membrane, which appears to form the ovaries. The organ of respiration in this class is always situate interiorly, and formed of two membranous reticular leaflets, sometimes constituting a kind of sac, sometimes forming two bands of unequal length, and united by one extremity. None of the species possess retractile tubes for locomotion. All of them have soft coriaceous bodies, which is generally fixed, either by itself or in connexion with others of the species, to extraneous substances. There have not been yet discovered any traces of sexual organs.

We are assured by M. de Chamisso, that he has witnessed a singular fact relative to the animals of this class; it is, that the individuals which have thus issued from a multiplex ovary, are not provided with a similar one, but produce insulated young ones of various forms, which have an ovary like that which produced their parent; so that there is alternately a generation of a few insulated individuals, and another of numerous aggregate ones, and that these two alternating generations do not resemble each other.

Muscular bands embrace the mantle, and contract the body of these animals. They move by taking in water at the posterior aperture, and forcing it out through that near the mouth, so that the animals are always propelled backwards, a circumstance which has led some naturalists into the error of supposing that the posterior aperture was the true mouth. They usually swim on their back. The bronchiæ form a single tube or riband, furnished with regular vessels, placed obliquely in the middle of the tubular cavity of the mantle, in such a manner that it is constantly bathed by the water as it traverses that cavity. The heart, viscera, and liver, are wound up near the mouth and towards

the back; but the position of the ovary varies. The mantle and its envelope, when exposed to the sun, exhibits the colour of the rainbow, and are so diaphanous, that the entire structure of the animal can be seen through them. In many they are furnished with perforated tubercles. The animal has been seen to come out from its envelope without appearing to suffer pain. The most curious circumstance respecting these animals is, their remaining united for a long time, just as they were in the ovary, and thus swimming in long chains, where the individuals are disposed in different ways, but each species always according to the same order.

Many of the animals of this class, from their thus being united in a common mass, have been by several naturalists mistaken for compound animals, like the polypi; but they are widely different from them and all the lower orders of the animal kingdom. The aggregated Tunicated beings are independent and individual animals, each of which is provided with a mouth, and an aperture for the ejection of digested matter, applicable to the individual wants, and unconnected with the general nutrition of the common mass.

It is quite certain that in some species little individuals have been observed adhering to the interior of larger ones, by a peculiar kind of sucker, which were different in form from those that contained them.

Lamarck divides this class into the two following orders.

I.—Ascidiaria. Animals either isolated or in groups, without internal communication, and not forming essentially a common mass.

II.—Botryllaria. Agglomerated animals, always united, and constituting a mass with a common covering.

ORDER I.—Ascidiaria.

Animals disunited, living either in an isolated condition, or congregated in groups, without any internal communication in their organisation, and not forming a common mass.

The mantle and its cartilaginous envelope, which is frequently very thick, resemble sacs every where closed, except at two orifices, which correspond to the two tubes, of several bivalves, one serving to admit water, and the other for the fæces. The bronchiæ form a large sac, at the bottom of which are the mouth and the visceral mass. The envelope is much larger than the mouth, which is fibrous and vascular, and on which, between the two tubes, is one of the ganglions. These animals attach themselves to rocks and other bodies, and are destitute of all power of locomotion; the chief sign of vitality which they exhibit, consists in the absorption and evacuation of water through one of their orifices; when disturbed, they eject it to a considerable distance. They abound in every sea.

Mammaria. Body free, naked, oval, or sub-globular, terminated at the summit by a single opening; destitute of tentacula at the orifice.

Fiapillaria. Body free, naked, sub-globular, terminated posteriorly by a kind of peduncle, with two conical perforated and tentacular papillæ at its superior extremity; each of the orifices provided with three setaceous tentacula.

Ascidia. Body oval, conical, or cylindrical, sometimes club-shaped, containing, in its exterior envelope, more or less coriaceous or sub-gelatinous matter, fixed by a widened or pedunculated base, and terminated above by two short, indistinct, unequal siphons, the orifices of which are provided with radiated tentacula.

This genus consists of three sections, viz.

1. Body sciated, short, or slightly elongated.
2. Body sessile, and considerably elongated.
3. Body pedunculated, or narrowed into a peduncle beneath.

Ascidia intestinalis, The Intestinal Ascidia. Body elongated, smooth, flaccid; orifices approximated at the apex. Inhabits the seas of Europe.

Salpa. Body free, oblong, cylindrical, truncated at both or at one only; orifices terminal, or not so, one always nearer than the other, and transverse, with a moveable operculum the other tubular; exterior envelope soft or sub-cartilaginous, provided with hollow tubercles, which act as suckers, in number and disposition.

This genus consists of two Sections, viz.

1. Those with the body truncated.
2. Pointed at one or both extremities.

ORDER II.—Botryllaria.

Agglomerated animals, always united, and constituting a common mass by their re-union, as they appear to communicate organically with one another, and in this respect seem to be a connecting link between the Mollusca and Zoophyta dependently, however, of their peculiar organisation, the animals at first live and swim separately, and only become united at a certain subsequent period, a fact which is in direct opposition to this opinion.

The bronchiæ of this Order, as in the Ascidiæ, form a sac, traversed by the alimentary canal before it arrives at the mouth; their principal ganglion is also situate between the mouth and the arms; a nearly similar disposition obtains with respect to the viscera and ovary; notwithstanding of which some of them have an opening at each extremity.

Lamarck sub-divides the Order as follows:—

1. Animals floating in a common mass in water.
2. Animals fixed upon marine bodies.

SUB-DIVISION I.—FLOATING ANIMALS.

Pyrosoma. Animals biferous, aggregated, forming by their union a free, floating, cylindrical, gelatinous, hollow mass, closed at one extremity, and open at the other, and covered exteriorly with tubercles; orifices of the mouth external, an opening situate in the internal wall of the cavity of the mass provided with two genmiferous, opposite, and lateral ones. The mass swims in the ocean by the alternate contractions and dilatations of the individual animals which compose it.

These animals terminate in a point on the exterior, so that the whole external surface of the tube is bristled with them; the bronchial orifices are pierced near their points, and the anal opening debouches in the internal cavity of the cylinder. A Pyrosoma may consequently be compared to a great number of stars of Botrylli strung together, the whole of which is moveable. They exhibit a phosphorescent light during night, and are found in the Mediterranean.

SUB-DIVISION II.—ADHERENT ANIMALS.

1. Animals forming distinct groups, each disposed around a central cavity.

Botryllus. Aggregated biferous animals, situate at the surface of a thin, gelatinous, transparent crust, and composed of numerous orbicular star-shaped systems, each system disposed in a radiated form round a central opening. The branchial orifices are at the external extremities of these rays. Individual animals ovoid, contracted below, thickest and rounded at the summit, and perforated above towards each extremity, each situate near the circumference of the cyst, provided with eight tentacula, of which four are larger than the others; anus opening near the centre; furnished with two genmiferous sacs.

If an orifice be irregular, a single animal only contracts, but if the centre be touched, they all contract.

Polycyclus. Animals biferous, congregated, and united in a common mass; gelatinous, thick, convex, adherent, the outer studded with many-mouthed orbs, each having a cavity in its centre; ten or twelve separate openings disposed in a circle around the cavity, with interior siphons communicating between these and the central aperture.

Polyclinum. Animals aggregated, biferous, united in a gelatinous mass, depressed, and rough with small papillæ; many of them forming stelliform systems, and disposed in a radiated form round a central opening; mouth provided with six tentacula; anal opening not apparent externally; nine genmiferous sac hanging under the animal, with a filamentary termination.

2. Animals disposed in concentric circles, forming the common mass.

Diagoma. Animals aggregated, biferous, congregated and by their union forming a common body, fixed, semi-gelatinous orbicular, multicellular, with projecting compressed cells, each furnished with two orifices, and disposed in many concentric circles; mouth furnished with six lanceolate tentacula.

No particular systems formed by the disposition of the animals in the common mass.

1. Provided with two orifices for each animal, which appear to be external.

Distomus. Animals biferous, separate, associated in a coriaceous mass, extended in a crust, and covered with scattered warts, and margined with six teeth.

Sigillina. Animals biferous, forming by their union a common gelatinous body, conically elongated, sub-pedunculated, with scattered tubercles; animals not disposed in particular or distinct systems; tubercles of the surface with two pores; mouth furnished with six tentacula, and six teeth at the anal opening.

2. One orifice only, externally apparent, for each animal.

Synoicum. Aggregated animals, living in cylindrical fleshy projections, obtuse at the summit, and originating in a free

base; provided with from six to nine osculi, disposed in a circle at the apex.

Synoicum turgens, The Swollen Synoicum. Furnished with numerous, simple, cylindrical, fleshy projections, and osculi disposed in a circular form at the apex. Inhabits the coasts of Spitsbergen.

Eucoelium. Animals biferous, aggregated, living in a common mass, extended in the form of a spungy or sub-gelatinous crust, with scattered mammillæ at the surface; having only one apparent opening externally; the gemmiferous sac single and lateral.

The common crust of this genus is of a whitish hue, spread over marine bodies, and covered with small papillæ, either crowded or in quincunx order. Their summit is perforated by an opening, the margin of which is divided into six rays, which are sometimes hardly perceptible. The body of the animal is divided into two unequal inflations, forming two distinct cavities; the gemmiferous sac is lateral.

Aplidium. Animals biferous, aggregated, very small, living in a common convex fleshy body, adherent, and without exhibiting particular systems; mouth furnished with six tentacula; with no apparent external anal opening.

TUNIS; one of the Barbary states in Africa, bounded north by the Mediterranean, east by the Mediterranean and Tripoli, south by Tripoli and the deserts, and west by Algiers. It consists chiefly of a large peninsula, stretching into the Mediterranean in a north-east direction, and coming within a hundred miles of the coast of Sicily. It has an extent of about 500 miles of coast on the Mediterranean; and the cultivated part reaches 200 or 250 miles into the interior, till it terminates with the chain of Atlas and desert plains. Square miles, about 72,000; population variously estimated from one to two millions, of which about 100,000 are Jews. (See *Barbary States.*) Tunis is watered by the river Mejerdah, or Bagrada, on the banks of which are many towns and large villages. Its banks, and the country to the eastward, are fertile, of great natural beauty, and are the best cultivated parts of the country. The western part is more thinly inhabited, and, in many places, is almost a desert. The mountains of Tunis contain mines of silver, copper, lead and quicksilver, but they are not wrought. The situation of the country is very favourable for commerce, and the amount is considerable. The exports consist of grain, the principal article, next olive oil, wool, soap, sponge and orchilla weed; also, gold dust, ivory, and ostrich feathers, brought by caravans from Timbuctoo. The imports are European manufactures, colonial produce, and East India cottons. Tunis, the capital, has a population estimated at from 100,000 to 150,000, of which about 30,000 are Jews. It is 300 miles east of Algiers. It is situated at the bottom of a large bay, about ten miles south-west of the site of ancient Carthage, on a plain, surrounded on all sides, except the east, by considerable heights, encircled by lakes and marshes. It is built in a most irregular manner, and the streets are extremely narrow and filthy. The principal structure is the palace of the bey. There is one great mosque, and a number of smaller ones, with several colleges and schools; and near the centre is a piazza of vast extent, said to have formerly contained 3000 shops for the sale of woolen and linen manufactures. The houses belonging to European consuls are all insulated habitations, resembling prisons. The Moorish houses are of only one story, with flat roofs, and cisterns for the purpose of collecting rain water. The city is well supplied with water, by an aqueduct. Large sums have been expended in the construction of forts, and in surrounding the city with a high wall; yet it is by no means a strong place. The citadel, called *El Gasea*, is much out of repair. Six miles to the west is the Goletta, the harbour and citadel of Tunis, and the naval and commercial depot of the state. It is strongly fortified. A basin has been formed sufficient to receive all the vessels of war and merchant ships belonging to Tunis. A lake extends from the city to the Goletta. Tunis has a more extensive commerce than any other town in Barbary. After Tunis, Cairwan is the chief commercial place: it contains a large mosque, considered the most holy in northern Africa. At Bersach (perhaps Byrsa, the ancient citadel of Carthage) are seen the ruins of a Carthaginian aqueduct. After the destruction of Carthage, the Romans built a new city, near the site of the modern Tunis: it was peopled with Roman colonists, and soon became one of the most important cities of the ancient world. This being destroyed by the Saracens, Tunis, before an insignificant place, rose to importance. The Normans of Sicily afterwards possessed themselves of the city, but they were driven out of the country by Abdalmamum of Morocco. In 1530, the state was disturbed by domestic troubles, of which Charles V. availed himself to undertake his celebrated expedition to Africa. He defeated the Turks, who had made themselves masters of Tunis under Hayradin Barbarossa, and forced his way into the city. (See *Barbarossa, Charles V.*, and *Barbary States.*) In 1574, the Algerine Turks obtained possession of Tunis, and established a Turkish regency and a military constitution. An aga presided over the divan, or principal council, and a pacha exercised the supreme power in the name of the grand seignior. A military revolution soon after occurred, which placed the chief power in the hands of a dey. At present, the head of the government is styled *bey;* the present bey, Sidi Hassan, succeeded Hamonda Bey in 1824. The bey of Tunis acknowledges the sovereignty of the grand seignior, by the annual payment of tribute under the name of a present; but the latter has no authority in the government. The revenue is estimated at about £900,000: the land force amounts to 15,400 men, and the navy consists of about twenty corsair ships. In case of emergency, the bey can raise 50,000 irregular Bedouins. See *Ottoman Empire*, and *Turkey.*

TUNKERS, AND TUNKERSTOWN. See *Ephrata.*

TUNNY; a fish belonging to the family of the mackerel, or the genus *scomber* of Linnæus. It attains large dimensions, weighing a hundred pounds, and often considerably more. The body is covered with small scales; is thick, rounded, spindle-shaped, and has a prominent carina, or keel, on each side of the tail. The colours are brilliant, but not much varied: the back resembles polished steel; the under parts are silvery; all the fins are yellow except the first dorsal. These fish live in shoals, in almost all the seas of the warmer and temperate parts of Europe, Asia, Africa and America, but are not equally common in every season or in all parts of the seas which they frequent. Immense numbers enter the Mediterranean by the straits of Gibraltar, and immediately divide, one

part following the shores of Europe and the other those of Africa, in search of a place to deposit their spawn. They penetrate into the Black sea; and it is remarkable that they follow the right shore of the Bosphorus in going, and the left in returning—a circumstance which induced some of the ancients to suppose that they saw more clearly with the right eye than the other. At the approach of winter they retire to deep water. They often, besides, undertake irregular migrations. In sailing from Europe to America, they have been known to accompany vessels for more than forty days. The tunny is very voracious, and consumes a great quantity of food. Its animosity against the mackerel is well known: it is sufficient to present a rough image of this fish to draw it within the nets. It is taken in immense quantities in large nets. The flesh somewhat resembles veal, is delicate, and has been in request from time immemorial. It forms an extensive branch of commerce in the Mediterranean, and not less than 45,000 are taken annually on the coasts of Sardinia alone. Stations have been established, in elevated places, for watching the approach of the tunny, from the most remote antiquity. This fish rarely visits the northern coasts of Europe in shoals, though solitary individuals are not unfrequent.

TUPAC AMARU is the name of several Peruvian Indians, of the family of the incas. The subject of this article is José Gabriel Tupac Amaru, cacique of Tungasuca, in the province of Tinta, in Lower Peru. His original name was José Gabriel Candor Canqui; but, being directly descended, by the maternal line, from Tupac Amaru, son of Manco Capac, the last of the reigning incas, he assumed the name of his ancestor, and became celebrated for his attempt, in 1780, to re-establish the empire of the Sun. He endeavoured, in the first place, to obtain some alleviation of the intolerable oppressions which the Indians suffered. Finding this impracticable, he proceeded from one step to another, until he and his immediate dependants took up arms, and put to death Arriaga, the corregidor of Tinta, November 10, 1780. This act was the signal for a general rising of the Indians, who proclaimed the abolition of the *mita*, *repartos*, and other odious forms of taxation and bondage, and kindled a civil war through the southern and upper provinces of Peru. Tupac Amaru now assumed the imperial *borla*, and other insignia of the incas; and a desperate attempt was made by the Indians to regain their independence. The war raged with various success for two years, but ended in the subjugation of the Indians. Many cities in Upper Peru, particularly La Paz and Oruro, suffered greatly during this war, which both parties regarded as a struggle for life and death, and in which one third of the whole population of the country is supposed to have perished. José Gabriel was taken prisoner early, and put to death, being torn asunder by four wild horses. But the Indians rallied anew under his brother Diego Cristobal, and his nephew Andreas, who, aided by a chief of obscure origin, named Tupa Catari, were near overcoming the Spanish power. The new leaders, however, were at length subdued, and, in violation of solemn engagements, were executed as traitors. See *Pimes Paraguay* (vol. iii, p. 242).

TUPELO (*nyssa*); a genus of forest trees peculiar to North America, and almost strictly confined within the territory of the United States. The leaves are simple, alternate, and mostly entire; the flowers greenish and inconspicuous, disposed extremity of a long peduncle; the *fruit* is a containing a hard stone. The natural fam which it belongs has not yet been clearly d mined. The flowers are dicecious.

TURBAN (in Turkish, *dulbend*, *tulbe* covering of the head, worn by most nations East, and of very various forms in different and different classes in the same nation. It sists of a piece of cloth wound round a cap Turkish sultan's turban contains three heron thers, with many diamonds and other pre stones, and the Turks honour it so much that touch it with awe. A particular officer, call *aga*, takes care of it. The grand vizier has heron's feathers; other officers but one. emirs wear a green turban—a privilege which enjoy as relations to the prophet and to Ali.

TURBOT (*pleuronectes maximus*). This spec of flounder is second in size only to the hali In the excellence of its flesh, it is decidedly first of the genus. It is common along the coas Europe, even in the northern seas, but never mak its appearance on the American shores. It o weighs twenty-five or thirty pounds, and is gener ly very abundant in its favourite localities. It taken in deep water by lines, some of which a three miles in length, and are furnished with mo than two thousand hooks. The flesh is exquisite flavoured and nutritious, though rather difficult of digestion. This fish, with several others, has been separated from the true flounders on account of the length of the dorsal and anal fins, and its having the eyes placed to the left.

TURCOMANIA; a name sometimes given to Turkish Armenia, as the Tartar tribes, who inhabit it, are also sometimes called *Turcomans*. The more proper name of the people is *Curds*, and that of the country *Curdistan*. (See *Curds*.) The name is also sometimes applied to the country between the Caspian and Aral seas, the country of the Turkmans, or Turcomans. See *Turkestan*.

TURCOMANS. See *Turkestan*.

TURENNE, HENRI DE LA TOUR D'AUVERGNE, vicomte de, a renowned French commander, bor in 1611, at Sedan, was the second son of Henri de la Tour d'Auvergne, duke of Bouillon, and Elizabeth, daughter of William I., prince of Orang The favourite books of the young Turenne were the lives of great commanders, and particularly th history of Alexander by Curtius. Under his uncle prince Maurice of Nassau, he studied the art of war, and, in 1634, received the command of a French regiment, served at the siege of Lunevi in Lorraine, under marshal la Force, and took a bastion, which the son of the marshal had in vain attempted to occupy. For this he was appointed field-marshal; and, having also performed important services at the taking of Brisach, the cardinal Richelieu offered him one of his nieces in marriage—an offer which Turenne declined on account of his attachment to the Protestant religion, in which he had been educated. In 1639, he was sent to Italy, where he raised the siege of Casale, and defeated the enemy near Montcallier, while the marshal d'Harcourt besieged Turin. In 1643, he conquered Roussillon, and was rewarded, in 1644, with a marshal's baton and the chief command of the army in Germany. He crossed the Rhine, defeated the Bavarians, under Mercy, and joined the duke d'Enghien, was defeated (1645) at Mergentheim (Marienthal), but, three months after, gained a vic

ory at Nordlingen. In 1645, having formed a junction, after a march of 150 French miles, with the Swedes, under Wrangel, he defeated the Bavarians at Zusmarshausen, fell upon Bavaria, and compelled the duke to sue for peace. This prince having afterwards broken his engagements, his army was once more beaten by Turenne, and he himself was driven out of his territories. In the war of the Fronde, 1649, Turenne was at first gained over, by the duke of Bouillon, to the party opposed to the court. In 1650, being defeated by the marshal du Plessis-Preslin, near Rhetell, he candidly confessed that he had lost the battle through his own negligence, for, he added, if any one commit no faults in war, it is a proof that he has not had long experience in it. The Spanish court, in order to encourage him to continue the war, sent him 100,000 crowns; but this sum Turenne returned, as he expected to be reconciled to the court party. This reconciliation took place in 1651, and Turenne was now appointed general of the royal army. His great adversary was the duke d'Enghien, afterwards prince of Condé, who was in the Spanish service. These two commanders carried on the war with alternate success, until at length Turenne, by the taking of Dunkirk and the occupation of a great part of Flanders, enabled cardinal Mazarin to conclude the peace of the Pyrenees. In 1653, he married the daughter of the marshal and duke de la Force, a Protestant lady; but she bore him no children. On the renewal of the war with Spain, in 1667, Louis XIV. selected marshal Turenne for his teacher in the art of war, gave him the title of marshal-general of the French army, and made him his lieutenant-general. Flanders and Franche-Comté were subdued, and Turenne joined the Catholic church in 1668. The Catholics consider this religious change as the result of conviction; the Protestants, on the contrary, attribute it to ambitious views; Voltaire, perhaps more impartial than either, says, "The conversion of Turenne was perhaps sincere. The human heart frequently unites policy, ambition, and the weakness of love, with religious ideas." When Louis XIV., in 1672, resolved on the conquest of Holland, Turenne was appointed again to the chief command, and compelled the elector Frederic William of Brandenburg, who assisted the Dutch, to sign the peace of Vossem. Turenne appeared on all occasions very honourable and disinterested. When a general made a proposal to him, by the execution of which he might have obtained 400,000 livres, he answered that he had often rejected such proposals, and would not alter his course. A city offered him a present of 100,000 dollars, to induce him not to march through its territory. "As your city," answered Turenne, "does not lie in my route, I cannot accept your offer." After the occupation of Franche-Comté, he defended the borders of this district, and, in 1674, crossed the Rhine at Philippsburg, conquered Sinsheim, and drove back the imperial army, under Caprara and the duke of Lorraine, even to the Maine. He then turned his arms against the prince of Bournonville, who had arrived with fresh troops, defeated him also, and prevented his junction with the imperial army. The imperialists fell upon Alsace, with 70,000 men, and besieged Brisach and Philippsburg. Turenne had only 20,000 men, but was strengthened by Condé. He then continued his march over mountains covered with snow, and was in the midst of the hostile army, in Upper Alsace, when they supposed him in Lorraine. He dispersed, without any important battle, the numerous army which opposed him, protected Alsace, and compelled the Germans to retire over the Rhine. The confidence of the soldiers in him was almost boundless; and this enabled him to accomplish great enterprises. The glory which Turenne obtained in this campaign, was the greater, as he followed his own views entirely, and not the commands of the king. But the dreadful devastation of the Palatinate tarnished his fame; and we are inclined to believe that, in this measure, he obeyed the commands of the ministry in opposition to his own opinion. "After the battle of Sinzheim," says Voltaire, "Turenne laid waste the Palatinate (a level and fertile tract) with fire and sword. The elector of the Palatinate saw, from his castle at Manheim, two cities and twenty-five villages in flames. Reduced by this sight to despair, he sent a challenge to Turenne in a letter full of reproaches. The marshal gave the letter to the king, who forbade the acceptance of the challenge; and Turenne accordingly answered it by an unmeaning compliment. He was accustomed to express himself with moderation and ambiguity. He also permitted a part of the cornfields of Alsace to be laid waste in cold blood, in order to deprive the enemy of the means of subsistence, and allowed his cavalry to ravage Lorraine. He preferred to be the father of the soldiers intrusted to him, rather than of the people, who, according to the laws of war, are always the victim. Turenne's extraordinary fortune induced the imperial court to oppose to him their best general; and Montecuculi was sent, in 1673, over the Rhine. After a variety of skilful movements, they were about to come to an engagement at Sassbach, in Baden, when Turenne, while reconnoitring for the purpose of finding a place for the erection of a battery, was killed by a cannon ball. The same ball carried away the arm of general de St Hilaire, who, upon his son's bursting into tears at the sight, exclaimed, "Not for me, but for this great man, must you weep." The highest honour was shown by the king to the remains of Turenne. They were interred, like those of the constable du Guesclin, at St Denis. Turenne possessed, under a rough and ordinary exterior, a great mind. His disposition was cold. His manners were decorous and simple. He was not always fortunate in war, and committed some faults; "but," says Voltaire, "he always repaired them, and accomplished much with small means." He was esteemed the most skilful commander in Europe, even at a time when the art of war was more studied than it had ever been before. Although reproached for deserting his party in the war of the Fronde; although, at the age of nearly sixty years, he suffered himself to be seduced by love to disclose a secret of state; although he committed unnecessary cruelties in the Palatinate,—yet he maintained the reputation of a man of veracity, wisdom and moderation; for his virtues and talents covered the weaknesses and faults which he had in common with so many others. See *Condé*, *Fronde*, *Montecuculi*, and *Louis XIV.*

TURGOT, Anne Robert Jacques, a patriotic and enlightened French minister, son of the president of the grand council, was born at Paris, in 1727, and, in his youth, gave himself up to the study of theology at the Sorbonne. At the age of twenty-four, he commenced a translation of Virgil's Georgics, and, soon after, attaching himself to Quesnay and the Economists (see *Physiocratic System*), quitted the Sorbonne in order to accom-

pany De Gournay, intendant of commerce, in his travels. On his return, he was himself appointed intendant of Limoges, which post he occupied for twelve years, and was long remembered with gratitude, for his wise, salutary and benevolent reforms and regulations. When raised to the post of comptroller-general of the finances (1774), he gave a wider extent to the principles of amelioration. He moderated the duties on articles of the first necessity, without loss to the revenue; freed commerce from many fetters, and encouraged industry by enlarging the rights of individuals, and abolishing the exclusive privileges of companies and corporations. He also formed a project for commuting the feudal rights, for rendering salt an article of free-merchandise, and for reforming the royal household. His reward for these useful and benevolent views was opposition and ridicule. He was, however, able to carry into effect some very important improvements; but as he endeavoured to control the nobility, restrict the clergy, and restrain the license assumed by the officers of the crown, they all united against him. The result was, his dismissal from office, in 1776, from which period he lived a retired and studious life until his death, in 1781, at the age of fifty-four.

TURIN, OR TORINO (anciently *Augusta Taurinorum*); the chief city of Piedmont, the capital of the Sardinian monarchy, on the west side of the Po, seventy-five miles south-west of Milan; lon. 7° 40′ E.; lat. 45° 4′ N.; population, 117,987. It has an agreeable situation on a delightful plain, in a luxuriant country; a beautiful range of hills rising on one side of the river; on the other, a plain strewed with villas and gardens, extending to the base of the Alps. The town is of an oblong form, and, including the ramparts, four miles in circuit. The streets are generally wide and straight, intersecting each other at right angles, and running in direct lines from one extremity of the city to the other. They are kept clean by means of streams of clear running water. The principal square, called *Piazza Reale*, both for size and beauty, ranks as one of the first in Europe. Several of the streets have, at the sides, arcades or piazzas, affording a convenient walk for foot passengers. The houses are generally of brick, and the best are plastered in front with stucco. Of the public walks, the most frequented are the public gardens. The public edifices of Turin are built or ornamented with marble of every vein and colour. The palace has fine gardens, which are used as public walks, and command fine prospects. The university (811 students) has a good library, an observatory, a natural cabinet, a botanical garden, and a rich Egyptian museum, containing the collections of Drovetti, papyrus rolls, mummies, statues, inscriptions, &c. (See Champollion's *Lettres rélatives au Musée royal Egyptien de Turin.*) After the battle of Marengo (1800), Turin became the capital of the French department of the Po, and was restored to Sardinia in 1814.

TURKESTAN, OR TURKISTAN (i. e. *land of the Turks*), is used in a wider sense, to signify all the country between Russia to the north, the Caspian sea to the west, the Chinese dominions to the east, and Afghanistan to the south. This description answers to the Independent Tartary of geographers (see *Tartary*), and includes an extent of country about 850 miles from north to south, and 700 from east to west. The chief divisions of this region are Turcomania, between lake Aral and the Caspian sea; Turkestan, in a narrower sense, to the east of lake Aral; Usbekistan, or Bucharia, to the south; and the country of the Kirghises to the north. The two last mentioned divisions are described under the heads *Usbecks*, *Bucharia*, and *Kirghises*.

1. Turcomania, or the land of the Turkmans or Truchmens, consists chiefly of sandy steppes, destitute of water, but contains some fertile districts and some mountainous tracts. It produces corn, but the principal employment of the inhabitants is breeding cattle. Camels, horses, neat cattle, sheep, goats, game, birds, and fish, of various sorts, are found here. The inhabitants are of Tartar origin, and are rude, ignorant, and ardently attached to freedom. They are Mohammedans. The annexed cut represents the costume of a Turkman. Turcomania, with Khiva, corresponds to the ancient Chorassmia (Khowaresm, or Charesm), formerly the seat of a civilized Arabian state, overturned by Gengis Khan (1221), and Timour (1388). The inhabitants are Truchmens, Kirgwintzes, and Karakalpacs, Tartar hordes, who *are subject to the Usbecks*. The chief city, Khiwa, or Khiva, contains a population of about 10,000 souls.—See Mauraview's *Voyage en Turcomanie et à Khiwa, en* 1819 *et* 1820 (from the Russian, Paris, 1823), and Meyendorf's *Voyage d' Orenbourg à Boukhara* (Paris, 1826).

2. Turkestan, or land of the Turks, is inhabited by Usbecks, Bucharians, Turcomans, Kirghises and Jews. It is now subject to the khan of Kokan, who was formerly dependent upon Bucharia, but is now independent. Kokan, the ancient Ferghana, is little known. The Turkestanese speak the purest Turkish. The following cut represents their general costume. See *Ottoman Empire*, and *Turkish Language*.

TURKEY (*meleagris gallo-pavo*). This bird is a native of America. It was first imported into England in 1524, and received its name of Turkey from being at first supposed to be an Asiatic or Turkish bird. Multitudes are reared in Norfolk and Suffolk for the London market. The flesh is admired for delicacy of tincture and agreeable flavour. The wild turkey was formerly abundant in Canada, and in many of the now thickly-settled parts of the United States. It is still common in the wooded parts of the west, on the Ohio, Mississippi and Missouri; but the day is, perhaps

not far distant when it will be rare even there. It is yet found occasionally in Carolina, Georgia and Florida, more rarely in West Pennsylvania and Virginia, and may be considered altogether extinct in the remaining Northern and Eastern States. It is occasionally brought to the New York and Philadelphia markets; but a domestic variety, of a very superior metallic tint, and closely resembling the wild one, is more frequently sold in its place. Wild turkeys feed on berries, fruits, grasses, insects; even tadpoles, young frogs and lizards, are occasionally found in their stomachs. The acorn is their most general favourite; but they prefer the pecan nut to any other food. A common mode of taking them is by means of pens, constructed of logs, and covered at the top, while a passage is made in the earth just large enough to admit an individual stooping: Indian corn is strewed some distance round to entice the flock, which, picking up the grain, is gradually led towards the passage, and thence into the enclosure, when they raise their heads and discover that they are prisoners: all their exertions to escape are directed upwards and against the sides, as they have not sagacity enough to stoop sufficiently low to escape by the way they entered. The male is nearly four feet in length. The prevailing colour of the plumage copper or bronze-gold, changing into violet or purple. The ordinary weight is from fifteen to twenty pounds, but sometimes reaches thirty or even forty. The female is more plainly attired, and the medium weight about nine pounds. The turkey, in its wild state, appears to be almost entirely confined within the limits of the United States. A second smaller species has lately been discovered in Honduras, distinguished by the greater brilliancy of the plumage, and especially by ocellated spots on the tail. It has received the name of *M. ocellata*.

TURKEY. The extent and population of the Ottoman empire, previous to its recent losses, were estimated as follows: in Europe, 178,928 square miles (including Moldavia, Walachia, and Servia, 52,600 square miles, population, 1,790,000, which were only tributary provinces), population 9,393,000; in Asia, 425,000 square miles, population, 10,290,000; in Africa (Egypt and Nubia), 300,000 square miles, with 3,114,000 inhabitants; in the whole 900,000 square miles, 22,800,000 inhabitants. Of these possessions, the African are not only lost, but the Egyptian sovereign has become the most formidable enemy of the grand seignior, having, in the campaign of 1832, successively reduced Acre, Damascus and Tripoli. Syria has been restored, but Egypt is lost to Turkey. Greece has been severed from the Turkish dominions, and a boundary more favourable for the new kingdom than that established by the protocol of 1830, has recently been procured by the three powers from the Porte. This frontier line extends from the gulf of Volo to the gulf of Arta, and annexes Etolia, Acarnania, and part of Thessaly (about 3000 square miles) to the kingdom of Greece. The numbers of different races were, Tartars, 8,525,000; Arabians, 4,449,000; Hellenes (Greeks), 4,598,000; Sclavonians (Servians, Bulgarians, Bosniacs, Croats, &c.), 5,926,000; Armenians, 1,560,000; Walachians and Moldavians, 1,375,000; Syrians, 214,000; Arnaouts, 460,000; Jews, 620,000; Curds, 1,000,000; Gypsies, 80,000, &c. Of these, 13,552,000 were Mohammedans; 7,083,000 of the Greek church; 1,483,000 of the Armenian; 613,000 Catholics; 380,000 Monophysites; 300,000 Nestorians; 60,000 Druses, &c. The history of the state has been given in the article *Ottoman Empire*. Moldavia, Walachia, Servia, Egypt, Greece, Natolia, Syria, Bulgaria, Albania, &c., are described in separate articles.

Turkey in Europe is bounded by Russia, Transylvania, Hungary, Galicia, Illyria, Dalmatia, the Ionian republic, Greece, the Adriatic and Ionian seas, and the Archipelago. The command of the Black sea the Porte shares with Russia. The Bosphorus (q. v.), the sea of Marmora, and the Dardanelles, are open to all merchant ships of nations at peace with Turkey. The situation of the country, with its long extent of coast and its numerous bays, is favourable for commerce. It is protected on its frontiers by the valleys of the Save and Danube, and also by the Balkan (Hæmus), which extends from cape Emineh to the Illyrian mountains, and which is connected with the Rhodope, the Pangæus and other chains which intersect Greece. Separate from these lies Monte Santo, or Athos. See *Athos*.

Turkey in Asia is bounded by Persia, Russia, Arabia, and the isthmus of Suez, which connects it with Egypt, and the Mediterranean sea. From the mountains of Armenia flow the Euphrates and the Tigris, which, uniting at Bassora, flow into the Persian gulf. In Anadoli or Natolia, there is a considerable river—the Kisil Irmac (Halys)—flowing into the Black sea, and in Palestine the Jordan. The latter falls into the Dead sea, a lake formed by volcanic eruptions, fifty miles in length, and from four to ten in breadth, whose waters are bituminous, saline, and sulphureous, and have no visible outlet. The principal mountains are the Taurus, in Natolia; the Lebanon, in Syria; the Antilibanus, &c. The most level province is Irak Arabi. In the south-east, immense deserts extend into the Arabian peninsula. The climate is temperate in the northern provinces, mild and refreshing in the central, and hot in the southern. The air of Mesopotamia is noxious, and there the debilitating samiel (see *Simoom*) blows over burning deserts, and the plague finds a home. Every region here yields its productions in abundance. The staple articles of export are wheat from Rum-Ili, rice from the countries on the south of Hæmus, cotton and tobacco from Macedonia, silk from Arnaout and Natolia, figs, saffron, gall-nuts and meerschaum from Natolia, mastich from Scio, wine from Cyprus, Angora hair from Natolia, naphtha from Mesopotamia, wool from Walachia, &c. In addition to these, opium, Lemnian earth, saltpetre, and marble, especially the Parian, are among the exports. Mining is totally neglected, and there is, in general, little manufacturing industry in the country; there are, however, some traces of skill in the preparation of saffron, the dyeing of yarn (especially in Thessaly), the manufacture of cotton cloths, carpets and works of steel (particularly excellent sword-blades). The Turks despise agriculture, and leave it to the conquered nations, whom they plunder when they find them to be wealthy and prosperous. It is only where the barbarians have no power, as in the country of the Druses, on mount Lebanon, or have not appeared, as upon some of the islands of the Archipelago, that successful industry is to be found. In Asia, agriculture is attended to only in the neighbourhood of the cities: the wide plains on the banks of the rivers are covered with bands of wandering robbers.

The people of this vast empire consist of a num-

ber of different nations, which mutually hate and despise each other, and are held together merely by fear and force. 1. The lords of the country are all Sunnites, as the Arabs, Tartars and Turcomans, and particularly the Ottoman Turks, a people of great natural vigour, and inflamed with political and religious enthusiasm. They are most numerous in the northern provinces of Asia. They despise unbelievers, looking upon them as dogs and swine, and continue to act the part of the first savage conquerors. The character of this people shows extraordinary inconsistencies. They are, at the same time, according to circumstances, brave and cowardly, mild and savage, strong and weak, enterprising and sluggish, sensual and hardy. The great men at court, in the army, and in the provinces, are proud and cringing, suspicious and ungrateful. In general, the Turks are as ignorant as they are indifferent and insensible. They make no provision for posterity. No nation is more fully convinced than the Turks, that all upon earth is subject to change. 2. The Turcomans (see *Turcomania*), in Armenia, Natolia and on the rivers of the interior. 3. The Tartars, who have migrated from the Crimea to the provinces on the Danube. 4. Arabs. 5. Curds. 6. Greeks; among whom are the Suliots, in the ancient Epirus. 7. Armenians (see *Armenia*), scattered through the provinces as merchants and mechanics. 8. Sclavonians, in several tribes, as the Albanians or Arnaouts; Bosniacs, in Bosnia, in part Mohammedans, part Catholic Christians; Servians or Rascians (see *Servia*); Bulgarians; Montenegrins. 10. Druses, on the Lebanon. 11. Jews. 12. Walachians. 13. Gypsies, and several small tribes, of unknown origin principally in the mountains in Asia. The written and court language is Arabic. See *Turkish Language and Literature*.

In Constantinople, there are Greek, Armenian, Jewish and Turkish printing presses; but, in all the cities, a great number of scribes (kodjakians) are occupied in transcribing the almanacs, the Koran, &c. They form, in Constantinople, a powerful body. The ulema, or body of lawyers, who belong to the religious order, is almost exclusively in possession of the learning. Ptolemy is still their guide in geography, and Aristotle in physics and natural history. A historiographer is appointed at the court of the sultan, and a court astrologer is consulted on matters of state. Painting and sculpture are neglected, because the Koran forbids the imitation of the human form. The music is noisy and without taste, but there are good female dancers.* The constitution rests upon seven collections of political laws (*Kanunname*), and is altogether Oriental. The padishah, as caliph, unites the highest spiritual dignity with the supreme secular power. He has unlimited control over the property and lives of his subjects, especially of the highest officers of state, whom he can remove or put to death at will. They kiss the bow-string which he sends them, and it is what they may all look forward to. The sultan makes laws without being himself subject to them. The Koran and the fear of public opinion, when it speaks by the voice of rebellion, alone restrain his will. All subjects are equal in his eyes, for they are all [illegible]. A French historian calls the Turkish government *despotisme absolu, tempéré par le regicide*. The people have no rights. Merit, or favour, or intrigue, can raise the lowest to the highest station. There is no hereditary nobility. The succession to the throne is hereditary in the family of Osman; the will of the people and of the janizaries is often decided upon the individual. On the extinction of the male posterity of Osmann, the throne passes into the family of the khan Tartar khan. Women are excluded from the succession. The padishah is not crowned; he is merely girded with the sword of Osmann, after he has sworn to uphold the religion of Mohammed. The women of his harem are, for the most part, Circassians or Georgians: a free-born woman cannot enter the harem as an odalic. Since [illegible] the sultans have been accustomed to choose four among them seven wives (cadin). She who first bears a son is called *chakessi sultana*; the other mothers of the princes have the name of *sultana chassecki*. The mother of the reigning sultan, or the *sultana valide*, enjoys great privileges. She is not confined in the apartments of the Eski serai, and has a yearly pension of 500,000 *piasters*. (See *Harem*, and *Sultan*.) The princes are [illegible] brought up in confinement, among the eunuchs and odalics. Each learns a mechanic art or handicraft, but they never acquire the knowledge which would fit them to rule. They have no prospect but the throne or death in prison. The daughters of the sultan have the title of *sultana*, and, while yet in the cradle, are married to viziers, pachas, and other great officers; but their male posterity, by a law of the empire, are condemned to death from their birth. The court establishment, with all the eunuchs, women, guards, &c., includes 10,000 persons. The external court consists of the attendants of the grand master of the seraglio, seven chamberlains, the court officers, a body-guard of 2000 men, (the bostangi was dissolved in 1807,) the confidants or titular dignitaries, to which also belong the mutes, the dwarfs, the musicians, the masters of audience, the masters of the stirrup, and the viziers of the shoulder. (See *Seraglio*.) The inner court establishment consists of the harem, with its women, white and black eunuchs (whose chiefs, the kislar and capi aga, possess great influence), the grand vizier, and the sublime porte, which form the two cabinets of the kiaya bey, the minister of the interior, and of the reis effendi, the minister of foreign affairs. The title of the present padishah is—"Sultan, son of a sultan, chakan, son of a chakan, sultan Mahmoud II. khan, son of the victorious Abd-ul-Hamid, by the infinite grace of the Creator of the world and the eternal Being, and through the mediation and great miracles of Mohammed Mustapha, the greatest of prophets, upon whom rest the blessing of God, servant and master of the cities of Mecca, Medina, and Kods (Jerusalem), towards which all men turn their faces when they pray, padishah of the three great cities of Istambul, Edreneh (Adrianople), and Bursa, which all princes regard with envy," &c. The arms assumed by Mahmoud II., after the conquest of Constantinople, are a silver crescent on a green shield. Selim III., in 1799, after Nelson's victory of the Nile, founded the order of the crescent, in three classes, for Franks, which has been conferred on Nelson, Sebastiani, and other foreign

* The present sultan has not only endeavoured to introduce European customs and tactics, but has appointed a librarian to the library of the Hamadirge mosque, in Medina, with orders for the preparation of a catalogue and the adoption of measures for the preservation and increase of the library. A newspaper is now likewise printed at Constantinople in French and Turkish (*Moniteur Ottoman*), and another in Crete, in Turkish and Greek.

The administration of government is also Ori-
.l. The grand vizier rules in the name of the
.n, or, in his absence, the caimachan. The in-
ies of the women and the eunuchs in the
glio have also much influence. The supreme
.cil of state, the divan, is held in the second
. of the seraglio, under the presidency of the
id vizier. The ordinary divan consists of the
iest officers of the empire (the kiaga beg, the
effendi, the deftardar, or minister of finances,
capudan pacha, or high admiral, the tchaush-
hi, or minister of the executive), and the agas
he troops; to the extraordinary divan, several
er persons are called, particularly the mufti.
The provinces, with the exception of Moldavia,
allachia, and Servia, and the two cities of Istam-
l (Constantinople), and Edreneh (Adrianople),
divided into twenty-five ejaleta, pachalics, or
vernments, with 290 sangiacs or banners; the
chas of Rum-Ili, Anadoli (Natolia), and Damas-
s, bear the title of beglerbeg, and have three horse
ls carried before them. The capudan pacha, or
gh admiral, enjoys the same honour; and other
chas have but two tails. The pachas in the pro-
nces have their divans similar to the sultan's. In
ther respects, unless the powerful ulema opposes
iem, their authority is without control, and their
nly duty is to pay the contributions to the grand
eignior. Yet they are sometimes removed from
neir places, when the people are driven to rebel-
ion by oppression, or when the ulema is hostile to
nem; sometimes, also, to punish their pride, or
om suspicion, or to confiscate their property. In
une, 1827, the pachas in the provinces lost their
ght of civil administration, and civil governors
were sent to supersede them. In military matters
very pachalic is divided into sangiacs. The pa-
chalics are likewise divided into moslemlics, woi-
wodolics, and agalics. In some countries there are
moslemlics and agalics, entirely independent of the
pacha, the rulers of which, with the exception of
administering justice, exercise all the rights of
sovereigns: some of these places are given for per-
petuity to certain families.

The source of all civil, political, and criminal law
is the Koran. In addition to the code of laws
(*Moulteca*), the interpretations of the ulema have
great weight in the tribunals. The mufti is not
only the chief of the priests, but the highest inter-
preter of the laws. His decisions (fetvas) are col-
lected. The highest tribunal, the divan chaneb, is
held four times a-week by the grand vizier, in his
palace, or, in his absence, by the tchaush-baschi.
In the lower tribunals of the large cities, the mollas
sit, in those of small towns, the cadis. The moslems
are, under them, the executors of the sentences.
The administration of justice is as simple as it is
prompt and energetic. The common punishments
are the bastinado, hanging, drowning, strangling,
and impaling. Bearing false witness is the greatest
crime.

At the head of the church stands the sultan, as
caliph, and, in his name, the mufti, who is appointed
and deposed by the grand seignior. In the larger
cities, the mufti appoints under muftis. After him
the cadileskis, mollas, and cadis, are the most im-
portant members of the ulema. The priests are
divided into secular and monastic. The former
(the imans, danishmends, and talismans) perform
the public religious ceremonies in the mosques,
dshamis (temples built by the grand seignior in the
capital cities), and medsheds. (See *Mosques*.)
The latter, the dervises, form about thirty different
orders or brotherhoods. All other religious sects,
though despised and insulted, are allowed the free
exercise of their religion in their temples, and under
their patriarchs, archbishops, and bishops.

The revenues of the state flow into the miri, or
public treasury, and amount to about eighty-four
purses, or £4,500,000. They are drawn from the
karadsch (a poll-tax upon unbelievers, and a tax
upon their real estate), from the tithes which the
moslems pay for the support of the church, from
the taxes upon property, the customs, monopolies,
mines, the mint, taxes in the provinces, and the
tribute of the hospodars of Moldavia, Walachia,
and Servia. The miri has a debt of about 70,000,000
florins. Distinct from this is the itsch hasne, or
treasury of the sultan, which is filled by the rents
of estates, by presents and extortions, and by the
confiscated property of the great officers.

The land forces, were, until recently, organized
on a miserable Asiatic system, and amounted, ac-
cording to Marsigli, to 220,000 men; of whom
74,000 were mercenaries, 59,000 infantry (see *Ja-
nizaries*), toptshis, or artillery, and others, and
15,000 cavalry. (See *Sipahis*,) There were, be-
sides, in time of war, the bands of feudal vassals,
amounting to 126,000 men, the contingent of the
Tartars, 12,000, and that of the Moldavians and Wa-
lachians, 8000. The grand vizier is commander-in-
chief; the separate corps are commanded by agas,
the provincial troops by pachas and sangiacs. The
present sultan, with more success than Selim III.,
has begun, since 1814, to form an army on the Eu-
ropean plan, and, in the year 1826, dissolved the
body of the janizaries throughout the kingdom.
Selim III. formed a mathematical school for the
officers of the navy, which consists of ten ships of
the line, twenty frigates, and thirty smaller ships,
commanded by the capudan pacha. Tunis and Tri-
poli are still nominally dependent on Turkey. Al-
giers is now in the hands of the French.

See Von Hammer's *Constitution and Administra-
tion of the Ottoman Empire* (in German, 2 vols.,
Vienne, 1815), and his *History of the Ottoman Em-
pire*, drawn from original sources (in German, 7th
vol., Pest, 1831); Palla's *Histoire abrégée de l'Em-
pire Ottoman* (Paris, 1825). Marsigli has given an
account of the military, and Mouradgea d'Ohsson of
the ecclesiastical establishments. Of the *Tableau
générale de l'Empire Ottoman, par M. d'Ohsson*,
the first four parts appeared in five volumes (Paris,
1788 and 1790); the fifth, sixth, and seventh parts
complete the work (Paris, 1824). The writings of
Tott, lady Montague, Olivier, Eton, and Thornton,
together with the accounts of later travellers,
Clarke, Von Hammer (Constantinople and the Bos-
phorus), Forbin, Choiseul-Gouffier, Pouqueville, J.
Carne (Letters from the East, London, 1826, 3
vols.), and others serve to give a correct idea of
this empire, composed of various nations and coun-
tries, the fragments and ruins of the ancient world.

Turkish Language and Literature. The Turks
are of Tartar origin, and their language is a Tartar
dialect. It is entirely different from the Arabic,
as well as the Persian, and from the languages re-
lated to these. The Turkish language is sonorous,
but at the same time rough and harsh. The East-
ern nations have various sayings to indicate the
character of the principal languages of Western
Asia, the Arabic, Persian and Turkish; for in-
stance, the Arabic, language, they say, persuades;
the Persian flatters; the Turkish reproves; the

Serpent employed Arabic in paradise to seduce our general mother; Adam and Eve discoursed of love in Persian; the angel spoke Turkish when he was compelled to drive our first parents from paradise. The Turkish language is very regular in its grammatical construction, but, in itself, is poor in words. The Turks, therefore, to supply its deficiencies, have adopted all the stores of the Arabic and Persian; and these have become so united with it, that a good knowledge of Turkish cannot be acquired without a knowledge of Arabic and Persian. By the mixture of three so completely dissimilar languages, the learning of Turkish becomes very difficult; for words and phrases from all are intermingled, without any change, as well in common life as in writing. The Turks use the Arabic characters, with some small alterations, and write, after the manner of the Jews and Arabians, from right to left. Their paper they receive principally from Venice, but polish it highly before using it. Their pens are made of fine reeds, and their ink is like our printer's ink. They write upon their knees, or, at the most, use a piece of pasteboard for a support. The vowels, which consist of little straight or crooked strokes, and are placed, some above, some below, the consonants, are, excepting in the Koran, seldom written. The difficulty of reading is increased by the many dissimilar alphabets and characters which are employed in writing: one alphabet is used in the official papers of the government, another in letters, another in the courts, another in literary productions, another in accounts, &c. A person who can read one of them easily, may not be able to read a word of another. Like the French in Europe, the Turkish is, in a great part of Asia, and on the northern coast of Africa, the common medium of communication between nations speaking different languages. After the Turks had received a written character with the Koran of Mohammed, and, at the commencement of the fourteenth century, under one of their emirs, Osman, had founded an independent empire upon the ruins of the Greek, they began gradually to feel the necessity of more literary cultivation. Even sultan Orkan, the successor of Osman, although devoted to war and conquest, founded, in 1336, at Brussa, in Natolia, a literary institution, which became so celebrated for the learning of the teachers, that even Arabs and Persians were not ashamed to become scholars of the Turks. Their own historians remark that the monarchs of this house, until the time of Achmet I. (1603), although not all equally distinguished by glorious undertakings and princely virtues, yet all gave lustre to their reigns, by their love and encouragement of learning. The golden age of Turkish literature was in the second half of the fifteenth century, during the government of Soliman, who was called the *lawgiver*, the great-grandson of Mohammed II., whose victories put an end to the Roman empire. In the Turkish schools and higher literary establishments which are usually connected with the mosques, and whose number amounts in Constantinople to several hundreds, the principal branches taught are the Arabic, grammar, logic, rhetoric, dialectics, according to manuals which were written by the Arabians in the middle ages. In general, the Arabs of what we call the middle ages, continue to be the teachers of the Turks in philosophy, mathematics, physics, medicine, law, and theology. Treatises on astrology, the interpretation of dreams, and all the modes of predicting future events, form no inconsiderable part of Turkish literature, and are continually studied. Astrology in particular, holds the rank of a science among the Turks, and has also an important influence in all affairs of state and private concerns. The munedschim baschi (superior or court astrologer), one of the most important court officers, since the time of the most important transactions is determined by him. The calendar is likewise prepared under his superintendence. But the instruments essential to investigations in natural science are, in Turkey, either entirely unknown, or used only for childish jugglery, to excite the astonishment of the ignorant. The telescope, the magnifying glass, the electrical machine, and all similar aids to the study of nature, the Turks do not know how to use to advantage. They do not even generally employ the compass in their sea voyages. Hence navigation, astronomy, geography, agriculture, chemistry, and other sciences which have received an entirely new form by the discoveries of the moderns, must be in a very low state among the Turks. They are fond of history, but their historical works are written, for the most part, either in a dry chronological method, or in a bombastic style, half poetry, half prose, and overloaded with figures. One of their oldest and most esteemed annalists is Saad-ed-din, who, after having been the instructor and tutor of two sultans, died in the office of mufti at Constantinople, in 1599. His chronicle is entitled *Tadsch-et-tawarich* (that is, the Crown of Annals), and extends from the origin of the Turks to the death of Selim I., in 1520, and is regarded by the Turks as a classical work. It has been translated by Leunclavius into Latin, by Bratuti into Italian, and by Podesta into German and Latin. In the works of Naima, Raschid and Tchelebisade, the annals of the Turkish empire, from 1592 to 1737, are continued in unbroken succession. Hadschi Chalfa, surnamed Tchelebisade, who died at Constantinople, 1657, was distinguished for his historical and literary attainments. Under the title of *Open Books*, and *Knowledge of Science*, he composed a work of a cyclopædic and bibliographical character, in which the names of all the branches of science cultivated by the Arabians, Persians and Turks, are given, and the titles of all the works written in these three languages, from the beginning to the 1050th year of the Hegira (A. D. 1640). This work served as the foundation of the Encyclopedical View of Oriental Science (by Joseph von Hammer, Leipsic, 1804), to which is prefixed an autobiography of Hadschi Chalfa. Besides this biographical work, and several other writings of Hadschi Chalfa, his chronological tables, beginning with Adam, and continuing to 1640, deserve to be particularly mentioned. The Latin translation of these, by Reiske, is still to be found in manuscript in the royal library at Copenhagen. In poetry, also, the Arabians and Persians are their models. Their poems are chiefly of a mystical or moral cast, or devoted to love. We need only mention the romantic poem of the Turk Molla Khosrew, *Chosroes and Sherrin*. Some Turkish eclogues are contained in Hammer's *Morgenländisches Kleeblatt* (Eastern Trefoil, Vienna, 1819). Riddles, logogryphs, chronograms, and similar poetical trifles, are very popular among them. All their poetical productions are in rhyme. Their prosody and the technical part of their poetry are the same as those of the Arabians and Persians. *Mosnevi* is a long poem, in which each distich has its peculiar rhyme; *gazelles* and *cassides* are odes or songs with a single rhyme; the *rubay*

...rastichon) is mostly epigrammatic; the *kitaa* ... 4—8 strophes with various rhymes, and is ap... able to all subjects. Accounts of Turkish ... ts, and specimens of their poetry, are contained ... *Latifi*, or Biographical Sketches of eminent ...rkish Poets, together with an Anthology drawn ...n their works; translated from the Turk... of Monka Abdul Latifi and Aschik Hassan ...helebi, by Thomas Chabert (Zürich, 1808). ...e *Divan* of Baki, the principal lyric poet of ...rkey, who died in 1600, has been translated into ...rman, entire, by Joseph von Hammer (Vienna, ...5). In 1727, during the reign of Achmet III. ...ahim, a renegade, a native of Buda, with the ...istance of a Jew of Prague, Chacham Jonas, and ...er the patronage of the grand vizier, Ibrahim ...cha, established a Turkish printing press at Con...ntinople, at which, in 1742, seventeen works, ...mprising twenty-three volumes, and 13,000 ...pies, had been printed. After a long interval of ...action, the press was again used, in 1783, during ...e reign of the sultan Abdolhamid. But its ac...ivity continued only about two years. In 1793, ... was again brought into action by Abdorrhaman ...Effendi, a Turkish mathematician, who had rendered ...luable services to the Porte, as commissioner for ...ettling boundaries after the peace of Sistow. Ab...orrhaman connected it with a school for teaching ...ngineering at Chasskoi, a suburb of Constantino...le. It remained there some years, and, at the be...nning of the present century, was removed to the ...arracks of the new militia at Scutari. In 1806, ...venty-six works had issued from this press. In ...he disturbances of 1807 and 1809, it suffered great ...amage, but was restored by the present sultan, ...Mahmoud II. in 1809. A complete catalogue of the ...books printed at Constantinople, down to 1813, ...as been given by Hammer, in the Leipsic Literary ...Journal, 1813, No. 42, 1814, No. 197 and 198, and ...1820, page 307, and in Hormayr's Archives. See, ...also, Toderini's *Turkish Literature* (3 vols.); and ...Taudecke's *Account of the Turkish Empire* (3 parts). All books relating to theology and law were excluded from the press. The press at Constantinople has since produced the *Kamus* (3 vols., fol.); the *Mewakib*, a metaphysical work, and, in 1824, the Arabian commentary of the *Scheichsade* (written under Mohammed IV.), on the Arabic *Moulteka*, the famous Mohammedan religious code, composed by the sheik Ibrahim von Haleb, under Solyman the Great. The imperial historiographer, Jerome Megiser, published, at Vienna, the first Turkish grammar, in 1612. Afterwards the study of the Turkish language was much attended to, particularly at Vienna, as the intercourse between Austria and the Porte had become very considerable. Francis von Mesgnier Meninski, court interpreter, published the best Turkish grammar (Vienna, 1680), in Latin, folio, and likewise the best dictionary of the Turkish language. The first, with the addition of exercises in analysis and reading, was republished by Kollar (Vienna, 1756, 4to.): the last, likewise, much enlarged, by Jenisch, was republished at the expense of the emperor (Vienna, 1780—1803). There are Turkish grammars in the French language, in which the Turkish words are printed in Roman letters, by Preindl (Berlin, 1789, with a dictionary), and by Viguier (Constantinople, 1790—1794). The last grammar of the Turkish language was published by Jaubert (Paris, 1823). Many scholars, of much learning in Turkish literature have been formed at the Oriental academy in Vienna, established by the empress Maria Theresa, in 1753, for the education of young diplomatists to conduct the intercourse with the Porte; particularly Von Jenisch, Von Sturmer, Von Chabert and Von Hammer. The last has given a view of Turkish literature, in the appendix to the *Codices Arabici, Persici, Turcici Bibl. Vindob. recens.* (Vienna, 1820). Toderini, in his work upon Turkish literature, written in Italian (Venice, 1787, 3 vols.), Mouradgea d'Ohsson, Joseph Christ. Clodius, Goldermann, Von Diez and Von Hammer have also done much to furnish information concerning the Turkish language and literature.

Turkish Music. The Turks received their music from the Persians. It is rude, but much employed by them, especially in the expression of love or warlike excitement. But public exhibitions of musical skill for money they consider as disgraceful. The chief instruments in their warlike music are hautboys, trumpets of a piercing sound, cymbals, small drums of various kinds, and the bass drum; but small flutes, triangles and bells, such as the Europeans use in what they call *Moorish* or *Turkish music*, are rarely united with those above mentioned. Their martial music is monotonous, and has principally the character of a rhythmical noise, which inspires the warrior with fire and fury. In general, their music is deficient in harmony, and most of their pieces are not played from notes: they have, however, the same tones as we have, but they use the half tones much more. Their soft music has something melancholy and touching: the instruments which they use for it are a violin with three strings, the *viole d'amour*, borrowed from foreigners, the dervise flute, the tambour, a kind of lute (*mander*), the shalm, and the drum with bells. Turkish music has been much used in operas and concerts of late; but it confuses and deafens rather than delights the cultivated ear.

TURK'S ISLANDS; a cluster of small islands among the Bahamas, the largest of which is situated in lat. 21° 20′ N., lon. 71° W. They belong to the British, and there is a port of entry established on the largest, Grand Key: there is here an anchorage, but no harbour. The number of inhabitants is small and fluctuating; many of them merely spending part of the year there for the purpose of salt-making. Salt, which is procured from salt ponds, is the only article of export.

TURMALINE. See *Tourmaline.*

TURMERIC (*terra merita*); the root of the *curcuma longa.* It is brought from the East Indies, and is very rich in a yellow colour, which has great brightness, but little durability. Common salt and sal-ammoniac are the mordants best adapted to fix it. The root must be reduced to powder to be fit for use. It is sometimes employed to give the yellow made with weld a gold cast, and an orange tinge to scarlet; but the shade which the turmeric imparts soon disappears in the air. It has an aromatic smell, somewhat resembling that of ginger, and is much cultivated in the East Indies, where it is in common use as a seasoning for ragouts and other dishes. It constitutes a principal ingredient in curry powder, and in this form is used in great quantities both in India and Europe.

TURKOMANS. See *Turkestan.*

TURNAMENT. See *Tournament.*

TURNERITE; a rare mineral found in small crystals, having an oblique rhombic prism of 96° 10 for their primary form. Colour, yellowish-brown; shining; translucent; scratches fluor, but

yields to the knife, affording a grayish-white powder. It contains alumine, lime, magnesia, and very little iron. Its only locality is mount Sorel, in Dauphiné, where it occurs accompanied by quartz, feldspar and anatase.

TURNING, in mechanics; a very ingenious and useful art, by which a great variety of articles are manufactured, by cutting or fashioning them while they revolve upon an axis or line, which in most cases remains immovable. Every solid substance in nature may be submitted to this process; and, accordingly, we have articles turned in the metals, in wood, in pottery, in stone, in ivory, &c., so numerous, and so universally in use, that it would be superfluous to point them out. The simplest process of turning is that of the potter, who, in the first stage of forming his ware, sticks a piece of wet clay upon a wheel, or flat table, while it revolves horizontally, and, in this state of rotation of the clay, fashions it, with the greatest facility, into vessels of every description. But in most operations of the art, the revolving body is cut or shaved by applying a chisel, or other suitable tool, to its surface, while in motion; a condition that requires firmness in the axis of rotation, and also that the tool itself should be steadily supported. The instrument or apparatus for these purposes is called a *lathe*. Among the great varieties of lathes, it is indispensably required, for circular turning, that the work should be supported by two steady centres, or by parts equivalent to two centres, at a distance from each other in the axis of rotation, and that the tool should be supported by a steady bar, or a piece called the *rest*. A great number of turned articles either have, or will admit of a perforation through their axis. All wheel-work, and most of the articles turned in wood, are of this description. Clock and watch-makers accordingly use a very cheap, simple and portable lathe, called a *turn-bench*, consisting of a straight bar of iron, about five inches long, with two cross bars or heads, about two inches long, one fixed at the end of the long bar, and the other capable of being shifted by means of a socket and screw. In each of these heads is a centre-pin, terminating in a point at one end, and in a central hole at the other, like the centre-pin in the poppet-head of any other lathe; the use of which is to afford point-centres when the points are turned towards each other, or hole-centres when the contrary is the case; and lastly, there is a small rest, with its support, slidable and adjustable along the bar, as in another lathe. These instruments will therefore support any piece of four or five inches long, and three inches diameter, between the centres; and the method of producing the rotation is by passing the catgut string of a bow once or twice round the work, and drawing the bow backwards and forwards with one hand, while the other is employed in applying the tool. The turn-bench itself is held steady in a vice fixed to a bench or stand. The common lathe of the turners in wood, called the *pole-lathe*, is the same thing as the watchmaker's turn-bench, but upon a large scale, and a little varied. Instead of the horizontal bar, it has two long stout bars of wood, called *shears*, forming what is called the *bed* of the lathe, and its two poppet-heads are upright blocks of wood, mortised in between the shears, above which they rise and carry the centre-screws, and between which they are movable, and may be wedged firmly at any required distance from each other. The work itself is either put between the centres, or upon a wooden mandrel, and is made to revolve by a string or bend, proceeding from a long spinning pole at the ceiling or roof of the shop, round the work, and thence to a treadle or foot-board, which acts by alternate pressure from the foot, while the workman applies the cutting tool with his hands. In these, and all similar lathes, the rotation is made backwards and forwards; and there are some kinds of work in which such a motion is advantageous; but in general it is much preferable that the work should constantly revolve the same way as in the lathe usually known by the name of the *foot-lathe*. The stronger, the firmer, and the better the workmanship of a lathe, the easier it will be to perform work with expedition and truth; but a good workman will make true and excellent work with a very indifferent lathe, by taking care to cut so little at a time, that the parts of the engine may never be shaken out of their contact. Metallic lathes, if ever so strong, have an elastic tremor, which makes it difficult to cut brass and bell-metal as firmly and smoothly as in wooden lathes; but the structure of the former admits of greater precision and truth. The velocity of rotation may be extremely swift in wood, slower in brass and bell-metal, still slower in cast-iron, and slowest of all in forged iron or steel. The reason for these limits appears to be, that a certain time is requisite for the act of cutting to take place, and that the tool itself, if heated by rotation, will instantly become soft, and cease to cut. Steel and iron require to be kept wetted. Hitherto we have spoken of plain turning, which is indeed the most useful and most universally practised. But many other nice and very curious operations are performed by this art. If the poppet-heads, supporting the mandrel, be made regularly to move from side to side, during the rotation, or the rest be made to approach to, and recede from, the work, any number of times in a turn, the cuts will not be circular, but undulating, indented or waved in any curve that may be required. Work of this kind, which is chiefly done on watch-cases, snuff-boxes and trinkets, is called *rose-work*. The motion is commonly regulated by certain round plates of brass fixed on the mandrel, called *roses*, which have their edges waved, and are called *roses*. The act of turning is so extensively applicable, that it would require a volume to describe its uses, and the methods of practising it. The largest columns, the most ponderous artillery, and the minutest pivots of watch-work, with all wheel-work, rotatory machines, vessels, &c., are worked in this method.

TURNIP (*brassica rapa*); a cruciferous plant, belonging to the same genus with the cabbage, extensively cultivated for the sake of its esculent root. This latter is turbinate, more or less depressed, but varies somewhat in colour, size and form in the subvarieties produced by culture. It is of a fleshy consistence, and has a sweet, somewhat pungent, and agreeable taste. The radical leaves are oblong and lyrate; the upper ones entire; the flowers are usually yellow. The smaller varieties, in general, are most agreeable to the taste, and most esteemed; but the quality depends very much on the nature of the soil, which should be sandy and light. The ordinary season of sowing is from the end of June to the beginning of August; but if it is desired to procure them throughout the season, they may be sown from March till September. Turnips are a wholesome article of food, much in use. The large-rooted varieties have been employed in Europe for fodder, during the winter season, from time imme-

al. They are given to cattle to fatten them, also to sheep, hogs, &c. It has been ascerd that the most advantageous mode of field ire is by drills, which will produce crops of e the weight of those grown in the broad-cast ner.—The *ruta baga*, or Swedish turnip, is a ety of *B. campestris*, often cultivated. The is large, of a yellowish colour; but, in gene it is less esteemed than the common turnip.

TURNPIKE; a gate set up across a road, ched by an officer for the purpose, in order to travellers, wagons, coaches, &c., in order to toll of them. Turnpike roads are often called pikes, just as mail-coach, hackney-coach, stage-ch, are shortened to *mail*, *hack*, and *stage*.

TURNSPIT; an active, industrious variety of , once considered an indispensible attendant on spit, and still employed in some parts of Eue. It is distinguished by the length of the body, l shortness of the legs; the tail is curled on the k, and the usual colour grayish with black spots.

TURPENTINE is a resinous juice extracted m several trees belonging to the genus *pinus*. glish turpentine is from the Scotch fir (*P. sylstris*). Venice turpentine, which is more thin d aromatic, is from the *pinus larix*. Strasburgh rpentine is from the *pinus picea*. The common merican turpentine comes from the *pinus palusis*, which grows abundantly in the Southern tates. All these kinds of turpentine, and many hers, known in commerce, are obtained by exuation and hardening of the juice flowing from insions into the pine trees. To obtain the oil of rpentine, the juice is distilled in an apparatus like ne common still; water is placed with the turpenne, and the residuum and product exceed the origial weight; 250 pounds of good turpentine produce 0 pounds of the oil. Sixteen ounces of Venice urpentine, being distilled with water, yielded four unces three drams of oil of turpentine; and the ame quantity distilled without water yielded, with he heat of a water bath, two ounces only. When urpentine is distilled or boiled with water till it ecome solid, it appears yellowish; when the proess is farther continued, it acquires a reddish-brown colour. The oil of turpentine, called also *spirit of turpentine*, cannot, without singular difficulty, be dissolved in alcohol, though turpentine itself is easily soluble in that spirit. One part of oil may be dissolved in seven parts of alcohol; but on standing, the oil chiefly separates, and falls to the bottom.

TURPIN, archbishop of Rheims, to which see he was probably raised about 753, died at the beginning of the ninth century. He encouraged literature by procuring books to be copied, and enriched the library of his church, for which he procured from Charlemagne many privileges. His name has escaped oblivion in consequence of its having been prefixed to the romantic history of Charlemagne and Roland, one of the grand sources of the tales of chivalry of the middle ages. (See *Romance*.) From internal evidence it appears that this mass of fable was compiled in the eleventh century, and was translated from Latin into French in 1206 and 1207, by a clerk dependent on Renaud count of Boulogne. A more recent version was published by Robert Gaguin, in the beginning of the sixteenth century. The original first appeared in the historical collection of Schardius, Frankfort on the Maine (1566, folio); and Ciampi printed (Florence, 1822, 8vo.) an edition of the work, with a preliminary dissertation.

TURQUOISE, or CALAITE, is a mineral found only massive, having an impalpable composition and a conchoidal fracture; colour blue or green, often bright; feebly translucent on the edges, or opaque; hardness that of feldspar; specific gravity, 2·83 to 3·00. It is not dissolved by muriatic acid. Before the blowpipe, it becomes brown in the reducing flame, and gives a green colour to it. It is infusible by itself, but very easily fuses with borax or salt of phosphorus. According to Berzelius, it consists of phosphate of alumine and lime, silex, oxide of iron and copper, and a little water. It is found in Persia, either in pebbles, or in small veins, in its original repository, traversing a kind of trap. Cut and polished, it is used for ornamental purposes. It is commonly cut in oval. A piece of fine colour, five lines by four and a half, is valued at about £10.

TURTLE. See *Tortoise*.

TURTLE DOVE, (*columba turtur*). This bird is shy and retired, and builds only in deep woods. It makes the forest resound with its plaintive cooings. It is celebrated for its conjugal attachment, and is found in all the temperate parts of the European continent.

TUSCALOOSA, the metropolis of the state of Alabama, is situated at the falls on the Black Warrior, near the centre of the state, 320 miles above Mobile, 160 south-west of Huntsville. The name of this town is the Chocktaw word for *Black Warrior*. The first settlement was made here in 1816—17. In 1821, it contained about 700 inhabitants, and in 1840, 16,583. It is the capital of Tuscaloosa county, and contains the state and county buildings, and the usual variety of dwelling-houses, shops and offices, that are found in the new and flourishing towns of the south and west. The temporary log buildings first erected here have not wholly disappeared. Tuscaloosa is 858 miles from the city of Washington, and stands in lat. 33° 12′ N., lon. 87° 42′ W.

TUSCAN ORDER OF ARCHITECTURE. See *Architecture*.

TUSCANY (*Toscana*); a grand duchy of Central Italy, bounded north by Modena and the States of the Church, east by the States of the Church, and south west by a part of the Mediterranean called the Tuscan or Tyrrhenean sea. It includes Elba and some smaller islands; is divided into three provinces, Florence, Pisa, and Sienna; chief towns, Florence, the capital, Leghorn, the chief seaport, Sienna, Pisa, Arezzo, Cortona, and Piombino; square miles, 8390; population 1,300,530. The face of the country is agreeably diversified with hills, valleys and plains. The Apennines, entering on the north, traverse the country in a south-east direction. In Tuscany, their highest summits do not exceed 3000 feet, sometimes bleak and sterile, but generally covered to the tops with vegetation and forests. The country is well watered by numerous streams; the most considerable are the Arno, Cambrone and Chiana. The climate is generally pleasant and healthy, except the Maremma, or maritime district. The soil for the most part is a rich alluvial mould. The chief objects of culture are wheat, maize, beans, pease, and a variety of vegetables; also clover and other artificial grasses; vines, mulberries, olives, oranges, lemons, figs; and rice in the marshy parts. Sheep and cattle are numerous in the mountainous districts. Near Pisa is a stud of camels, established at the time of the crusades. There are mines of copper, lead and quicksilver; also marble, alabaster, crystal

and rock salt. There are scarcely any large farms, but the land is divided into petty lots, and the culture takes place more commonly by the spade than the plough. Tuscany is no longer conspicuous for its manufactures: the most important article is silk. The commerce is considerable, and carried on chiefly through the port of Leghorn. The Tuscans are well formed, with a pleasing countenance, and, among all the people of Italy, are most fond of the arts and sciences: polite and kind in their manners, they are at the same time industrious and gay. The language of the Tuscans is considered the purest and finest dialect of Italy (see *Italian Language and Literature*); and in the history of letters and art, the names of Dante, Petrarca, Boccaccio, Galilei, Machiavelli, Giotto, Cimabue, Leonardo da Vinci, Michael Angelo, the Medici, &c., appear among the natives of Tuscany. There are universities at Florence (200 students), Pisa (450), Sienna (250). There is an observatory at Pisa; and the Florentine academy, and the academy of fine arts at Florence. Little has been done towards popular education; and, in 1818, there were 750,000 individuals, or about three quarters of the population of the best educated part of Italy, unable to read or write.

The ancient names of this country were Tyrrhenia and Etruria. (See the articles.) After the fall of the Western Empire (476), it passed successively into the hands of the Ostrogoths (see *Goths*), Byzantine Greeks, and Lombards, under whom Hetruscia formed a duchy. The name of *Toscana* dates from this period. Charlemagne made it a Frankish province; and it was governed by marquises or dukes, who, in course of time, rendered themselves independent. In 1160, the emperor Frederic I. purchased it of the Guelfs; but the towns endeavoured to render themselves independent. Florence leagued herself with several cities against the empire, while Pisa, at the head of others, adhered to the emperors. For 300 years Tuscany was desolated by the contests of the Guelfs and Gibelines. (See *Guelfs*, and *Italy*.) In the middle of the thirteenth century, Sienna was a flourishing republic. The country was next distracted by the disputes between the nobles and the citizens, and, in 1343, the former were excluded from all share in the government in Florence. Next came the quarrels between the rich and the poor. The family of Medici finally acquired the favour of the poorer classes, and the sovereignty over Tuscany (1434—1737). During this period Pisa (1509) and Sienna (1557) were conquered by Florence. Tuscany became the seat of refinement and the arts under the patronage of the Medici. In 1509, Cosmo de' Medici had assumed the title of grand duke, and, in 1737, the grand duchy of Tuscany, on the failure of the Medici line, passed to Francis, duke of Lorraine, and, on his ascending the German throne (see *Francis I.*), to the house of Austria. Napoleon formed the kingdom of Etruria of the Tuscan state (see *Etruria*, and *Lucca*); but, in 1814, the archduke Ferdinand III. again took possession of it. The congress of Vienna then incorporated the *Stato degli presidj*, the principality of Piombino, with Elba and the *enclaves*, with the grand duchy. After the death of the archduchess Maria Louisa, Lucca will also be attached to Tuscany. The present grand duke, Leopold II. (born 1797), nephew of the emperor of Austria, succeeded his father in 1824. The revenues of the state amount to about two and a quarter million dollars; the debt is nearly millions. The grand duke is an absolute sover... —See Pignotti's *History of Tuscany, with a count of the Revival of Letters, Science and* from the Italian, by Browning (4 vols., 8vo. ... don, 1826).

TUSCULANUM; a celebrated villa of Ci... near Tusculum. It was the favourite reside... the great orator, who not only adorned it ... highly than any of his other villas or estate... also gave instructions here in philosophy, and ... versed with his friends and disciples on the ... jects which are treated of in his Tusculan ... tions. Tusculum (now *Frascati*), one of the ... cities of ancient Latium, lay to the north of ... in a delightful region, which was so filled ... gardens and villas, that the whole distance ... Rome to Tusculum seemed one great pleasure ground. According to fable, Tusculum was ... by the son of Ulysses and Circe. Upon the ... soil of the ancient Tusculum lies Raffinella, ... tate bought by the late king of Sardinia of Le... Bonaparte. See *Frascati*, and *Lucien Bonaparte*.

TUTENAG. This name is given in Ind... the metal zinc. It is also sometimes applied ... white metallic compound brought from C... (called likewise *Chinese copper*), the art of mak... which is unknown in Europe. It is very ... strong, malleable, and may be easily cast, ham... mered and polished. The better kinds of it, wh... well manufactured, are very white, and not mo... disposed to tarnish than silver. Three ingredi... of this alloy have been discovered by analysis to be copper, zinc and iron.

TUTTI (Italian plural, *all*); a word used ... contradistinction to *solo*, to point out where ... whole band, or all the instruments of the kind ... quired, are introduced.

TWEED, a river of Scotland, which rises in the south part of Peeblesshire, passes by or near ... Peebles, Melrose, Kelso, Coldstream, from ... which place it forms the boundary line betwe... England and Scotland, and runs into the Germ... sea, at Berwick. Its waters are clear and qui... ling, abound with salmon, and it is much frequ... by anglers. Its name is celebrated as having g... rise to many of the most beautiful Scottish ... dies.

TWELVE TABLES, Laws of the. In ... year 454 B. C., the Romans determined, on ... suggestion of the tribunes, that a new code of ... should be prepared. An embassy was there... sent to Greece, say the Roman historians, ... amine the laws of that country. Meanwhile ... consulship and tribuneship were both suspe... and a legislative body of ten patricians (*decem... clothed with dictatorial powers was created, ... 451, A. U. 303. They collected the laws ... customs which were thenceforward to be of ge... application in place of the former partial and ... laws, and thus laid the foundation of a system ... common and equal law. This code was engra... upon ten oak tablets, to which two others ... added in 450; hence the name *Leges Duo... Tabularum* (Laws of the Twelve Tables), ... *Civil Law*, and *Appius Claudius*.) This account is found in Livy, Dionysius of Halicarnassus ... See Dirksen's *Review of the Attempts hitherto ma... towards a Critical Examination and the Restorat... of the Laws of the Twelve Tables* (Leipsic, 18... But it has been observed by Lelièvre, in his pr... essay, *Commentatio de Legum XII. Tabularum ...*

(Louvain, 1827), that the Roman and Athe- constitutions and legislation were essentially rent from each other, and that no traces of cian law are discoverable in the Twelve Tables. ero and the Greek writers are also entirely nt as to the supposed Grecian origin of this iest Western code.

TWICKENHAM; a populous village on the ames, about ten and a half miles from London. ween Richmond bridge and this village is a al walk, on the border of the river; and pro- ly no promenade of a similar extent, in any part England, presents a display of scenery so soft l so highly cultivated. The margin of the ames is lined with stately dwellings, whose or- nental grounds descend to the water's edge; ong which was the residence of Pope. The house s not large, but Pope took great delight in embel- hing the grounds. The weeping willow, planted him, perished in 1801, and another has been anted on the spot. Here he translated a part of e Iliad, and wrote the Dunciad, the Essay on Man, e Epistles, &c., and hence are dated the greater mber of his letters; here, also, he died. His lla was taken down by baroness Howe, in 1807, id a new dwelling erected about one hundred rds from the site. His grotto has been stripped its most curious spars and minerals, by persons eairous of procuring memorials of the poet. trawberry hill (Walpole's villa), and its fine col- ction of *virtù* once formed an attraction of the vi- nity. In the church of Twickenham, Pope and is parents are interred. Population of the parish f Twickenham in 1841, 5,208.

TWILIGHT; the faint light diffused through he atmosphere by the sun, some time before rising, nd after setting. The atmosphere, by means of he vapours and clouds, refracts the rays of the un, and turns them down on the unilluminated arts of the earth. The morning twilight begins, nd the evening twilight ends, when the sun is bout eighteen degrees below the horizon. When he is below that point, the smallest stars are visible to the naked eye, or it is entirely dark. The dura- tion of the twilight is various. In the equatorial regions it lasts, during the equinox, one hour and twelve minutes, and increases as the sun recedes from the equator. At the poles, where there are six months day and six months night, the twilight continues about two months, so that a great part of the half year's night is illuminated. It is doubly useful, since it shortens the night, and prevents, at the same time, the injurious effect, upon our eyes, of the sudden change from light to darkness.

TWIN; one of two young produced at a birth, by an animal that ordinarily produces but one. It is calculated that of eighty human births, one is of twins. Whether twins are begotten contempora- neously or successively is doubtful. Some exami- nations seem to render the latter more probable. Twins are often as different in body and disposition as other persons. They are often weakly after birth, and require especial care. Many rules are to be observed, during the birth of twins, which this is not the place to state.—In astronomy, *Twins*, or *Gemini*, is a constellation of the zodiac, so called from the *Dioscuri*. See *Castor and Pollux*.

TYBURN TURNPIKE, at the west end of Oxford street, London, was noted for the public ex- ecutions of metropolitan malefactors which long took place near it. The turnpike was removed in 1829.

TYCHO (Tyge) BRAHE, a celebrated astrono- mer, descended from an old and noble family, was born, in 1546, upon his father's estate at Knub Strup, in Schönen, or Scania, a province then sub- ject to Denmark. From early youth, he showed an inclination for the mathematical sciences. When he was fourteen years old, an eclipse of the sun, which took place exactly at the time predicted by the astronomers, made such an impression upon him, that he afterwards devoted himself with ardour to astronomy. He was sent to the university of Leip- sic to study law, but employed himself, while there, almost exclusively in astronomical observations. After his return to Denmark, he married a peasant girl, upon his father's estate, and afterwards tra- velled to Italy and Germany, but refused the invi- tation of several princes, who wished to engage him in their service, upon advantageous terms. Frederic II., king of Denmark, gave him a consi- derable salary, and granted him for life the small island of Hween (Hven), lying in the Sound. Here Tycho erected, at the king's expense, the castle of Uranienborg, and an observatory. In this retreat, where he was visited by various princes, he framed that system of the universe which is yet known by his name. He assumed the principle that the earth remains fixed and immova- able in the centre of the universe, and that the sun and all the heavenly bodies revolve round it; but succeeding astronomers have rejected Brahe's sys- tem, and adopted that of Copernicus. (q. v.) We are indebted to his observations for a more correct catalogue of the fixed stars, for several important discoveries respecting the motions of the moon and the comets, and the refraction of the rays of light (q. v.), and for important improvements in as- tronomical instruments: they served also as the basis of Kepler's astronomical labours. Tycho was likewise a skilful chemist, and found in poetry his recreation from severer studies. He was by no means free from the predilection of his time in favour of astrology, and had a propensity to super- stition. His impetous character, and his fondness for satire, made him many enemies, who prejudiced Christian IV., the successor of Frederic II., against him, so that he was deprived of his pension. On this account, he accepted, in 1597, an invitation of the emperor Rodolph II., who was a great friend to astronomy and astrology, to come to his court at Prague. Here he received a considerable salary and many aids in the prosecution of his studies; but he died in 1601. Tycho was, notwithstanding his faults and weaknesses, a remarkable man for the age in which he lived. His works are written in Latin. Such of his poems as are yet extant, do not possess much poetical merit. The emperor Rodolph purchased his expensive astronomical and other instruments; but they were mostly destroyed after the battle on the Weisseberg, near Prague, in 1620. A large sextant alone remains in Prague. The famous brass celestial globe, which was six feet in diameter, and cost about 3500 dollars, re- turned to Copenhagen, after various adventures, but perished in the great fire of 1728. Of the castle of Uranienborg, on the island of Hween, only the ruins are now to be seen, in digging among which, in 1823, Tycho's study was discovered. A fuller account of the life of Tycho, and a cata- logue of his writings, are to be found in a work en- titled *Tycho Brahe*, &c., an essay by Helfrecht (Hof, 1798).

TYCHSEN, OLAUS GERHARD, professor of the Oriental tongues at Rostock, was born in the duchy

of Sleswick, in 1734. He studied at the gymnasium of Altona, where he acquired a knowledge of classical learning, and also became acquainted with the Hebrew and Arabic languages, previously to his removal to the university of Halle. There he added to his acquirements a knowledge of the English, the Hindoostanee and the Tamul languages, which he was taught by Schulz, and the Ethiopic, which he studied under Michaelis. Thus qualified, he was employed by a society for the conversion of the Jews and Mohammedans; and, in 1759 and 1760, he traversed various parts of the north of Germany, Prussia, Denmark and Saxony, on this mission. Soon after, he was appointed *magister legens*, at the newly-founded university of Bützow, where he received the professorship of the Oriental languages in 1763. This establishment being suppressed, and reunited to the university of Rostock in 1789, the library which had been collected by Tychsen, and of which he had been keeper since 1770, was removed to Rostock, and still committed to his care. He died in 1815. His works are numerous, including *Tentamen de variis Codicum Hebraicorum Vet. Test. MSS. Generibus* (1772, 8vo.); *Introductio in Rem Numariam Muhammedanorum* (1794, 8vo., with a Supplement); *Physiologus Syrus, sive Historia Animalium XXXII., in S. S. memoratorum, Syriacé* (1795, 8vo.); tracts On Samaritan Coins; On the Nail-headed Characters of Persepolis; and editions in Arabic and Latin of Makrizi's works On the Money and On the Weights and Measures of the Mohammedans. His papers and literary collection were purchased, after his death, for the university of Rostock.

TYMPANUM (*Greek*); a musical instrument, used by the Greeks and Romans, not unlike the tambourine, beaten with the hand, and much employed in religious ceremonies.—In anatomy, *tympanum* signifies the membrane, or drum, of the ear. In architecture, it is the flat surface or space within a pediment.

TYNDALE, WILLIAM. See *Tindal*.

TYNDARIDES; the twins Castor (q. v.) and Pollux, and their sister Helena (q. v.), so called from their father, Tyndarus, king of Laconia.

TYNEMOUTH; a parish and township in the county of Northumberland. It is of great extent, and forms the south-east corner of the county, being bounded on the south by the river Tyne, and on the east by the ocean. It consists principally of one long street; the houses are in general well built, and during the bathing season, it is a place of fashionable resort, having commodious and elegant baths, erected in 1807. The parish abounds with coal, contains some ironstone, and the only magnesian limestone strata in the county. Population of parish in 1841, 27,429; of town, 11,890.

The ruins of *Tynemouth priory* stand on a peninsula, formed of stupendous rocks, on the north side of the mouth of the river Tyne, and to the east of the town of Tynemouth. The priory is of very remote antiquity—earlier than the eighth century; but no authentic record appears to exist respecting its original foundation. That the situation, at the mouth of a river, and on an elevated site, early recommended the place as suitable both for military defence and religious purposes, is evident from the fact that Robert de Mowbray, about the year 1090, fled thither, and defended himself within its walls against William Rufus, (against whom he had conspired;) but after a time, finding that he could hold out no longer, he sought "sanctuary" at the altar of the church, from which, however, he was by force, carried to Windsor, and, after a tedious imprisonment, was put to death. The monastery at one time enjoyed considera... It possessed twenty-seven manors in Nor... land, with their royalties, besides other lands and tenements. At the dissolution there was a prior, with fifteen prebend... three novices. During the civil war ... sieged and taken by the Scots, in 1644, ... eight pieces of ordnance, and a large store ammunition, and provisions fell into the... The garrison were allowed to march out ... baggage, but bound themselves to submit ... structions of Parliament. A sum of £... voted to repair the damages it had ... Colonel Henry Lilburne was made ... governor; but having declared for the ... Arthur Hazelrig immediately marched ... castle against him, and stormed the place ... most ferocious bravery, the men entering ... tress at the very cannon's mouth. During ... sault Lilburne was slain.

TYPE (from the Greek τύπος, from τύπτω, strike); die; figure; outline; model. The ... ous significations naturally sprung from ... The word has been received into various ... languages. In numismatics, it has retained ... of its original meaning, and signifies the ... on a coin or medal. In philosophy, it has ... used, and is still used, in its most general ... designate those forms which are conceived ... in the mind of the Creator, who regulates ... verse (*mens archetypa* in the scholastic phra... which determine the character of all ... existence. Kant, in some passages, has ... word *schema* to designate something ... nature, *type*, according to this conception ... form which gives the character of similar... the individuals of a species, and at which ... seems continually to aim. To take but one ... ple:—In crystals we find that an individ... never presents a perfect mathematical ... we can show the angles, the sides, &c., of ... thematical figure, which nature strives to ... in each particular instance. The case is ... the fine arts. Though no antique figure of ... is precisely like another, nor any represent... Christ exactly similar to the rest, yet there ... same type in all, which is no vague concept... can be clearly described. We must not ... this with the *ideal*. The ideal, which is be... eye of the artist, embraces all the peculiar... his particular conception, as well as the ... characteristics of the type, and is that image ... he strives to represent in form or colour.—In ... logy, *type* signifies the representative relation ... certain persons, events and institutions of ... Testament are conceived, by some theologians, ... have to corresponding individuals, events and ... tutions in the New Testament; e. g. certain ... fices, ordained by Moses, are conceived to re... the great sacrifice of Christ—a view of the ... Testament which other theologians consider ... founded.

TYPE-FOUNDING. See *Supplement*.

TYPHON (*Typhaon, Typhoeus, Typhos*, ...); Greek mythology, a monster, concerning whom ... accounts are various. According to Hesiod, ... the son of the Earth and of Tartarus, who ... him in revenge for the defeat of the Titans ... giants by the Olympian gods. Eustathius re...

the Earth, grieved at the defeat of the Titans, fomented discord between Juno and Jupiter. former complained to Saturn, who gave her two , with directions to place them upon the earth, aring that the creature which should issue from n would be powerful enough to hurl Jupiter from throne. Juno accordingly deposited the eggs n mount Arime, in Cilicia, but on being recon- d to her husband, disclosed to him what she had e. Jupiter prepared, therefore, to encounter monster with his thunderbolts. According to dar, Typhon then dwelt in a dark cave filled h poisonous exhalations (*Typhoneum*); he was ger and stronger than any thing which the Earth borne. His head reached the stars; his arms ended from east to west: instead of fingers, 100 kes proceeded from his hands; and around his idle were twined dreadful serpents, which raised emselves above his head, and uttered terrible sings. His eyes darted fire. Hesiod says, that m a hundred serpent heads flamed fiery eyes, d black tongues darted from their mouths; some- nes he roars like a lion, howls like a dog, or ses so terribly that the mountains quake. This scription answers to that of a tempest, which esiod himself declares Typhon to be. He is also scribed with wings, and is said to have stormed lympus with masses of heated rocks, and flames of e, and to have made a way to the dwelling of ds, with dreadful hissings. The gods fled to gypt, and, when pursued thither, changed them- lves into beasts. According to Apollodorus, Ju- iter hurled his thunderbolts against him, and threat- ned him, when he approached nearer, with his damantine sickle. The monster then fled to mount asius, or Caucasus, where, after a fierce conflict, he ound the god with his serpents, and threw him nto a cave. He then took from Jupiter his sickle, ut the tendons of his hands and feet, and carried im to Cilicia, where he confined him in the Cory- ian cave. The tendons having been left to the are of the dragon Delphine, were stolen by Mer- ury and Ægipan, who cured Jupiter. The latter ow pursued Typhon to Nysa, a mountain near the Serbonian lake, where the Parcæ had artfully de- tained him by offering him refreshments. But Ty- phon again escaped, and fled to Thrace. Here, on mount Hæmus, ensued a furious fight. Typhon hurled whole mountains upon his enemy, but finally fled to Sicily, where Jupiter buried him under mount Ætna. Hesiod says that he was thrown into Tartarus; and Pindar relates that the Phlegræan fields in Italy were placed upon him, while his head reaches to Ætna. By day he spits out vapours, and by night flames and stones. By Echidna he had Orthrus, Cerberus, the Chimæra, and the Ler- nean hydra. The Nemean lion, the Hesperian dra- gon, the Caucasian vulture, and the Sphynx, with all noxious winds, were also his children. The whole fable of Typhon is nothing but a symbolical repre- sentation of subterranean winds, earthquakes, vol- canoes and their destructive effects.

Typhos; an Egyptian deity, son of Saturn and Rhea, and brother of Osiris, Areris, Isis, and Neph- thys. His mother's husband, according to Plu- tarch, was the Sun, who, having surprised her with Saturn, condemned her not to bear either in a year or in a month. Mercury, another of her lovers, relieved her in this emergency. By playing at dice with the Moon, he won the seventy-second part of each day, and of this composed five days, which he gave to Rhea, and which served the Egyptians as intercalary days to complete their year. Rhea gave birth to the third class of Egyptian gods, and Ty- phon was born on the third of the days thus ob- tained. Typhon aspired to the sovereignty of Egypt, possessed by his brother Osiris. His designs were for a long time frustrated by Isis, wife of Osi- ris; but the latter, while on his return from a tour round the world, was killed by his brother, who cut his body in pieces, and threw it into the Nile. Dur- ing the reign of Typhon, all kings laid aside their crowns, in token that they had submitted to his su- premacy. When Horus, the youngest son of Isis, had grown up, he overcame Typhon, after a severe conflict, and sent him bound to his mother. Isis, however, set him free, and the war was renewed. Typhon was defeated a second time, and continued his flight seven days upon an ass. He now begot Hierosolymus and Judæus, who, according to Taci- tus, led the Jews out of Egypt. He is said to have escaped from Horus by changing himself into a cro- codile. According to another account, Mercury or Hermes conquered him, and made cords of his ten- dons. Herodotus says that he hid himself in lake Serbonis (see the preceding article), which was thence called from him by the Egyptians. His sister Nephthys was his wife. With the Egyptians, he was an evil deity, the author of all evil in the world. His name is said to signify the destructive south wind which dried up the earth: according to others it signifies the month of drought. All noxi- ous and unclean creatures were sacred to him, as, for instance, the ass, the hippopotamus, and the crocodile; and, on certain festal days, he was made a subject of derision and ridicule. In times of ex- cessive heat, of disease, &c., it was customary to shut up some animals sacred to him in a dark place, and threaten them; if the evil was not averted, they were then slain. Red-haired men were treated in a similar manner; they were esteemed sacred to Typhon, because he himself had red hair. He is commonly represented under the form of an ass, a crocodile, or a hippopotamus. He is also considered the symbol of the sea, which swallows up the Nile.

TYPHON, OR TYPHO (*ecnephias vibrans, vor- tex*); the same as *hurricane*. See *Hurricane* and *Whirlwind*.

TYPHUS. See *Fever*.

TYPOGRAPHY. See *Printing*.

TYR, in northern mythology; the son of Odin, brother of Balder; not to be confounded with *Thor*. He was the god of war and victory. The Danes and Icelanders still call Tuesday after him, *Tirs- day*, or *Tyrs-day*.

TYRANT (from the Greek τυραννος, which sig- nified an absolute ruler). The word did not have originally the bad signification which we now attach to it; but as it is a rule which admits of very few exceptions, that the possessor of un- controlled power, whether individual, corpora- tion or multitude, will abuse it, *tyrant* came at length to signify an abuser of power, particularly of the chief power in the state. But all ranks and relations afford instances of the misuse of power, when unrestrained by other power, or by interest or affection. Towards the end of the Peloponnesian war, the Lacedæmonians established the government of the thirty tyrants, so called, in Athens, which, however, lasted only eight months. (See *Attica*.) In Roman history, the thirty ty- rants were those generals who, under the worth- less government of Gallienus (from 259 to 268 A. D.), declared themselves independent masters of

the provinces which their armies occupied—Britain, Gaul, Spain, Rhætia, Illyria, Asia, Africa, and even Italy. But the legions themselves, and the successors of Gallienus, Claudius and Aurelian, were victorious over them. The most known among them are Posthumus, Lælianus, Lollianus, Ælianus, Victorinus I. and II. Marius, Tetricus I. and II. Regalianus, Trebellianus, &c. The coins struck by them, and mostly very rare, are called the "coins of the tyrants."

TYRE; one of the most celebrated cities of antiquity, and, with its elder sister Sidon, the richest and most important commercial city of Phœnicia. The insignificant village of Sur, or Sour, in the pachalic of Acre, now occupies its site; lat. 33° 13′ N.; lon. 35° 13′ E.; eighteen miles south-west of Sidon. Sour is situated on a neck of land which was formerly an island, but was joined to the main land by Alexander, at the siege of Tyre. "There appear to have been," says Madden, "two cities of that name adjoining one another, the great Tyre being situated about five miles south of the now peninsular Tyre, which appears, from Strabo's description, to have been inhabited only by sailors, and persons connected with the shipping." As early as 1200 B. C., Tyre was a powerful city, enriched by commerce and refined by the arts. (See *Phœnicia*.) The ancient Gades (Cadiz) and Carthage were Tyrian colonies. Syria and Phœnicia had been some time under the power of Alexander the Great, when he made preparations for the conquest of this place. Built on an island, it was separated from the continent by an arm of the sea half a mile in breadth. The conqueror made several unsuccessful attempts to take it; but he at length formed a project to fill up the strait, and unite the island to the continent. The city was taken in the seventh month after it had been besieged. The Scriptures reckon among the number of the illustrious men of Tyre, king Hiram, the friend of David and Solomon. Two councils were held at Tyre; the first in 335, when Athanasius was stripped of his bishopric and banished from Alexandria, and the other in 448, the result of which was to absolve bishop Ibas, accused of supporting the errors of Nestorius. Tyre was the seat of an archbishop, subject to the patriarch of Antioch, and had fourteen suffragans dependent on it. Relics of the splendour of the ancient city are every where to be seen, as numerous and beautiful columns stretched along the beach, ruins of an aqueduct, &c.

TYRE, ÆRA OF. See *Epoch*.

TYROL, OR TIROL; a province of the Austrian empire, bordering on Bavaria, Austria, Illyria, the Lombardo-Venetian kingdom, Switzerland, and lake Constance, comprising a superficial area of 1650 square miles, and a population of 774,457 souls. Of all the countries in Europe, Tyrol is the most exclusively mountainous. The Tyrolese Alps extend through the country. Some of the most remarkable summits are Ortler, Glockner and Brenner. (See *Alps*.) Tyrol resembles Switzerland: the valleys and lakes are less extensive, the cascades less numerous; but there is the same sublime scenery, similar lofty and perpendicular mountains, covered with perpetual snow and ice; the same contrast of the beautiful and terrific, of vineyards and wastes, of uninhabited summits, and populous valleys. No country contains a more romantic road than that over mount Brenner, along the Adige. (See *Alps, Roads over*.) The climate, in consequence of the height of th
Among the productions are cor
flax and tobacco. The quant
sufficient for the inhabitants.
raising of cattle is the principal
most all kinds of minerals have
the only mines that have been wo
are those of salt, iron, copper and
are no less than sixty mineral sp
try. The Lech, Etsch, Inn, I
rise in Tyrol. The Inn, which
land, traverses it. The Rhine
borders. Lakes Constance and G
its frontiers. The manufactures
metallic wares are the most impor
linen goods are also manufactured
of Tyrol between Germany and It
lities for passing over the Alps by
der it the theatre of considerab
The Tyrolese wander all over E
even seen in America, peddling sm
they always return to spend their e
The number which leave the cou
this way is estimated at 30,000 or 4

Tyrol is divided into two nearly
German Tyrol, which leans on Bava
and the Italian Tyrol, which slopes
lakes and the fertile plains of Lombar
a line across the country from east to
Botzen to the north, all the territory
ward of this line will be the Germa
south of it the Italian Tyrol. The
tion is the larger by nearly one-third, it
lian is, in proportion to its extent,
populous, and abounding in larger and
towns and villages. The character, ha
pearance of the people in the two dis
very widely. The inhabitants of
Tyrol are passionately fond of liber
unalloyed much of the sturdiness, fra
simplicity of the old Germanic race
nearly all proprietors, and cultivate the
and have thus a feeling of independen
to what the mere hired labourer can
They preserve a national dress, prin
and early hours. The inhabitants of the
Italian Tyrol, on the other hand, are ne
of the Austrian yoke that weighs o
country; they for the most part cultiva
of others, and have been far less reten
cient manners and usages. Luxurious
hours, &c., have crept into the larger of th
and their character in general has more
pleneess and complaisance of the Italian
the sturdiness and roughness of the Germ
very considerable portion of the judges,
saries of police, and civil employés of the L
of Austria, in Milan, and the other Ver
bard cities, are natives of Lower Tyrol
tinguished by their unscrupulousness and
ency to their employer.

The valley of the river Inn, which ru
the whole northern portion of the country,
called the principal part of Upper or Germa
It is entirely shut out from the Lower
Tyrol by a lofty chain of mountains, the m
over which is by Mount Brenner, at an ele
of 6000 feet above the level of the sea. Th
ley of the Inn, counting its windings and tu
is nearly a hundred miles long, but its ge
breadth is not much above eight miles, a
many parts, and for considerable distances

bove two or three miles broad. Innspruck, the apital city, is situated about midway in this valley.

The main territory of the Lower or Italian Tyrol s comprised in the valleys of the Eisach and the \dige, on which rivers the principal towns of this outhern division, as Botzen, Lavis, Trent (the apital), and Roveredo, are situated. Notwithtanding its forests, lakes, rocks, glaciers, and nountains covered with perpetual snow, the Tyrol s a tolerably well-peopled country. Riesbeck says, hat in his time (1780) it contained altogether about 600,000 souls, and annually paid to the Austrian government about 3,000,000 florins, (about £300,000.) The silver and copperworks at Schawtz, in the Upper Tyrol, were among the most profitable things in the emperor's hereditary dominions; and the saltworks at Halle, in the same division of the country, yielded annually about 800,000 florins. He states the population of Innspruck, which he calls a fine city, at 14,000 souls.

Tyrol was first conquered by the Romans in the time of Augustus, and at a later period was traversed and desolated by various barbarous tribes. The Franks, and, after the extinction of the Carlovingian dynasty, the dukes of Bavaria, obtained the sovereignty; but some of the counts continued to be powerful. In 1359, Margaret Maultasche, the only daughter of one of these, conveyed her possessions to the duke of Austria; and Tyrol has since belonged to that power, with the exception of a short time from 1805 to 1814. For an account of the insurrection of the Tyrolese in 1809 against the French and Bavarians, see *Hofer*, *Andrew*. See also *Austria*.

TYRONE; a county in Ulster, Ireland, extending about fifty-four miles from N. to S. and twenty-five from E. to W. It is divided into four baronies —Clogher, Dungannon, Omagh, and Strabane; and in these are comprised the assize towns of Omagh, Dungannon, and Strabane, the old city of Clogher, and the small towns of Ballygawley, Moy, Caledon, Augnacloy, Newton Stewart, and Dromore. The whole of Dungannon barony is rich, fruitful land, and abounds with small towns and villages. Strabane barony, on the contrary, is extremely rugged, and much less productive, a great portion of it labouring under the mass of the Munterlony and Cairntogher mountains. The western parts of Omagh include the Corragh and Longfield mountains, but the remainder of the barony is level and productive. The whole of Clogher barony may be said to be available land. The rivers here are beneficially applied in facilitating the bleaching of linen, and supplying artificial lines of navigation. The Blackwater rises near Ballygawley, and, after a tortuous course, discharges itself into Lough Neagh, near Maghery. The heart of the county enjoys a plentiful supply from the streams of the Cameron, Poe, Moyle, Gavaghy, Onreagh, Derg, Munterloney, Drimna, and other brooks, all of which prove tributary at last, to the Mourne and Foyle; whilst the Oona, Devlin, Torreen, and several minor streams, throw themselves into the channel of the Blackwater. The Balindary flows into the Great Lough Neagh. The staple manufacture of the county is linen. Population in 1841, 312,956.

TYRRHENIA, TYRSENIA; the ancient name of that part of Italy afterwards called *Etruria*. Niebuhr has proved that the Tyrrhenians, or Tyrsenians, were a Pelasgic race, and entirely different from the Etruscans, who occupied the country, and gave it their name at a later period. Much confusion has been produced in history from confounding the two nations. See *Etruria*, and *Tuscany*.

TYRTÆUS, an ancient Greek poet, celebrated for his martial strains, is said to have been a native of Miletus, who settled at Athens in the capacity of poet, musician and school-master. He is described as being short, lame, and blind of one eye but he possessed a manly and elevated soul. In the war between the Lacedæmonians and Messenians, the former were promised victory by the oracle, if they obtained a general from Athens. The Athenians, it is supposed in derision, sent them Tyrtæus, who so animated the Spartans by his spirited strains, and aided them so effectually by his advice, that the Messenians were reduced to subjection. For these services, the Spartans treated him with great respect, and granted him the rights of citizenship. The war poems of Tyrtæus must have been in high repute, as Horace joins him with Homer in that department. He also composed Moral Precepts, and a work On the Policy of the Lacedæmonians. Some fragments of his war poems remain, which are characterized by their masculine simplicity. They have been published with the other minor Greek poets, and separately by Klotz (Altenburg, 1767). Matthiä has written a treatise *De Tyrtæi Carminibus* (Altenburg, 1821).

TYRWHITT, Thomas, a profound scholar and distinguished critic, born in 1730, was educated at Eton and Oxford, where he took his degrees, and, in 1755, obtained a fellowship at Merton. He was acquainted with almost all the European languages, as well as those of classical antiquity. In 1756, he was appointed under secretary in the war department, and, in 1762, succeeded Mr Dyson as clerk of the house of commons. This office he resigned in 1768; and the remainder of his life was devoted to study. His death took place in 1786. Mr Tyrwhitt published a valuable edition of the Canterbury Tales of Chaucer, with a Glossary (1778, 5 vols., 8vo.; reprinted, Oxford, 1798, 2 vols., 4to.); *De Babrio* (Gabrias) *Fabularum Æsopearum Scriptore* (London, 1766, 8vo.); *Auctarium Dissertationis de Babrio adjecit Tyrwhitt sua Orphei de Lapidibus-Edit.* (1781, 8vo.); Rowley's (Chatterton's) Poems, with a Preface and Glossary (8vo.); Vindication of the Appendix to Rowley's Poems, with Observations on these Poems; Poems in English and Latin, which were his earliest productions. Mr Tyrwhitt likewise left materials for a new edition of the Poetics of Aristotle, which was printed at Oxford, in 1794 (4to. and 8vo.).

TYTHES. See *Tithes*.

TYTLER, Alexander Fraser (lord Woodhouselee), one of the senators of the college of justice in Scotland, was born at Edinburgh, in 1747, and died in 1813. He published the Decisions of the Court of Session in the Form of a Dictionary; and, having been elected professor of history at Edinburgh, he printed, in 1783, Outlines of a Course of Lectures on Universal History (8vo.), which was followed by his popular work Elements of general History, Ancient and Modern (2 vols., 8vo.). Among the other works of lord Woodhouselee are Memoirs of Lord Kames, containing Sketches of the Progress of Literature in Scotland in the Eighteenth Century (1807, 2 vols., 4to.), with a Supplement (1810, 4to.), and an Essay on the Life of Petrarch (London, 1810. 8vo.). Memoirs of his life, by Alison, were pub-

lished in the Transactions of the Royal Society of Edinburgh, vol. viii.

TZSCHIRNER, Henry Theophilus, doctor of theology, pastor in Leipsic, and professor in the university of that city, was born in 1778, at Mitweida, in the kingdom of Saxony. In 1796, he entered the university of Leipsic. In 1800, he received permission to lecture in Wittemberg; but, in 1801, the circumstances of his family obliged him to undertake the duties of the clerical office. He continued his studies, however, uninterruptedly, and, in 1805, published the first part of a History of Christian Apologetics, with a preface by Reinhard; but he never continued the work, having become quite dissatisfied with the plan of it. In the same year, he was appointed *professor ordinarius* in Wittemberg. In 1809, he received a chair at Leipsic, where he showed himself a "rational supernaturalist," adhering to principles which he subsequently developed in his Letters on Reinhard's Confessions (Leipsic, 1811), as Reinhard had maintained that the entire separation of rationalism from supernaturalism was indispensable. In 1814, he accompanied the Saxon troops, under the grand duke of Weimar, as chaplain. After his return from the war, he published the results of his experience in his work On War (Leipsic. In 1815, the corporation of Leipsic appoint a minister in the city. In 1821, he publish Explanation of Haller's Secession, and, a Catholicism and Protestantism in a politica of View, which, in a short time, went three editions, and was translated into E French and Dutch. Both these works w casioned by Louis von Haller's becoming a lic. (See *Haller*.) Soon after, he ma much interest in the Greek revolution, and what later, published his Danger of a Germ volution (2d ed., 1823), and System of Ec (1824). In 1822, he undertook the editorsh Magazine for Ministers. In several works, he ex ed the arrogance of Catholicism and the myst Protestants. He also wrote a series of Le a German to French Scholars (Chateaubria la Mennais, Montlosier, Constant).* His work was, How did it happen that France wa Catholic? in Pölitz's Annals of History and tics. He died suddenly, in 1828, having se works in contemplation; among others, a H of the Church in his time. Tzschirner was e siastically beloved by his fellow-citizens, and s respected, even by the Catholics.

U

U; the twenty-first letter in the English alphabet; a vowel which is pronounced, in most languages, somewhat like *o*. But the mouth is less pointed, and the opening of the lips, therefore, less round, but closer, in pronouncing the former vowel. The sound which we refer to is that of the Italian or German *u*, corresponding to the English *oo*, as in *tooth*, or *u* in *brute*. The character *u*, in English, like the other vowel characters in this language, represents various sounds, as in the words *tube*, *tub*, *bull*. The pronunciation of *u* in the last-mentioned word is the same sound short which we find long in *truth*, *rule* and *prudence*. The German *u* is often changed, by the rules of grammar and etymology, into *ü*, which corresponds to the French *u*, as in *plus*. The Germans early adopted the alphabet of the Romans, and, not finding there a character for the French *u*, used the compound character *ui* for this sound, being an intermediate sound between *i* (as in *pin*) and *u* (as in *brute*). Some, however, soon wrote it *ue*, which became changed into *ů* and *ů*, and these, in the current handwriting, into *ü*, as the *e*, in the German current hand, may be easily changed into two such dashes; but in German printing, the sign put over the *u*, in such cases, is still a small *e*. In printing with Latin characters, the Germans substitute for *ü ue*, or *ü*. *U* is so nearly related to *o*, that they often pass over into each other in various dialects. (See our article *O*.) The Latins called *u* a vowel, but said that it often had the power of a consonant, which we now designate by *v*; and it is true that *u*, before some vowels, cannot well be pronounced without partaking much of the n of a consonant, as in *uaco*, *uelox*, *silua*, now w *vaco*, *velox*, *silva*. The primitive sound of *u* in cases, however, does not resemble the pr sound of *v*, but that of the English *w*, which responds to *oo* before a vowel, and therefore † of many modern nations, the Germans, Ital Spanish, &c. The sound which *v* has acq quired is so different from the sound of *u*, there seems to be no propriety in mingling th ters in dictionaries and encyclopedias. As the a cient Roman abbreviations were made with ca letters, and the character *v* was used for the ca form of both *u* and *v*, none of their abbrevia belong to this place. *U. S.* is the abbreviat *United States*. See, also, the vulgarism *U* mentioned in the article *John Bull*.

UBES, St. See *Setubal*.

UBIQUITY; a word made in the fashion o Latin of the scholastic philosophy, to signify universal presence. Luther gave the name of ub to that quality of the body of Christ by which present every where in the bread of the Lord's su per. The term had already become disagreea in consequence of the heat of the first disp respecting the Lord's supper, when the Luther

* Edited by Krug, though unfinished. The same wa case with his intended Fall of Paganism, edited by Bec which would have been probably his largest work.

† The resemblance in sound between *w* and the Germa appears from the circumstance that, in dictionaries intend teach Germans the pronounciation of English words, *u* is ge ten for *w*; for example, the English name is written Wa French, our *w* is expressed also by *ou*; thus Malaga pronounced *Oualtingtonne*.

nisters at Bremen applied it, in 1556, in a sense ·ll more opposed to reason in their controversies ·th the Calvinists; and at Wurtemberg, in the eed drawn up in 1559, by John Brenze, it was ·ade a fundamental point of the orthodoxy of the ıurch in that country. As the Calvinists acnowledged a real presence of the body of Christ the Lord's supper, though only perceptible by ith, these Lutherans, in order to make a marked ıstinction between themselves and their opponents, arted the doctrine of the real mutual communicaon of the qualities of both natures in Christ (*communicatio idiomatum*), and strove to prove by it that ıe body of Christ is necessarily present in, with nd under the bread in the Lord's supper every ·here, without reference to the faith of the comıunicants. As this notion drew upon them the ames of *Ubiquists* and *Ubiquitists*, and was exosed to the reproach of similarity with the Catholic doctrine of transubstantiation, the authors of the ormula of Concord, called the *Book of Berg*, declared explicitly that the ubiquity of Christ's body loes not take place in a material way. In 1610, a ıew dispute arose respecting this ubiquity between he theologians of Tübingen, who zealously adıered to it, and the theologians of Giessen; but :he interest in this question ceased with the advance of theological science. The German Lutherans and Calvinists now generally agree that Christ is present in the Lord's supper to those who receive it with a proper spirit, but that it must, and safely may be, left to each individual to decide (or to leave undecided) in what way this presence, and the union of his body with the bread (*unio sacramentalis*) takes place, or is to be imagined.

UGOLINO. See *Pisa*.

UGUALE, in Italian music; *equal*.

UHLAND, JOHN LOUIS, a distinguished German poet, was born in 1787, at Tübingen, where he studied law from 1805 to 1808. In 1810, he went to Paris, where he devoted himself principally to the manuscripts of the middle ages. He published, at a later period, translations of early French poems. His earliest published poems were written in 1804. He gave to the world a collection of his poems in 1814 (3d edition, 1826). In 1812, he was a practising lawyer in Stuttgard. In 1815, when a great political excitement existed throughout Würtemberg, Uhland's patriotic songs became very popular, and contributed not a little to strengthen the patriotic spirit. In 1809, he was elected a representative of Tübingen. Uhland is undoubtedly one of the best lyric poets of Germany. There is a truth, a warmth, an intensity of feeling, in his poems, which stir the heart. His patriotic songs are often noble, but would have a far more elevated character if the state of his country was such that, instead of being the poet of Würtemburg, he could be the poet of Germany. His dramatic works—Duke Ernest of Suabia (Heidelberg, 1817) and Louis of Bavaria (Berlin, 1819) are less distinguished.

UIG. See *Lewis*.

UIST, NORTH AND SOUTH, two islands of the Hebrides. See *Hebrides*.

UKASE (*Russian*) signifies an ordinance of the government of the Russian empire. See *Russia*.

UKRAINE (*the frontier*; from the Teutonic word *Uher*): an extensive country in the southeast part of Russian Poland, now forming the Russian governments of Kiev, Podolia, Charkow and Poltava; lying between lat. 48° and 52° N. It is watered by the Dnieper, which intersects it in a winding course from north to south. The chief town of Ukraine is Kiev: the chief outlet for its exports is Odessa. The surface is generally level; and it is one of the most fertile parts of Europe. The heat of summer and cold of winter are intense in this region.

ULANS; a species of light cavalry, of Tartar origin. From the Tartars it was introduced into Poland. The Austrians adopted it next; the Prussians, in the seven years' war; and, at the present day, almost all armies have some of this cavalry, whose chief weapon is a lance, generally, or always, provided with a little flag, in order to frighten the horses of the enemy. They are always light troops, and are particularly useful in taking squares. See *Lance*, and *Cavalry*.

ULEMA is the collective name for the Turkish jurists, considered, at the same time, as priests; for the law of the Turks comes from Mohammed, as well as their religion; and the Koran is their code. The chief of the ulema is the mufti. (q. v.) After him follow the cadileskiers, of whom there are three, one in Europe, one in Asia, and one in Egypt. They have a vote in the divan, and appoint all the cadis in their district. No one can become a mufti who has not been a cadileskier. The third class of the ulema consists of the mollahs (q. v.), who are the superior judges in the provinces. After them follow the cadis, who every where decide in the first instance.

ULFILAS, ULPHILAS, OR WULFILAS, was born in Cappadocia, and, from 360 to 380, was bishop of the Christian Goths in Dacia and Mœsia (the *Mœso-Goths*, so called), with whom he had a very great influence. He induced them to adopt the Arian doctrine. He was learned for his age, and was sent several times as ambassador to the court of Constantinople. The invention of Gothic letters is generally ascribed to him; but probably the Gothic written character only became more common through his means. He translated the Bible into the Mœso-Gothic dialect. Of this remarkable translation, the most ancient monument of the German language, considerable fragments have come down to us, particularly the Gospels. The *codex argenteus*, so called, at Upsal, contains the four Gospels, and a manuscript in Wolfenbüttel contains fragments of the Epistle to the Romans (best edition by Zahn and Fulda, Weissenfels, 1805, 4to.). The zealous scholar Angelo Maio has discovered in the library at Milan manuscripts of Ulfilas, from which the breaks in his translation may be supplied.

ULLAGE of a cask, in gauging, is what it wants of being full.

ULLOA, DON ANTONIO DI; a celebrated Spanish mathematician, born at Seville, in 1716, and brought up in the royal marines, in which he obtained the rank of lieutenant-general. Having distinguished himself as an engineer and man of science, he was, in 1735, joined in a commission with don George Juan and others, to measure a degree of the meridian in Peru. He remained nearly ten years in South America on this occasion, and, on his return to Europe, in 1745, was intercepted, and carried into an English port. Here his talents and character recommended him to Folkes, president of the royal society, of which he was elected a member in the same year. On his return to Spain, he published his voyage to South America (*Relacion historica del Viage a la America Meridional*, Madrid,

1748), which was soon translated into German, French and English; but the latter version (1758, 2 vols., 8vo.) is inaccurate. He was afterwards appointed by Ferdinand III. to travel over Europe, to collect information in regard to improvements in the arts, sciences and agriculture. He promoted the royal woollen manufactories, newly organized the colleges of history and surgery, superintended and completed the basins at Ferrol and Carthagena, and gave new activity to the quicksilver mines of Almadan. In 1766, he was made governor of Louisiana, which had been ceded to Spain. In 1772, he published *Noticias Americanas sobre la America Meridional, y la Septentrional-Oriental*, containing disquisitions upon the peopling of America. The *Noticias secretas di America*, first published in 1826 (London, folio), consist of the confidential reports of Juan and Ulloa to the Spanish ministry, which had been suppressed as discreditable to the country. Ulloa died in 1795. He must not be confounded with don *Bernard*, a near relation, who published, in 1740, a work On the Revival of the Manufactures and Commerce of Spain.

ULM, on the left bank of the Danube, at the confluence of that river with the Iller and Blau, was formerly a free imperial city, in 1803 was attached to Bavaria, and, in 1810, to Würtemberg. It has 11,888 inhabitants. The Danube at this place is 200 feet wide. Its situation, in a military point of view, is highly important; and it would be so likewise in a commercial point of view, were it not for the ruinous systems of imposts which clog the wheels of trade throughout Germany. The cathedral is celebrated, and, though the steeple is unfinished, is one of the finest specimens of Gothic architecture. It was begun in the fourteenth century. The foundation was laid in 1377, and the church was completed, as far as it went, in 111 years. It is 152 feet high, and the unfinished steeple 337 feet high. The city capitulated to Napoleon October 17, 1805, and general Mack, with 24,000 men, became prisoners of war. It has been repeatedly contemplated to make Ulm a fortress of the Germanic confederacy, as Mayence is. There is much manufacturing industry in this place.

ULMIN; a very peculiar substance, which exudes from the trunk of a species of elm, the *ulmus nigra*. It differs essentially from every other known body, and must therefore be regarded as a new vegetable principle. In its external appearance, it resembles gum. It is solid, hard, of a black colour, and possesses considerable lustre. Its powder is brown. It dissolves readily in the mouth, and is insipid to the taste. It is completely insoluble both in alcohol and ether. M. Dobereiner says, that gallic acid is convertible into ulmin, by combining the acid with ammonia, and exposing the compound to oxygen.

ULPHILAS. See *Ulfilas*.

ULPIANUS, Domitius; an eminent lawyer, the tutor, friend, and minister of the emperor Alexander Severus. When Alexander became emperor, one of his first acts was to recall Ulpian, who had been exiled by Heliogabalus, and to place him at the head of his council of state. He was also made secretary of state, and ultimately pretorian prefect. He lived in great repute for his wise and virtuous administration, until the emperor, probably at his suggestion, undertook the dangerous task of reforming the army. The discontent of the soldiery broke out into a mutiny, and Ulpian, pursued by a body of them, was massacred in the presence of the emperor and his mother, in the year 228. Ulpian has obtained the praise of all the heathens; but the Christians accuse him of a determined enmity to them, which he carried so far as to collect all the edicts and decrees of the preceding sovereigns against them. There are remaining of Ulpian twenty-nine titles or fragments, which are inserted in some of the editions of the civil law.

ULSTER; the most northerly of the four provinces of Ireland, is bounded on the west and north by the Atlantic ocean; on the south by the provinces of Connaught and Leinster; and on the east by the north channel of the Irish sea. It extends from east to west about 124 miles, and from north to south about 86. Its civil division comprehends the counties of Antrim, Armagh, Cavan, Donegal, Down, Fermanagh, Londonderry, Monaghan, and Tyrone, besides the county of the town of Carrickfergus. The sea shore is indented by some noble harbours; the most frequented are Loughs Strangford, Carrickfergus, or Belfast, Larne, Foyle, Swilly, and the bay of Donegal. The Bann, Foyle, Blackwater, and Erne, are the chief rivers; the principal lakes are loughs Erne and Neagh, both resembling inland seas. Ulster can boast of a better instructed and more comfortably situated population than any province of Ireland. The presbyterian form of worship, introduced by Scottish settlers in the reign of James I., is the prevailing one. The linen manufacture, the staple of the country, has here its chief seat, and is carried on in almost every village. See the article *Ireland*.

ULTIMATUM (from *ultimus*, last), in modern diplomacy; the final conditions offered for the settlement of a dispute between two governments. Ultimatums are often as numerous as the last appearance of a distinguished actor; as, for instance, the long series of Russian ultimatums delivered to the Porte before the last war between Russia and Turkey.

ULTRA; a prefix in modern politics, to denote those members of a party who carry their notions to excess. In 1793, those persons were called *ultra-revolutionists* who demanded much more than the constitution then adopted allowed. When the Bourbons returned to France in 1815, the words *ultra-royalists* and *ultra-liberals* were much used and have become common, wherever political parties are allowed to exist.

ULTRAMARINE; a beautiful and unchangeable blue pigment, which was originally obtained only from the rare mineral lapis-lazuli, but which has of late been manufactured artificially. The method of preparing the ultramarine from lapis-lazuli is as follows:—The mineral is made red hot, and thrown into water, to render it easily pulverizable. It is then reduced to a fine powder, and intimately combined with a varnish, formed of resin, wax, and boiled linseed oil. This pasty mixture is put into a linen cloth, and repeatedly kneaded with hot water; the first water, which is usually dirty, is thrown away; the second gives a blue of the first quality, and the third yields one of less value. The process is founded on the property which the colouring matter of lapis-lazuli has of adhering less firmly to the resinous cement than to the foreign matter with which it is associated. The artificial ultramarine was discovered by M. Gmelin, a French chemist. He was led to the discovery by accidentally noticing a fine blue colour upon the hearth of one of his furnaces, which colour appeared to be identical with that of the ultramarine. The

stance, when analyzed, was found to consist of phur, sodium, silex, and alumine; and, by combining these principles in the proportions found in e pigment, the artificial ultramarine was formed. he new product is said to possess a colour equally h with that of the mineral ultramarine; and it is ow so extensively manufactured as to become an ject with painters and colourmen, in point of economy, to substitute it in room of cobalt, in the ueing of paper, thread, and stuff, in which this aterial has been heretofore employed. The discoverer purchased a situation near Lyons, in hich he established a manufactory on a large ale, so as to satisfy the demands of commerce. M. Guimet has proved by experiment, that a pound f his ultramarine of the second quality, and which an be afforded at twenty francs, will blue as much aper as ten pounds of cobalt, which, at wholesale, osts twenty-six francs; and an important advantage of the former is, that on account of its lightness, t spreads more uniformly over paper. Since his uccess in this application of the new colour, he has ried it in dyeing, and has obtained upon linen, cotton, and silk, a degree of success which encourages the hope of an ultimate and decided superiority over indigo. M. Guimet sold his ultramarine at sixteen francs the pound.

ULTRAMONTANISM (from *ultra montes*, the other side of the mountains, i. e. Alps). As the nations north of the Alps—France, Germany, &c. —have been most opposed to the papal assumption of absolute power, they have termed the endeavours of the Roman *curia* to extend the papal authority and destroy the consequence of the national churches, such as the Gallican church, *ultramontanism*. The name has been particularly used of late years, since the attempts of the Roman court, during the reign of the elder line of Bourbons in France, to arrogate powers wholly inconsistent with the present state of civilization. We have spoken of the influence of the pope in the middle ages, in the article *Pope;* have given, we believe, deserved praise to that great man, Gregory VII., and have not denied the good which even the Jesuits have done; but the times have changed, and that influence, which, centuries ago, was a benefit to nations during the prevalence of general disorder, would be in the highest degree detrimental at the present day. Modern history is made up, in a great measure, of the struggles of the nations to disenthral themselves from the control of the Roman see; and we may be allowed to observe, that one of the circumstances which have essentially contributed to the developement of free institutions and the general advancement of civil government in England, has been the absence of foreign nuncios in that country, since the twelfth century, when the archbishop of Canterbury was declared the permanent legate of the pope. She has thus escaped the violent struggles against the papal power, which have convulsed the governments and nations of Germany and France. In the latter part of the last century, the political influence of the pope declined rapidly, and continued so to do, until, under Napoleon, it ceased entirely. But, after the return of the Bourbons, ultramontane principles were more and more boldly proclaimed in France, and, though sometimes opposed, were, on the whole, favoured by the government. This alone would have been sufficient to place the Bourbons in decided opposition to the nation, and, sooner or later, bring on their ruin. A man may be a good Catholic, and yet wholly opposed to ultramontane principles; as, for example, most, perhaps all, the German Catholics distinguished for learning and talent are so. Those who explain the canon law on ultramontane principles, are called *curialists*. (See *Curia*.) Ultramontanism may be briefly described as the endeavour to render the Catholic churches of the various countries more subservient to the pope than is compatible with the existing ecclesiastical laws of the various countries, with the rights of the bishops and sovereigns, with the independence and intellectual freedom of each country, and with various elements of Catholicism itself. Its principles are decidedly in the spirit of Gregory VII., who wished the pope to be bishop every where, and to leave to the various bishops only such rights and privileges as he had not reserved for himself. General councils were not to meet nor sit without his permission, and national governments, of course, to have no influence upon national churches, farther than the Roman see should think fit. We do not know whether we should treat the infallibility of the pope as a principle of ultramontanism, since it is a theory almost entirely exploded among German and French Catholics, even such as in other respects might be called ultramontane. Among the books that have been written on this subject, are count Montlosier's work against the sovereignty of priests—*Mémoire à consulter sur un Système religieux et politique, tendant à renverser la Religion, la Société et le Trône* (Paris, 1826). The three most eloquent defenders of ultramontanism, before the revolution of 1830, were count de Maistre, M. de Bonald, and especially the abbé de la Mennais, whose work *De la Réligion considérée dans ses Rapports avec l'Ordre politique et civil*, defends the supremacy of ecclesiastical power over the secular in all states, declares all Protestants, and even the Jansenists, atheists, and affixes the same stigma to the government, because the *charte* of France allows freedom of religious worship, &c. The work was seized, and the author brought before the tribunals; but sixteen French bishops and archbishops, among whom were two cardinals, expressed, in decided terms, their hostility to this kind of ultramontanism, in an instrument dated Paris, April 3, 1826, and put into the hands of the king, April 10. Hyacinth, archbishop of Paris, M. de Quelen, and the cardinal de Clermont-Tonnère, archbishop of Toulouse, wrote letters in approbation of this step. The ultramontane periodical, the *Giornale Ecclesiastico di Roma* (which has now ceased altogether), was prohibited to be circulated in France.

ULYSSES (in Greek, *Odysseus*); a king of the islands of Ithaca and Dulichium, son of Anticlea, and Laertes. He became one of the suitors of Helen; but, as he despaired of success, he solicited the hand of Penelope, the daughter of Icarius. The rape of Helen did not long permit him to remain in Ithaca, and he was summoned to the Trojan war with the other princes of Greece. He pretended insanity, to avoid leaving Penelope; but Palamedes, by placing before the plough of Ulysses his son Telemachus, convinced the world that the father was not mad, who had the providence to turn away the plough from the furrow, not to hurt his child. Ulysses was therefore obliged to go to the war, where he distinguished himself by his sagacity. By his means, Achilles was discovered among the daughters of Lycomedes, and Philoctetes was induced to abandon Lemnos. He was not less dis-

tinguished for his activity and valour. With Diomedes he murdered Rhesus, and slaughtered the Thracians in their camp. He also introduced himself into the city of Priam, and carried away the Palladium of the Trojans. (See *Palladium*.) For these services he was rewarded with the arms of Achilles. After the war, Ulysses was exposed to a number of misfortunes, before he reached his native country. He was thrown upon the coasts of Africa, and visited the country of the Lotophagi, and of the Cyclops in Sicily. Polyphemus seized him, with his companions, five of whom he devoured (see *Polyphemus*); but the prince, having intoxicated him and put out his eyes, escaped from the cave. Æolus gave him, confined in bags, all the winds which could obstruct his return to Ithaca; but the curiosity of his companions to know what the bags contained, proved nearly fatal. The winds rushed out, and all the fleet was destroyed, except the ship which carried Ulysses. Then he was thrown upon the coasts of the Læstrygones, and of the island Æea, where Circe changed his companions into pigs. He escaped their fate by means of an herb which he had received from Mercury; and, after he had obliged the magician, by force of arms, to restore his companions to their original shape, he yielded to her charms, and made her mother of Telegonus. He visited the infernal regions, and consulted Tiresias how to return with safety to his country; and, after he had received the necessary information, he returned on earth. He passed along the coasts of the Sirens unhurt, by the directions of Circe (see *Sirens*), and escaped the whirlpools and shoals of Scylla and Charybdis. On the coasts of Sicily, his companions killed some oxen sacred to Apollo, for which the god destroyed the ships; and all were drowned except Ulysses, who swam to the island of Calypso, where, for seven years, he forgot Ithaca, in the arms of the goddess, by whom he had two children. The gods at last interfered, and Calypso suffered him to depart. Neptune, still mindful that his son Polyphemus had been robbed of his eyes by Ulysses, raised a storm and sunk his ships. Ulysses swam to the island of the Phæacians, where the kindness of Nausicaa, and the humanity of her father, king Alcinous, entertained him for a while. He related his misfortunes to the monarch, and was conducted in a ship to Ithaca, after an absence of twenty years. He was informed that his palace was besieged by suitors, who continually disturbed the peace of Penelope; and, therefore, he assumed the habit of a beggar, by the advice of Minerva, and made himself known to his son and his faithful shepherd Eumæus. The suitors were put to death, and Ulysses restored to peace and the bosom of his family. He lived about sixteen years after his return, and was at last killed by his son Telegonus, who had landed in Ithaca, with the hopes of making himself known to his father. The adventures of Ulysses on his return are the subject of Homer's Odyssey.

UMBER, or UMBRE (Italian *ombria*), in painting; a kind of dry, dusky-coloured earth, which, diluted with water, serves to make a dark-brown colour, usually called with us a *hair* colour. This substance was originally obtained from Ombria, the ancient name of the duchy of Spoleto, in Italy.

UMBRELLA; from the Italian *ombrello*, 'a little shade.' This useful article was first introduced into England from Italy, as the name indicates, but at what period is uncertain. Dryden mentions it; and also Gay, in his 'Trivia, or the Art of Walking the Streets,' published in 1712.

> "Good housewives all the winter's rage despise,
> Defended by the riding-hood's disguise;
> Or underneath th' umbrella's oily shed,
> Safe through the wet in clinking pattens tread.
> Let Persian dames th' umbrella's ribs display
> To guard their beauties from the sunny ray;
> Or sweating slaves support the shady load,
> When eastern monarchs show their state abroad;
> Britain in winter only knows its aid
> To guard from chilly show'rs the walking maid."

In Bailey's English Dictionary, originally published in 1736, we have the following definition: "*Umbrello*, a sort of wooden frame, covered with cloth, put over a window, to keep out the sun; also a screen carried over the head to defend from sun or rain." Although, however, umbrellas were known so far back, it was late in the last century before they came into general use. They were for a long time used exclusively by *ladies*, it being considered effeminate for a man to be seen with one. Dr Cleland, in his 'Statistical Account of Glasgow,' says: "About the year 1781 or 1782, the late Mr John Jamieson, surgeon, returning from Paris, brought an umbrella with him, which was the first seen in this city. The doctor, who was a man of humour, took great pleasure in relating to me how he was stared at with his umbrella. For a number of years, there were few used in Glasgow, and these were made of glazed cotton cloth. Now every child at school, mechanic, and servant, is provided with an umbrella." Notwithstanding the more stately appearance of the umbrella, it is but the child of the parasol, or rather, the original and almost exclusive use of the umbrella is that to which the parasol is now appropriated,—to afford shelter from the sun. The applicability of the same implement as a defence against rain was sufficiently obvious, but is scarcely known in the original countries of the umbrella except as introduced from Europe. The umbrella is of Asiatic origin. Some commentators on the Bible think they can discover it in some passages where "a shade defending from the sun" is mentioned. This is not unlikely. The article has, however, from times immemorial, been so well known in all the warm countries of Asia that it is impossible to discover in which of them it originated, although there are circumstances which seem to point to a common origin. It is more in use in China than elsewhere in Asia; and where we find a practice in that country we seem naturally disposed to look there for the origin of it; but there is no evidence for the prior claims of China, nor is the point well worth investigating. Except in that country, and in some Europeanised parts of Turkey, the umbrella is no where in Asia an article in common use among the people. In most of the Asiatic nations it forms a distinction peculiar to royalty, while in some others it is also conceded to persons high in authority and place, particularly to governors of provinces, who in most Asiatic countries are, for purposes of government, invested with powers almost regal. In the farther peninsula of India the umbrella is strictly confined to royalty itself. China and Turkey are the only countries in Asia where the umbrella has been abandoned to the people; and it is remarkable that it is only in these countries that the implement is used as a shelter from rain; elsewhere its uses are exclusively those of a parasol.

UMPIRE. See *Arbitrator*.

UNCIAL (Latin, *uncia*, a twelfth); a term ap-

plied to letters standing for words in inscriptions and epitaphs. Manuscripts written with uncial letters possess, from that circumstance, a proof of considerable age, since these characters have not been in use since the seventh century.

UNCTION, EXTREME, has been, since the twelfth century, one of the seven sacraments of the Catholic church: the council of Trent also declares it to be a sacrament (sess. xiv., canon 1 et seq.). It is performed, in cases of mortal disease, by anointing the head, the hands and the feet with oil consecrated by the bishop, and accompanied with prayers. (See *Chrism.*) As it has, according to the opinion of the Catholics, sacramental power (that is, it effects the purification of the dying person from his sins, and a communication of the divine forgiveness), it can only be administered by a bishop or priest; and, because it requires piety on the part of those who receive it, it is allowed to such sick persons only as are permitted to partake of the Lord's supper. Small children and excommunicated persons are, therefore, not permitted to receive it. The Catholic church derive their opinion of the efficacy of extreme unction from the custom of the apostles to anoint the sick with oil, accompanied with prayer (*James* v., 14 and 15), in order, by this means, to console them and promote the good of their souls. The Protestants deny the sacramental signification and power of this ceremony, because nothing is known of a formal establishment of it by Christ himself. In the Greek church, it is administered, not only to dying persons, but generally, in diseases of all kinds, as tending to promote the restoration of health and the forgiveness of sins.

UNDERWALDEN. See *Unterwalden.*

UNICORN. According to Von Zach's examination of the accounts given, in ancient and modern times, of the unicorn, the opinion of its fabulous character, which has prevailed since the time of Buffon, does not rest on sufficient grounds. In the country of the ancient Meroë, a beast of this description is found, of the size of a cow, and the form of an antelope; and the male has upon his forehead a long and straight horn.

UNIFORMITY, ACT OF. See *Non-Conformists.*

UNIGENITUS DEI FILIUS, &c., are the first words of a bull issued by pope Clement XI. in 1713, which, under the name of *Constitution of Unigenitus*, has acquired a celebrity very dangerous to the papal authority and the peace of the Catholic church. This bull condemns 101 propositions drawn from the work of Pasquier Quesnel, priest of the Oratory, entitled *Le nouveau Testament traduit en Français, avec des Réflexions morales.* Those who adhere to the bull say that the doctrines contained in those 101 propositions had been already condemned in the writings of Baius and Jansenius. Against the reproach, that the pope had condemned the propositions in mass, without teaching any religious truth, so that the bull could not serve as a rule of faith, the "constitutionists," as the adherents of the "constitution" were called, say that the "anti-constitutionists" were equally regardless of the bull of Innocent X. which, nevertheless, censured every error of Jansenius in particular; and as regards the charge that the condemnation of Baius, Jansenius and Quesnel was occasioned mainly by an intrigue of the Jesuits against the Jansenists, they say, that it is unnecessary to investigate this point, or whether the Jesuits are really enemies to the adherents of St Augustine's doctrine, since the condemnation has been pronounced and confirmed by four or five successive popes, and that similar doctrines were condemned by the church before the influence of the Jesuits existed, as those of the predestinarians, in the fifth century, of Gothescalc, in the ninth, and those of Calvin, condemned by the council of Trent, in 1547, when the society of Jesuits was just beginning to exist, having been founded in 1540.—The reader who wishes to see the views of the anti-constitutionists further treated must be referred to works written on this subject, also to the article *Unigenitus*, in the *Dictionnaire de Théologie, Extrait de l'Encyclopédie Méthodique* (Toulouse, 1817).

We will now state the case as viewed by those who consider themselves disinterested judges. In order to strike a deadly blow at the Jansenists, the Jesuit party at the court of Louis XIV. especially the confessor of the king, Le Tellier, projected the bull *unigenitus*, and extorted it from the pope. The 101 propositions condemned—though those respecting grace will not be acknowledged by all Christians—were taken, almost literally, either from the Bible or other acknowledged authorities of the Catholic church. Quesnel, who, after his exile, lived in Amsterdam, was considered by the Jesuits as the principal champion of the Jansenists since the death of Arnauld and Nicole. The hatred of the Jesuits towards him and the archbishop of Paris, cardinal Noailles, who was almost universally revered, and who had publicly recommended Quesnel's work, and honourably maintained his independence against Le Tellier, affords an explanation of this arbitrary measure. The world was astounded to see the papal condemnation extended, not merely to those passages in which Quesnel, as a true Jansenist, ascribed to divine grace an unconditional and irresistible influence upon the human heart, but also to those which insisted upon purity of motives, on the necessity of true religious love of virtue, and reconciliation with God, on the general use of the Bible, on the correction of the morals of the clergy, and the necessity of a conscientious fulfilment of their duties; and was unable to understand why the chief of the Roman church had yielded so far to the Jesuits and the French court as to issue, under his name, a denunciation of some of the fundamental truths of Christianity; for the bull was considered as such, not only by many Jansenists, but also by many other Catholics in foreign countries. The French parliament, cardinal Noailles, with a large part of the French clergy, the majority of the theologians of Sorbonne, even the French ladies (from whom the bull, by condemning the passage of Quesnel "that woman ought to be allowed the means of a thorough knowledge of religion and the holy Scriptures," withholds the fundamental right of Christians), and public opinion, either openly declared against this bull—which was universally considered as the production of the Jesuits—or actively opposed it in private; whilst the Jesuits, through the king, used all the means of power and persuasion to make the bull a law of the realm. But, though a large number could be won over by royal decrees, by bribes, threats, and the arrest of some refractory persons of lower rank, yet nothing was to be effected by these means against the parliament and the archbishop. The former would not enrol the bull as a law of the kingdom, except on certain conditions, which invalidated it almost entirely; the latter at first refused to publish the bull; and when he did proclaim it at a later period, it was

with explanations which greatly mitigated its rigour. During this contest, Louis XIV. died, without having obtained a complete victory. The streets of Paris resounded with songs in ridicule of the "constitution;" the Parisians gave its name, *Unigenitus*, to the natural daughter of its bearer, the papal nuncio Bentivoglio; numerous pamphlets were written on the question; and all France became divided into "constitutionists" or "acceptants," and "anti-constitutionists, "recusants," or "opponents." During the regency, which was not favourable to the Jesuits, several bishops, in connexion with the members of the Sorbonne and the archbishop of Noailles, dared to appeal, against the bull, to a general council; and thus the opposition party, which was supported by the most distinguished universities and ecclesiastical corporations, received the name of *appellants*. This party became divided, when Noailles agreed, in 1720, to sign the bull conditionally, and thus excited against himself the zealous appellants. Louis XV. and his minister Fleury, who was desirous of the cardinal's hat, and therefore flattered the Jesuits, treated the appellants with great severity; the priests belonging to the party were discharged; the laymen were refused the sacraments; at length, the court, in 1728, induced the archbishop of Paris, then eighty years old, to sign the bull unconditionally; and, in 1730, the parliament was forced to register it without reservation, by which it became a law of the land. The persecuted appellants remained, nevertheless, active, and, in 1752, the parliament ventured on new and bold steps to remedy the cruel refusal of the sacrament. The contest broke out with renewed bitterness, and at length was assuaged by a moderate brief of Benedict XIV., which ordered severity against open appellants only. In addition to this, the order of the Jesuits was abolished; a consequence of which was naturally the gradual decrease of the importance of the unhappy bull *Unigenitus* in France. In other Catholic countries it had been adopted, indeed, but little observed, as the whole scope of it was directed against a party in France. In the Austrian monarchy, where some bishops had published it, it was formally suppressed in 1781, together with the bull *In Cœna Domini*. It now belongs only to history, as the popes themselves do not insist on it as a rule of faith.

UNION CANAL. See *Canals*.

UNISON; that consonance, or coincidence of sounds, proceeding from an equality in the number of vibrations made in a given time by two sonorous bodies; or the union of two sounds, so directly similar to each other in respect of gravity or acuteness, that the ear, perceiving no difference, receives them as one and the same. The ancients were much divided in opinion respecting the question whether the unison be a consonance. Aristotle speaks in the negative. Muris Mersennus, and others, declare in the affirmative. The decision of the question, however, depends on the definition we give to the word *consonance*. If by a consonance we only understand two or more sounds agreeable to the ear, the unison is a consonance; but if we include in the consonance sounds of a different pitch, that is, sounds less or more acute with respect to each other, the unison, by its own definition, is not a consonance.

UNITARIAN; a name used to designate a class of religionists, who hold to the personal unity of God, in opposition to the doctrine of the Christian Trinity. The Unitarian faith appears first to have been avowed (after the reformation) by Martin Cellarius, a native of Stuttgard, who was just finishing his studies at Wittenberg, where Luther was professor, when the latter began to set himself in opposition to the authority of the Roman Catholic church. Cellarius adopted Luther's views, and was at first distinguished by his friendship and that of Melanchthon. His subsequent avowal of Unitarian opinions subjected him to an imprisonment, whence being released, he retired, in 1536, to Basle, and died there in 1564. Among other theologians, who, about the same time, were led to a like result, were Lewis Hetzer, put to death by the magistrates of Constance, in 1529; John Denkius, rector of the school of Nuremberg, who was associated with Hetzer in translating the Prophets into German; John Campanus, of Wittenberg; Adam Pastor, a Westphalian; and Claudius, a Frenchman, who, about 1530, preached his doctrines in Switzerland and Alsace. A person of more note than any of these was Michael Servetus, born, in 1509, at Villanueva, in Arragon, whence he is sometimes called Michael Villanovanus. During his study of the common law, at Toulouse, the news of the spreading reformation engaged him in an examination of the sacred writings; and, in the sequel, he renounced the doctrine of the Trinity. Not venturing then to publish his belief in France, he removed, in 1530, to Basle. In the following year, he published, at Strasburg, his *De Trinitatis Erroribus, Libri septem*, and soon after, at Hagenau, his *Dialogorum de Trinitate, Libri duo*. From the storm which these works excited, he retired first to Basle, then to Lyons, and lastly to Paris, where, under his name of Villanovanus, he studied medicine, and became, for a short time, a public lecturer in that department of the university. His great work, *Christianismi Restitutio*, was published anonymously, in 1553, at Vienna. The same year he was arrested, at Geneva, on his way into Italy, and condemned to be burned for heresy—a sentence which was carried into effect the following day.

In Italy, a similar movement of opinion had, meanwhile, been taking place. In 1546, the inquisition obtained knowledge of a society of persons of rank and learning at Vicenza, who were accustomed to meet for the consideration of religious questions, and, among other doctrines of the church, had discarded that of the Trinity. Three of the number were apprehended, one of whom died in prison, and the other two were put to death at Venice. The rest, comprising several of the names afterwards the most distinguished in the cause, effected their escape. Among them appears to have been Lælius Sozzini, or the elder Socinus, a native of Sienna, in Tuscany. After the dispersion of his friends at Vicenza, he withdrew to Zurich, from which place he travelled through various countries of Europe, and, among others, at two different times, into Poland, where he is said to have converted to his opinions the confessor of the queen. He wrote largely upon the Trinity, which afterwards appeared from manuscripts left in the possession of his nephew, but published most of them, and died a natural death at Zurich, at the age of thirty-seven. The inconveniencies which Unitarians had hitherto encountered in avowing their faith, naturally leading them to look for some common retreat, their attention was directed to Poland, in consequence of the free institutions of that kingdom, and the lax sentiments of toleration which were attributed to its reigning monarch

Sigismund II. A large portion of the reformed clergy of Poland ranked themselves in their number, as early as 1565, in which year they were separated from the communion of the Calvinists and Lutherans. The period of their prosperity now began. They were included within the *pacta conventa*, or grant of freedom of worship. Their discordant opinions on minor points became harmonised, partly under the influence of Faustus Socinus, nephew of Lælius, who established himself among them in 1579, and, though at first received coldly, soon acquired the ascendency due to an earnest and disinterested character and singular powers of mind. From their settlement at Racow, where they had a college, which, at one time, numbered more than a thousand students, and from other places, they sent out numerous learned publications, spreading their views of the Christian system far and wide. In every part of the kingdom they had churches; and among their adherents were numbers of the principal nobility. The most accessible monument which remains of the abilities and erudition of their writers is in the collection called *Bibliotheca Fratrum Polonorum*, made in 8 vols., folio, by Andrew Wissowatius and others, and containing works of the two Socini, Schlicting, Wolzogen, Crellius, Przipcovius and Wissowatius; to which, in some copies, is found added a volume of writings of Brenius. Measures which followed, of combined hostility against them on the part of Catholics and other Protestants, were favoured by the unsettled state of Poland during the seventeenth century. The disorderly conduct of some students of the college at Racow, who had broken down a cross at one of the gates of the town, was seized on for the occasion of severe measures of coercion; and, though the offenders were punished, and every satisfaction for the outrage offered by their parents and the governors of the college, this did not prevent the passage of a decree, by the diet of Warsaw, for the church and college to be closed, the press to be stopped, and the professors sent into exile. This decree was followed, through the twenty succeeding years, by others, with provisions more severe, till, in 1658, the Unitarians were forbidden, under pain of death, publicly to solemnize their worship, or profess their sentiments, and required to attach themselves, within three years, to the Catholic, Lutheran, or Calvinistic communion, or quit the kingdom; and, in 1660, the time allowed in this alternative for disposing of their property, and making other arrangements for expatriation, was further abridged by a decree making immediate outlawry the penalty of delay. In the dispersion which followed, some went to England, some to different states of Germany, some to Holland, (where the *Bibliotheca*, above mentioned, was published, and where, before long, they became merged in the body of Remonstrants), and some to Transylvania.

They continued to be known as a distinct community, only in this latter country, where, under the auspices of George Blandrata, a Piedmontese physician, and a friend of Faustus Socinus, their doctrine had appeared not long after the period of its rise in Poland, and had been favoured, in like manner, by a system of toleration, pursued by two successive monarchs. But, whether from other causes, or owing to the toleration being limited to a particular form of the Unitarian doctrine (involving the obligation of invoking Christ), the number of professors never became large. The Unitarian still remains one of the four communions recognised by the Austrian government of Transylvania. According to the *Conversations-Lexicon*, it consists of 50,000 persons, divided among 164 churches, governed by a superintendent and two consistories. At Clausenburgh, their principal seat, and at Thoarda, they have schools. The most considerable publication which has proceeded from them, is the *Explicationes Locorum Vet. et Nov. Test. ex quibus Trinitatis Dogma stabiliri solet*, by George Enjedinus, their third superintendent. The most recent formal exposition of their views is believed to be found in the *Summa Universæ Theologiæ secundum Unitarios* (Clausenburg, 1784), attributed to professor Marcos.

In Holland, Erasmus John, rector of the college of Antwerp, published, in 1585, an anonymous work, favouring this system, entitled *Antithesis Doctrinæ Christi et Antichristi de Uno Vero Deo*. He was forthwith banished. Thirteen years after Ostorode and Voidove, for similar publications, were ordered, by the states-general, to leave the United Provinces within ten days, and their writings to be burned. Brandt, as quoted by Mosheim, says that, when the multitude had assembled to witness the execution of the latter part of the sentence, the books were no where to be found. The magistrates were curious to examine them, and had divided them among themselves and their friends. In 1627, Adolphus Venator, minister of Almaer, was banished for composing a work which savoured of Socinianism, *quod portenta Sarmatica saperet*. It being still found, however, that there were many Unitarians in Holland, *magnam in his terris Socinianorum messam esse* (L'Amy), the synod of the Seven Provinces sent a delegation to the states-general, urging the necessity of further measures; whereupon that body, after consulting the divines of Leyden, issued an edict, bearing date September 19, 1653, forbidding the profession of the Socinian heresy, and the holding of its assemblies, under pain of banishment for the first offence, and punishment at discretion for the second. But—whether it was owing to impressions made by the Apology of Schlicting, published in the next year, to the opposition of public sentiment, to the numbers of the Unitarians themselves, or to the apparent inconsistency of the edict with the principles of toleration already asserted by the states-general in several treaties, as well as in their articles of union—it does not appear to have been carried into rigid execution. To mention no other single names than those of Episcopius, Grotius, Le Clerc, and Wetstein, there has probably been always a large number of Unitarians among the Remonstrants of Holland. But the Remonstrants have not published their opinions freely, being, at all times, a depressed sect. Their ministers at one period were deprived, and at another banished; and, till the Dutch revolution in 1795, no Remonstrant could hold a public office, or be a professor in the universities, or a teacher in the public schools. A relaxation of attachment to hitherto current opinions may be inferred from the fact, that, in 1817, on the recovery of Dutch independence, an assembly of professors and divines was convened, which permitted candidates for the ministry to profess and teach the articles of the synod of Dort, *as far as they are in accordance with the Bible*. More recent publications of that country show that Unitarian opinions have there disseminated themselves to no inconsiderable extent.

Unitarianism in England dates almost as far back as the earliest translation of the Bible. Strype, in his Memoirs of Archbishop Cranmer, says, "There were other heresies now (1548) vented abroad, as the denial of the Trinity and the Deity of the Holy Ghost;" and, two years after, the same writer reports, "Arianism now showed itself so openly, and was in such danger of spreading further, that it was thought necessary to suppress it by using more rugged methods than seemed agreeable to the merciful principles of the profession of the gospel." In 1551, a German, named George van Paris, was burned at London, for this heresy, and, four years after, another person, at Uxbridge. Joan Bocher, sometimes called the *maid of Kent*, was a more distinguished victim. She was a lady of family and education, and of heroic courage. Alluding to an opinion entertained by her concerning the corporeal substance of the Saviour, "it is a goodly matter," said she to her judges, "to consider your ignorance. Not long ago, you burned Ann Askew for a piece of bread, and yet came yourselves to believe and profess the same doctrine for which you burned her. And now, forsooth, you will needs burn me for a piece of flesh; and, in the end, you will come to believe this also, when ye have read the Scriptures, and understand them." (Southey's *Book of the Church.*) Edward VI. could hardly be prevailed upon to consent to her execution, and signed the warrant, saying to Cranmer that he must be responsible for the sin. Under James I. a large number of persons, some of them of rank and consideration, were executed for the same offence. In Cromwell's time, they seem generally to have had milder treatment. Biddle, their leader, was at last, however, thrown by the dictator into prison, where he died in 1662. The posthumous works of Milton, first published in 1825, shows him to have adopted their sentiments. An act of the long parliament, in 1648, making the profession of Unitarianism a felony, was so far mitigated, after the revolution, by statutes of the eighth and ninth of William III. as to make the offence punishable, in the first instance, by certain civil disabilities, and, in the second, by three years' imprisonment, and virtual outlawry. These statutes were not repealed till 1813. In the latter part of the seventeenth, and the beginning of the eighteenth century, however, besides other names of the first distinction, their claim to which is disputed, we find, among avowed English Unitarians, those of Firmin, Emlyn, Whiston, Samuel Clarke, and Lardner; and, to go higher, of Locke and Newton. Towards the close of the last century, several clergymen of the established church (Lindsey, Jebb, Wakefield, Disney, and others) resigned their benefices, in consequence of having adopted Unitarian views, while, at the same time, among numerous converts from the dissenting sects, appeared the names of doctors Priestley, Price, Aikin, Rees, and others of scientific and literary note. The English body of the *three denominations*, as it is called, is composed of the Presbyterians, Independents and Baptists. Of that portion of the latter class called General Baptists, a majority are acknowledged Unitarians. Such was, towards the close of his life, Robert Robinson, the author of the Village Sermons, and doctor Toulmin, the learned editor of Neale's History of the Puritans; and the Presbyterian churches, throughout England, are understood to be, in many cases, occupied by congregations of this sort. Their number was reckoned, twelve years ago, at more than two hundred. (*Unit. in Ang. Fid. Hist. Stat. Prove Brev. Expos.*) In the Presbyterian churches in the north of Ireland, a vehement controversy has been lately carried on, the event of which is understood to have been to detach about forty churches from the body of that communion, and unite them as professed Unitarians, into a society of their own, consisting of several presbyteries. There are also congregations of this character in Dublin, and other southern cities of the kingdom. In Scotland there are Unitarian chapels in Edinburgh, Glasgow and other places. The principal supply of ministers is from Manchester college, at York; others are from the Scotch universities, and from that at Dublin.

As early as 1690, some English ministers complained to a synod, convened at Amsterdam, of the growing heterodoxy of the Genevan church. The first public measure of importance in the connexion was a decree of the Company of Pastors, in 1725, dispensing candidates for ordination from subscription to the Helvetic confession, and substituting for this a profession of holding "the true doctrine of the holy prophets and apostles, as comprised in the books of the Old and New Testaments, and summarily set forth in the catechism." Vernet, a theological professor in the academy, published, long after, his disbelief in the consubstantiality of the Son. In 1757, the article *Geneve*, in the French Encyclopædia, announced, that "many of the ministers disbelieved the divinity of Jesus Christ, of which Calvin, their leader, was the vigorous defender." In 1788, the catechism of Calvin was superseded by another, of a character to vindicate the justness of this statement. In 1809, a liturgy, expurgated upon Unitarian principles, was substituted for that anciently in use; and, two years earlier, a professedly amended version of the Scriptures, which had been in preparation upwards of a century, was published under the authority of the Venerable Company of Pastors. At the present time, the twenty-seven pastors of the established church of the canton are understood, with two or three exceptions, to hold to Unitarian opinions. A controversy on the subject broke out in 1816, which, though much discouraged by the magistrates, continues to the present time. M. Chenevière, rector of the academy, the most distinguished writer of the dominant party, published in 1831, an *Essai du Système Théologique de la Trinité*, and an *Essai du Péché originel*, in which are argued, at length, Unitarian views upon these points.

In America, Unitarian opinions appear (president Adams's letter to doctor Morse) to have been extensively adopted in Massachusetts as early as the middle of the last century. In 1756, Dr. Chauncy's Humble Inquiry into the Scripture Account of Jesus Christ, was published in Boston, and there is said, by the agency of doctor Mayhew, of the West church, and came into wide circulation. One of the three Episcopal churches of that city adopted, in 1785, a liturgy excluding the recognition of the Trinitarian doctrine. In 1805, attention was extensively drawn to the subject by several publications, occasioned by the appointment of a distinguished Unitarian to the divinity chair of the university of Cambridge. In 1816, the controversy was revived by a republication, in that country, of a chapter from Mr Belsham's Life of Lindsey, under the title American Unitarianism. Up to that time the doctrine had been hardly discussed out of

England, though a small society, dating from the visit of doctor Priestley, in 1794, existed in Philadelphia. In 1819, a congregation was gathered in Baltimore; and others now exist in New York, Philadelphia, Washington, Charleston, Pittsburg, Cincinnati, and other principal cities of the Union. The number of churches organized according to the Congregational form is reckoned at from 170 to 200. Their ministers are chiefly furnished from the divinity college of the university of Cambridge, in Massachusetts. The annual reports of the American Unitarian Association, the government of which is established in Boston, circulate information respecting the progress of the doctrine. Besides the Congregational Unitarians, the denomination called *Christians*, which is numerous, particularly in the Western States, reckoning, in 1827, from 700 to 1000 churches (letter of General Christian Conference, in Christian Examiner, vol. iv), maintains Unitarian opinions; and they are understood also to prevail in the large sect of the Reformed Baptists, in the same region of the country.

In France, many of the Protestant clergy reject the Trinitarian scheme of Christian doctrine. The tone of their principal publication, the *Revue Protestante*, is hostile to it; and the principal sources of supply for the ministry of the French churches, are the schools of Geneva and Montauban, where the Unitarian system has ascendency. A society was formed lately, at Paris, called the Unitarian Association of France.

In British Asia, a native society of Unitarian Christians has existed, for several years, at Madras, under the care of William Roberts, a native; but a much more remarkable developement of opinion of this kind occurred in the case of the distinguished Bramin, Rammohun Roy, of Calcutta, who, in his publications in English, called the Precepts of Jesus, and First, Second and Final Appeal to the Christian Public, has directed the thoughts of numbers of his countrymen to the subjects therein proposed.

Unitarians profess to derive their views from Scripture, and to make it the ultimate arbiter in all religious questions, thus distinguishing themselves from the Rationalists (otherwise called the *Anti-supernaturalists*) of Germany. They undertake to show that, interpreted according to the settled laws of language, the uniform testimony of the sacred writings is, that the Holy Spirit has no personal existence distinct from the Father, and that the Son is a derived and dependent being, whether, as some believe, created in some remote period of time, or, as others, beginning to live when he appeared on earth. Three of the passages of the New Testament, which have been relied on to prove the contrary (1 John v., 7; 1 Tim. iii., 16; and Acts xx., 28), they hold, with other critics, to be spurious. Others (as John i., 1, &c.; Romans ix., 5) they maintain to have received an erroneous interpretation. They insist that ecclesiastical history enables them to trace to obsolete systems of heathen philosophy the introduction of the received doctrine into the church, in which, once received, it has been sustained on grounds independent of its merits; and they go so far as to aver that it is satisfactorily refuted by the biblical passages, when rightly understood, which are customarily adduced in its support. According as their distinguishing doctrine has been professed in different times and places, it has been found in connexion with various others, which have been prominent subjects of controversy in the church, as those which respect the manner of baptism, philosophical liberty and necessity, the methods of Christ's mediation, &c. The Unitarians (sometimes called *Socinians*) of Poland held to the obligation of invoking Christ—a view which no Unitarians of the present day, out of Transylvania, are believed to entertain. In America, Unitarian opinions are much divided upon the point of Christ's pre-existence; while, on the other hand, the rejection of the tenet of his vicarious suffering (or suffering as men's substitute), along with that of his supreme Deity, appears to be universally characteristic of the sect. See Bock, *Historia Antitrinitariorum*; Lubieniecius, *Historia Reformationis Polonicæ*; Lampe, *Historia Ecclesiæ Hungaricæ*; Benkö, *Transylvania*; Maimbourg, *History of Arianism*; L'Amy, *History of Socinianism*; Rees, *Racovian Catechism*.

Unitarians is also sometimes used, in politics, to designate a party in favour of a central government, in contradistinction to one in favour of a federal government. Thus we hear of the *Unitarians* in Buenos Ayres.

UNITAS FRATRUM. See *United Brethren*.

UNITED BRETHREN (Protestant), or UNITAS FRATRUM; the official denomination of the religious society commonly known by the name of *Moravians*. This society was originally formed by descendants of the Bohemian and Moravian Brethren (see *Bohemian Brethren*), who, being persecuted for their religious tenets, and non-conformity in their native country, founded a colony, under the patronage of count Zinzendorf, on an estate of his, called *Berthelsdorf*, in Upper Lusatia, in the year 1722, to which colony the name of *Herrnhut* was given, on account of its situation on the southern declivity of a hill called the *Hutberg*. It was not until the number of emigrants from Bohemia and Moravia, who there found an asylum, had considerably increased, and many religiously disposed persons from other quarters, attracted by their pious zeal and their sufferings, had settled along with them, that the diversity of sentiments, perceptible among so many zealous Christians of various modes of thinking, suggested to them the propriety of some general agreement concerning faith and rules of conduct. Accordingly, under the guidance of count Zinzendorf, who, from an early age, had entertained an idea of constituting a Christian community, on the model of the primitive apostolic congregations, certain articles of union were proposed among them, which, leaving all the distinctive doctrines of the various Protestant denominations of Christians entirely out of the question, adopted, as articles of faith, only those fundamental Scripture truths in which they all agree, and, at the same time, introduced a system of social compact and church discipline resembling that of the ancient church of the Moravian Brethren, and intended to form a society in some degree such as the primitive churches are represented to have been. All the inhabitants of Herrnhut, after mature consideration, adopted this social scheme and these statutes, by the name of a brotherly agreement, and pledged themselves mutually to its observance, in the year 1727, and thus formed the first stock of the present society of United Brethren. Count Zinzendorf was justly, in some measure, considered the founder of the society, to which he thenceforward devoted his whole life, property and energy. It will be readily conceived, however, more especially after observing that further emigrations from

Bohemia and Moravia were checked by the Saxon government at an early period, that the descendants of the first emigrants, at this day, constitute but a small proportion of the present society. Individuals from all Protestant denominations, coinciding, in the fundamental doctrines of Christianity common to all, and professing a desire to lead a truly Christian life, as members of such a community, under its peculiar regulations, were, from the beginning, admitted among them without renouncing their original church and creed. On the contrary, to facilitate the maintenance of their connexion with their original churches, the society expressly includes three different tropes or modifications within its pale, the Lutheran, the Reformed and the Moravian, which latter comprises all other Protestant denominations. Experience has taught, that these differences, among persons so intimately associated, vanish of themselves to such a degree, that the original idea of these tropes is now maintained only as an evidence of the principle of their union, while its practical consequences have become altogether imperceptible. The United Brethren, however, continue strenuously to object to being considered a separate sect or denomination, because their union is exclusively founded on general Christian doctrines, and their peculiarities relate solely to their social organization, which is intended only to facilitate their joint purpose of putting truly Christian principles of life and conduct into actual practice. They consequently admit of no peculiar articles of faith, confining themselves altogether to regulations of conduct and discipline. As a body, they have at all times, when required by governments to point out their creed, professed general adherence to the Confession of Augsburg, as most congenial to the views of a majority; and, although they do not pledge their ministers to an express adoption of its articles, it is agreed among them not to insist upon any doctrines utterly repugnant thereto. They avoid discussions respecting the speculative truths of religion, and insist upon individual experience of the practical efficacy of the gospel, producing a real change of sentiment and conduct, as the only essentials in religion. They consider the manifestation of God in Christ as intended to be the most beneficial revelation of the Deity to the human race; and, in consequence, they make the life, merits, acts, words, sufferings and death of the Saviour, the principal theme of their doctrine, while they carefully avoid entering into any theoretical disquisitions on the mysterious essence of the Godhead, simply adhering to the words of Scripture. Admitting the sacred Scriptures as the only source of divine revelation, they nevertheless believe, that the Spirit of God continues to lead those who believe in Christ into all further truth, not by revealing new doctrines, but by teaching those who sincerely desire to learn, daily better to understand and apply the truths which the Scriptures contain. They believe, that, to live agreeably to the gospel, it is essential to aim, in all things, to fulfil the will of God. Even in their temporal concerns, they endeavour to ascertain the will of God: they do not, indeed, expect some miraculous manifestation of his will, but only endeavour to test the purity of their purposes by the light of the divine word. Nothing of consequence is done by them, as a society, until such an examination has taken place; and, in cases of difficulty, the question is decided by lot, to avoid the undue preponderance of influential men, and in the humble hope that God will guide them right by its decision, where their unlimited understanding fails them. In former times, the marriages of the members of the society were, in some respects, regarded as a concern of the society, as it was part of their social agreement, that none should take place without the approval of the elders; and the elders' consent or refusal was usually determined by lot. But this custom was at length abandoned, and nothing is now requisite to obtain the consent of the elders, but propriety of conduct in the parties. They consider none of their peculiar regulations essential, but all liable to be altered or abandoned, whenever it is found necessary, in order better to attain their great object—the promotion of piety. Such alterations are effected through the medium of their synods. The society early undertook to propagate the gospel among heathen nations. The success of their attempts in this respect is generally known, and a great proportion of their energy is at this day devoted to this object. In the prosecution thereof, circumstances occurred, which, combined with the increase of its numbers, and certain difficulties in their way at Herrnhut, induced the society to plant colonies, on the plan of the mother society there, in different parts of Germany, England, Holland, America, &c., all of which together, now constitute the *Unity of the Brethren*. Each individual colony, called a *place congregation*, is independent in its individual concerns, under the superintendence, however, of the board of general directors of the Unity; which superintendence, in England and America, is administered by subordinate local boards, in respect to all things not of a general nature; but they are responsible to the general board of the directors, at present residing at Berthelsdorf, near Herrnhut, and denominated the *board of elders of the Unity*. The appointments of all the ministers and officers of each community rest exclusively with this board. In England and America, however, these are committed to the local boards. To them is further committed the direction of all general objects of the whole society, such as their heathen missions, the support of superannuated ministers and their widows, and the education of the children of such of these as are without means of their own. For, as the principles and circumstances of the society prevent them from allotting a greater salary to any office than their decent maintenance requires, those among them who are not possessed of fortune cannot lay by any thing for their old age, or for the education of their children: the charge of this, therefore, devolves upon the whole society.

The economical affairs of each individual community are administered by one of the elders of that particular community, with the concurrence of a committee elected biennially from among the inhabitants, generally by the votes of all male members, or by an intermediate body thus elected. The objects for which each community has thus to provide, are, the erection and maintenance of a church, the support of the active ministers and other officers, of proper schools, and all other things necessary for the well-being of the community and the preservation of good order, while the individuals composing it are as entirely independent in their private property as any other persons whatever; each carrying on his particular business, for his own profit and upon his own responsibility. A contrary impression, viz. that there exists a community of goods among them, is still very prevalent, especially

America. This is attributable to the fact, that, when their colonies in America were commenced, it was for some years found necessary to combine the efforts of all the members, in order to maintain themselves amid their difficulties; and, although each individual retained the absolute disposal of any property, before his own, their joint earnings, for the time, went into a common stock, from which their daily necessities were supplied. This unnatural state of things, however, continued no longer than it was imperiously necessary. Many other erroneous conceptions have become prevalent, concerning the economical concerns of this society. The original members of it had nothing to depend on but their industry. Count Zinzendorf and some of his nearest connexions sacrificed the whole of their estates in the various undertakings, missions and colonies. As the society grew, numbers of wealthy members afforded liberal aid; but the society never had any actual funds, upon which they could depend. Individual members borrowed the necessary sums, upon their own credit. These funds were invested, partly in commercial undertakings, partly in landed estates, and various manufactures, and the profits applied to pay the expenses of the society. Upon the death of count Zinzendorf, it was found that a debt had accrued, greatly exceeding the value of all the available investments. A separation of interests now took place. Each individual community assumed a proportionable share of the assets and debt, and thenceforward undertook the management of its individual concerns, and to provide for its own necessities by means of an institution, operating very much in the manner of a savings' bank, termed the *diacony* of each community. Moneys were taken up, under the special superintendence of the elders and of the committee above mentioned, and invested: the proceeds went to defray the disbursements of that particular community: the understanding was, that if the avails were such as to leave any thing to be disposed of after defraying their own expenses, such surplus was to go to aid other communities, whose means might not be so ample, or to assist the general concerns. Thus, in most communities of the United Brethren, certain trades or manufactures are carried on for their benefit, as such. By these means, together with the voluntary annual subscriptions of the members towards the maintenance of the ministers, and the support of the church and schools, the necessary funds are raised for defraying the charges on the particular communities, and for certain proportionate contributions, which each is expected to furnish to that fund of the Unity which is established for the support of superannuated ministers, and other officers, and their widows, as well as for the education of their children. The funds required, in each community, for the purposes of police and convenience, are raised by regular taxes on the householders, assessed by the committee before mentioned. The rest of the assets on hand, at the death of count Zinzendorf, were put under the control of a special board, forming one department of the board of elders of the Unity, and the proceeds applied to discharge the debt before mentioned. The disbursements required by the missions among the heathens are supplied by voluntary contributions. The greater part of the annual amount at the present time is furnished by persons not connected with the society. Some few of the West India missions are in part supported by the industry of the missionaries, and those in Labrador by a commercial establishment trading thither under the guidance of a society established at London. In the United States there is a society for propagating the gospel among the heathen, incorporated by several states, and consisting of members of the United Brethren's church. This society has recently acquired large funds by the bequest of one of its members. All these resources flow into the common missionary fund, which is administered, and the missionary concern in general managed, by another department of the board of elders of the Unity, called the *missionary department*. (See the article *Missions*.) A third department of this board is termed the *department of education*. This has charge, not only of the subject of the education of children throughout the society generally, but, in an especial manner, of those who are educated at the public expence. In many of the communities of United Brethren in Germany, England and America, boarding schools, for the education of young persons of both sexes, are established, in which not only their own youth, but a great number of others, are instructed in useful sciences and polite acquirements. For many years, these schools have sustained, and still maintain, a considerable reputation both in Europe and America. At Niesky, in Upper Lusatia, the Unity maintains a higher classical institution, where those receive a preparatory education who intend to embrace the liberal professions, or be prepared for the ministry. The latter complete their studies in a college situated at Gnadenfeld, in Silesia, which serves the purposes of a university. Similar institutions, upon a smaller scale, are established at Fulnec for the English, and at Nazareth for the American portion of the Unity. These are, properly speaking, theological seminaries only. Young men desirous of devoting themselves to the medical or other learned professions, resort, of course, to the public universities of their respective countries. In the three departments of the board of elders of the Unity before alluded to, taken collectively, the direction of the whole Unity is concentrated. This board, however, is responsible to the synods of the society, which meet at stated times, generally at intervals of from seven to twelve years, and from whom all its authority emanates. They are composed of the bishops and civil seniors of the church, certain other general officers of the society, such as the members of the board of elders of the Unity for the time being, and of the representatives chosen by each individual community. At these meetings, a revision of all the concerns of the society and its parts take place, and such alterations are adopted as circumstances seem to require. They are terminated by the appointment of a new board of elders of the Unity.

The following is a sketch of the mode of life of the United Brethren, where they form separate communities, which, however, is not always the case; for, in many instances, societies belonging to the Unity are situated in larger and smaller cities and towns, intermingled with the rest of the inhabitants, in which cases their peculiar regulations are, of course, out of the question. In their separate communities, they do not allow the permanent residence of any persons as householders who are not members in full communion, and who have not signed the written instrument of brotherly agreement, upon which their constitution and discipline rests; but they freely admit of the temporary residence among them of such other persons as are willing to conform to their external re-

gulations. According to these, all kinds of amusements considered dangerous to strict morality are forbidden, as balls, dancing, plays, gambling of any kind, and all promiscuous assemblies of the youth of both sexes. These, however, are not debarred from forming, under proper advice and parental superintendence, that acquaintance which their future matrimonial connexions may require. In the communities on the European continent, whither, to this day, numbers of young persons of both sexes resort in order to become members of the society from motives of piety and a desire to prepare themselves to become missionaries among the heathen, and where, moreover, the difficulties of supporting a family greatly limit the number of marriages, a stricter attention to this point becomes necessary. On this account, the unmarried men and boys, not belonging to the families of the community, reside together, under the care of an elder of their own class, in a building called the *single brethren's house*, where usually divers trades and manufactures are carried on, for the benefit of the house or of the community, and which, at the same time, furnishes a cheap and convenient place for the board and lodging of those who are employed as journeymen, apprentices, or otherwise, in the families constituting the community. Particular daily opportunities of edification are there afforded them; and such a house is the place of resort where the young men and boys of the families spend their leisure time, it being a general rule, that every member of the society shall devote himself to some useful occupation. A similar house under the guidance of a female superintendent, and under similar regulations, is called the *single sisters' house*, and is the common dwelling place of all unmarried females, not members of any family, or not employed as servants in the families of the community. Even these regard the sisters' house as their principal place of association at leisure hours. Industrious habits are here inculcated in the same way. In the communities of the United Brethren in America, the facilities of supporting families, and the consequent early marriages, have superseded the necessity of single brethren's houses; but they all have sisters' houses of the above description, which afford a comfortable asylum to aged unmarried females, while they furnish an opportunity of attending to the further education and improvement of the female youth after they have left school. In the larger communities, similar houses afford the same advantages to such widows as desire to live retired, and are called *widows' houses*. The individuals residing in these establishments pay a small rent, by which, and by the sums paid for their board, the expenses of these houses are defrayed, assisted occasionally by the profits on the sale of ornamental needlework, &c., on which some of the inmates subsist. The aged and needy are supported by the same means. Each division of sex and station just alluded to—viz. widows, single men and youths, single women and girls past the age of childhood—is placed under the special guidance of elders of their own description, whose province it is to assist them with good advice and admonition, and to attend, as much as may be, to the spiritual and temporal welfare of each individual. The children of each sex are under the immediate care of the superintendent of the single choirs, as these divisions are termed. Their instruction in religion, and in all the necessary branches of human knowledge, in good schools, carried on separately for each sex, is under the special superintendence of the stated minister of each community, and of the board of elders. Similar spec. elders are charged to attend to the spiritual wel. of the married people. All these elders of b sexes, together with the stated minister, to whom the preaching of the gospel is chiefly committed (although all other elders who may be pre. participate therein), and with the persons to wh. the economical concerns of the community are trusted, form together the board of elders, in w. rests the government of the community, wi. concurrence of the committee elected by the ma bitants for all temporal concerns. This comm. superintends the observance of all regulations, a charge of the police, and decides differences betw. individuals. Matters of a general nature are s. mitted to a meeting of the whole community, c. sisting either of all male members of age, o. an intermediate body elected by them. Pr. meetings are held every evening in the week. S. of these are devoted to the reading of portions Scripture, others to the communication of news from the missionary stations, and others to singing of hymns or selected verses. On Sun. mornings, the church litany is publicly read, sermons are delivered to the congregation, w. in many places, is the case likewise in the a. noon. In the evening, discourses are delivere. which the texts of that day are explained and ap. home to the particular circumstances of the co. munity. Besides these regular means of edifica. the festival days of the Christian church, su. Easter, Pentecost, Christmas, &c., are commo. rated in a special manner, as well as some ot. peculiar interest in the history of the soci. solemn church music constitutes a prominent. ture in their means of edification, music in pri. being a favourite employment of the leisure ho. On particular occasions, and before the comm. tion meets to partake of the Lord's supper, assemble expressly to listen to instrumental music interspersed with hymns, in which the co. congregation joins, while they partake toget. a cup of coffee, tea, or chocolate, and light ca. in token of fellowship and brotherly union. T. solemnity is called a *love-feast*, and is in imi. of the custom of the agapæ in the primitive C. tian churches. The Lord's supper is celebrat. stated intervals, generally by all communicants a. bers together, under very solemn but simple. Easter morning is devoted to a solemnity of a pe. liar kind. At sunrise, the congregation assem. in the grave-yard; a service, accompanied by m. is celebrated, expressive of the hopeful joys of mortality and resurrection, and a solemn com. moration is made of all who have, in the cour. the last year departed this life from among. and "gone home to the Lord"—an expressi. often use to designate death. Considering te. mination of the present life no evil, but the en. upon an eternal state of bliss to the sincere. ples of Christ, they desire to divest this event. its terrors. The decease of every individual. nounced to the community by solemn music. band of instruments. Outward appearan. mourning are discountenanced. The whole. gregation follows the bier to the grave-yard. is commonly laid out as a garden), accompani. a band, playing the tunes of well known. which express the hopes of eternal life and. rection; and the corpse is deposited in the. grave during the funeral service. The pres.

of the purity of the community is entrusted to the board of elders and its different members, who are to give instruction and admonition to those under their care, and make a discreet use of the established church discipline. In cases of immoral conduct, or flagrant disregard of the regulations of the society, this discipline is resorted to. If expostulations are not successful, offenders are for a time restrained from participating in the holy communion, or called before the committee. For pertinacious bad conduct, or flagrant excesses, the culpable individual is dismissed from the society. The ecclesiastical church officers, generally speaking, are the bishops, through whom the regular succession of ordination, transmitted to the United Brethren through the ancient church of the Bohemian and Moravian Brethren, is preserved, and who alone are authorized to ordain ministers, but possess no authority in the government of the church, except such as they derive from some other office, being most frequently the presidents of some board of elders; the civil seniors, to whom, in subordination to the board of elders of the Unity, belongs the management of the external relations of the society; the presbyters, or ordained stated ministers of the communities, and the deacons. The degree of deacon is the first bestowed upon young ministers and missionaries, by which they are authorized to administer the sacraments. Females, although elders among their own sex, are never ordained; nor have they a vote in the deliberations of the board of elders, which they attend for the sake of information only.—It now remains to give some account of the numbers and extension of this society, which are often strangely exaggerated On the continent of Europe, together with Great Britain, the number of persons living in their different communities, or formed into societies closely connected with the Unity, does not exceed thirteen or fourteen thousand, including children. Their number in the United States of America falls something short of four thousand souls. Besides these, there are about three times this number of persons dispersed through Germany, Livonia, &c., who are occasionally visited by brethren, and strengthened in their religious convictions, while they have no external connexion with the Unity. These cannot be considered members of the society, though they maintain a spiritual connexion with it. The number of converts from heathen nations, as regularly reported at the last synod, in the year 1825, though larger than at any previous time, did not exceed 34,000 souls, comprehending all those who are in any way under the care of the missionaries. Indeed, it never was the object of the society to attempt the Christianization of whole nations or tribes, as such must be a mere nominal conversion. They profess to admit those only to the rite of baptism who give evidence of their faith by the change wrought in their life and conduct. On this account, they have every where introduced among their heathen converts a discipline similar to their own, as far as circumstances permit. It would be preposterous to conceive that the peculiar views, and the regulations of a society such as that of the United Brethren, could ever be adopted by any large body of men. They are exclusively calculated for small communities. Any one desirous of separating from the society meets with no hinderance. The following is a succinct view of the principal establishments of the society:—In England, their chief settlements are Fulnec in Yorkshire, Fairfield in Lancashire, Ockbrook in Derbyshire: congregations exist likewise in London, Bedford, Bristol, Bath, Plymouth, Haverfordwest, together with a number of country congregations in divers villages. In Ireland, they have a considerable community at Gracehill, in the county of Antrim, and small congregations at Dublin, Gracefield and Ballinderry. On the continent of Europe, Herrnhut, Niesky and Kleinwelke in Upper Lusatia, Gnadenfrew, Gnadenberg, Gnadenfeld and Neusaltz in Silesia, Ebensdorf, near Lobenstein, Neudietendorf in the duchy of Gosna, Königsfeld in that of Baden, Neuwied on the Rhine, Christiansfeld in Holstein, Zeyst, near Utrecht, in Holland, and Sarepta, on the confines of Asiatic Russia, are the names of their separate communities; besides which there are organized societies at Berlin, Rixdorf, Potsdam, Königsberg, Norden in Friesland, Copenhagen, Altona, Stockholm, Gottenburg, St Petersburg and Moscow. In the United States, they have separate communities at Bethlehem, Nazareth and Litiz in Pennsylvania, and at Salem in North Carolina. Bethlehem is, next to the mother community at Herrnhut, in Germany, their largest establishment. Besides these, there are congregations at Newport in Rhode Island, at New York, at Philadelphia, Lancaster and Yorktown, at Graceham in Maryland; and several country congregations are scattered through Pennsylvania, the members of which chiefly dwell on their plantations, but have a common place of worship. There are four of this description in North Carolina, in the vicinity of Salem. Their principal missions among the heathen, at this time, are the following:—among the negro slaves in the three Danish West India islands; in Jamaica, St Kitts, Antigua, Barbadoes, Tobago, and in Surinam, among the inhabitants of colour; in Greenland, among the natives of that desolate region; in Labrador, among the Esquimaux; at the cape of Good Hope, among the Hottentots and Caffres; and in North America, among the Delaware Indians in Canada, and the Cherokees in Georgia. It is a general principle of the society, that their social organization is in no case to interfere with their duties as citizens or subjects of governments under which they live, and wherever they are settled. They have always supported a good reputation, and been generally considered valuable members of the community, on account of the moral and industrious habits successfully inculcated by their system.

UNITED COLONIES OF NEW ENGLAND

See *New England.*

UNITED GREEKS are Christians who originally belonged to the Greek church, but whom the Roman church has united with her own members on certain conditions. They differ from the Greek church in believing that the Holy Ghost proceeds both from the Father and the Son, by believing also in the supremacy of the pope, in purgatory, and the efficacy of masses for souls, according to the doctrines of the Roman church. They have their own church government, and retain the old names of ecclesiastical dignities. Their priests wear beards and caps, and are allowed to marry. They retain the ancient rites, the Greek language during service, the strict Greek fasts, and the Lord's supper under both forms, in common with the old Greek church, because the Jesuit missionaries, who gradually effected their conversion in the seventeenth and eighteenth centuries could not induce them to make changes in these particulars. Such

United Greeks are found in Italy, especially in Venice and Rome, in Naples and Sicily, in the eastern parts of the Austrian monarchy, also in Transylvania, Hungary, Croatia, Sclavonia, Dalmatia, &c., where many Greeks live, and in Eastern Poland. The number of the United Greeks is estimated at 2,000,000. The non-united Greeks in the above-mentioned countries, except in Italy, where there are none, acknowledge the patriarch of Constantinople as their spiritual head, and consider the United Greeks as apostates. See *Greek Church*.

UNITED PROVINCES. See *Netherlands*.

UNITED PROVINCES OF SOUTH AMERICA. See *Plata, United Provinces of the*.

UNITED STATES OF NORTH AMERICA.

I. *History*. The history of the United States naturally divides itself into two periods, the first embracing the annals of the British North American colonies, which separated from the mother country in 1776; and the second, the history of the independent republic established by the victorious colonists.

1. *The Settlement and progressive Growth of the Colonies* (1607 to 1776) *during a Period of one hundred and seventy Years*. Of the thirteen colonies, whose delegates signed the Declaration of Independence, twelve were settled in the seventeenth century,* and the colonists, with a few trifling exceptions, were Englishmen. In 1630, the number of English colonists in North America did not exceed 4000; in 1660, it was not less than 80,000, and had therefore increased twenty-fold in the short space of thirty years: in 1701, the population of the colonies is estimated to have been about 262,000. The period of colonization was one of great intellectual and political excitement in the mother country; in which a nation that had for a long time enjoyed free and popular institutions, was engaged in defending them against the encroachments of the crown, and in extending and securing them by new bulwarks. The principles of liberty, the rights of man, particularly of Englishmen, the nature, use and objects of government, were topics of general interest and discussion in England, and republican maxims were warmly embraced by many. It is an observation of Fox, "that from 1588 to 1640 was a period of almost uninterrupted tranquillity and peace: the general improvement in all the arts of civil life, and, above all, the astonishing progress of literature, are the most striking among the general features of that period, and are in themselves causes sufficient to produce effects of the utmost importance. A country whose language was enriched by the works of Hooker, Raleigh and Bacon, could not but experience a sensible change in its manners and in its style of thinking; and even to speak the same language in which Spenser and Shakspeare had written, seemed a sufficient plea to rescue the commons of England from the appellation of brute with which Henry VIII. had addressed them. The same commons were, in fact, peevishly designated by James I. as *kings*;† and such was the progress of the people of England in wealth, as well as in cultivation, that, according to Hume, the house of commons, in 1628, was three times as rich as the house of Lords. Another remarkable element in the society from which swarmed the American colonists, was the state of religion. An imperfect reformation, favoured by the government, and amounting to little more than a secession from the Catholic church, was accompanied by a popular reformation, ready to follow out its principles to their results. The state religion derived its force and its rights from the crown; the church, therefore became the champion of passive obedience and divine right, and the *Puritans*, as they were reproachfully called, or Non-conformists, were compelled to attack the temporal power, and to defend civil liberty, while assailing the intolerance of the church in defending freedom of conscience. This mixture of religious faith in the contest for political rights gave the English Puritans the zeal, firmness and boldness of religious reformers. (See *Puritans*.) It is further to be considered, that, while the English colonists brought with them to America the broadest and most generous principles of liberty and those free institutions which convert great maxims into practical truths, and make them a part of the daily life of men, they left behind them the restraints which in some degree checked the reaction in England. They brought the jury and the right of representation, but left behind them the chains which the church and court were endeavoring to fasten upon their countrymen: feudal services, privileged orders, corporations and grants with other similar burdens upon industry, and insults upon honest merit, found no place in the western forests; but civilization, arts and letters without the corruption and gross licentiousness which characterized the reigns of James I. and Charles II., were brought thither in the train of liberty. The next important element in the civil history, is the political institutions established in the colonies. In 1606, two companies of merchants and others were incorporated, under the name of the *London company* and the *Plymouth company*, with the exclusive right of settling and trading within their respective limits. The former began the colonization of British America, in 1607, by sending to Virginia a feeble colony of 100 men, which, before the end of the year, was reduced by suffering and the badness and scarcity of food to thirty-eight. In October, 1609, the number had been increased by new colonists to 500: a famine reduced them in six months to sixty persons. In 1613, land was distributed to each individual, for the land and the produce having before been held in common. In 1619, the first colonial assembly was convoked, consisting of representatives chosen by the boroughs, the concerns of the colony having been previously managed by the company in England. As the colonists were mostly adventurers

* *Dates of the Settlement of the Colonies.*

Virginia, 1607.
New York, by the Dutch, 1614; occupied by the English, 1664.
Plymouth, 1620; incorporated with Massachusetts in 1692.
Massachusetts, 1628.
New Hampshire, 1623.
New Jersey, by the Dutch, 1624; occupied by the English in 1664.
Delaware, by the Dutch, 1627; occupied by the English in 1664. Some Swedes settled here in 1638, but they were conquered by the Dutch, and most of them left the country.
Maine, 1630; united with Massachusetts in 1677.
Maryland, 1632.
Connecticut, 1635; settled from Massachusetts.
New Haven, 1637; united with Connecticut in 1662.
Providence, 1638; } united 1644.
Rhode Island, 1638; }
North Carolina, 1650; a distinct colony in 1729.
South Carolina, 1670.
Pennsylvania, 1682.
Georgia, 1733.

† When informed of the approach of a committee of the house of commons, he ordered twelve chairs to be brought "for," said he, "there are twelve kings a-coming."

without families, ninety young girls were sent over by the company in 1620, and sold to the young planters, at the rate of 100—150 pounds of tobacco. In 1621, the company passed an ordinance vesting the government of the colony in a governor, council and general assembly, the latter chosen by the inhabitants, with power to enact laws. In 1622, 347 men, women and children were massacred by the Indians; a general Indian war followed, and the settlements were reduced from eighty to eight. In 1624, the company was dissolved by the crown, and the colony taken into the hands of the king. Such are a few incidents from the humble annals of the first colonists, presenting a picture of suffering too often renewed in other parts of the country.—The Plymouth company, to which was granted the exclusive right to trade and settle in North Virginia, did nothing effectual towards the colonization of their jurisdiction. But, in 1620, a number of Puritans (Brownists), who had set sail for Virginia, were landed, either by accident or treachery, within the limits of the Plymouth company. Ten years afterwards, they obtained from the company a grant of the land to which they had previously no title but occupancy; but they were never incorporated as a body politic by royal charter, and they therefore remained a mere voluntary association, yielding obedience to laws and magistrates formed and chosen by themselves, until their union with Massachusetts, in 1692.* But the germ of the New England colonies was the Massachusetts colony, settled, in 1628, by a company incorporated that year by royal charter, the land having been previously purchased from the Plymouth company. The government of the colony was transferred to Massachusetts, in 1630, by vote of the company; and, a few years later, the freemen adopted the plan of acting by delegates or representatives: courts were also established, and the charter of a trading company was thus tacitly converted into the constitution of a commonwealth. The Massachusetts colonists were Puritans, and were rendered not less obnoxious to the court party at home by their religious principles, than by this unwarranted assumption of political power. This, with other circumstances, led the Plymouth company to resign their charter to the king (1635), and Massachusetts, like Virginia, was thus taken into the royal hands. Such, however, was the disturbed state of England at the time, that these remote and insignificant colonies attracted little attention, and were therefore left to grow up in habits of self-government, with little restraint, while their numbers and wealth were increased by successive emigrations of the parties worsted in the civil strife at home. The persecuted Puritans fled to New England; the oppressed Catholics to Maryland; the defeated cavaliers or royalists to Virginia. Such were some of the events of the earliest periods of colonial history.

It would lead us beyond our limits to attempt even a sketch of the annals of the colonies. We must satisfy ourselves with a hasty view of the forms of government which prevailed in them, and which served as the elements of the political system established rather than introduced by the revolution. Of these forms of government there were three—the royal, the charter, and the proprietary governments.

1. The charter governments were confined to New England. The people of these colonies, by the express words of their charters, were entitled to the privileges of natural born subjects, and invested with the powers of government, legislative, executive and judicial. They chose their own governors, elected legislative assemblies, and established courts of justice, and in many points even exceeded the powers conferred by the charters. The only limitation to their legislative power was, that their laws should not be contrary to those of England. The crown claimed, indeed, the right of revoking these charters; but the colonists maintained that they were solemn compacts, irrevocable unless for cause. The charters were sometimes declared forfeited, or forcibly taken away (particularly towards the close of Charles II.'s reign, when the corporations in England shared the same fate); and the disputes to which this question gave rise, between the mother country and the charter colonies, were one of the causes of the revolution.

2. The royal governments were those of Virginia, New York, and, at a later period, the Carolinas (1728) and the Jerseys (1702). In these colonies, the governor and council were appointed by the crown, and the colonists chose representatives to the colonial assemblies. The governors were commissioned by the crown, and acted in obedience to instructions received from the same. They had a negative on the proceedings of the legislatures, which were composed of the councils and the popular assemblies: the judges and most of the officers were also appointed by the king, although, in many cases, paid by the colony. The sources of discontent in these colonies were the arbitrary acts of the governors, and the royal claim to an absolute veto on the acts of the assemblies, which would have virtually abolished the right of the people to participate in the government.

3. The proprietary governments were those of Maryland, Pennsylvania, and at first the Carolinas and the Jerseys: the two former remained such till the revolution. These colonies were in the hands of proprietors or individuals, to whom grants of land had been made by the crown, with authority to establish civil governments, and make laws, under certain restrictions in favour of the crown. The history of the proprietary governments is little more than that of a perpetual quarrel between the people and the proprietors, chiefly owing to the manner in which the latter exercised the prerogative of repealing or negativing the acts of the colonial assemblies; for, even in these colonies, representative bodies, partly elected by the freemen, and partly summoned by the proprietors, were soon introduced. In 1719, the people of Carolina had become so exasperated against the proprietors, that they took the government into their own hands, and elected a governor and council, and assembly, which published a declaration of independence, setting forth the causes of their renunciation of the former government, and signed by all the members of the new one. The oldest laws of the Virginia assembly (1624) comprise a declaration defining the power of the governor and the assembly, and assert-

* As this instance of the formation of a society which actually exercised the power of life and death is, perhaps, unique in history, we have thought it worth while to give the document itself. "In the name of God—we, whose names are underwritten, do, solemnly and mutually, in the presence of God and one another, covenant and combine ourselves together into a civil body politic, by virtue hereof to enact, constitute and frame such just and equal laws, ordinances, acts constitutions and offices, as shall be thought most meet and convenient for the general good of the colony, unto which we promise all due subjection and obedience."

ing the privileges of the people in regard to taxes and personal services.

At an early period in the existence of the New England colonies (1643), a confederacy was established between them for mutual offence and defence, leaving to each colony its own peculiar jurisdiction and government, the common affairs of the confederacy being managed by a congress, consisting of two commissioners from each colony. These three measures emanating, the first from a proprietary, the second from a royal, and the third from a charter colony, show that a common spirit pervaded them all; and they may be considered as the prototypes of the bill of rights, the declaration of independence, and the general confederacy, in which all joined at a later period. Besides the subjects of charters in one set of colonies, and of representation in another, the question of taxation was a matter of common interest. "There is something curious," says Fox (*History of James II., Introduction*), "in discovering that even at this early period (1685) a question relative to North American liberty, and even to North American taxation, was considered as the test of principles friendly or adverse to arbitrary power at home. But the truth is, that among the several controversies which have arisen, there is no other where the natural rights of man, on the one hand, and the authority of artificial institutions on the other, as applied respectively by the whigs and tories to the English constitution, are so fairly put in issue, nor by which the line of separation between the two parties is so strongly and distinctly marked." The *common English right of assent to taxes*, as the colonists themselves called it, was asserted in the fullest manner by nearly all the colonies, as early as the middle of the seventeenth century: and it was a commonly received opinion in America, from that period, that the authority of parliament in the colonies did not extend to taxation or internal legislation, but was confined to the regulation of trade. Restrictions on trade and manufactures were also a cause of vexation and ill-blood in the colonies. For a long time they enjoyed almost unlimited freedom of commerce; and it was not until they had surmounted the hardships and difficulties incident to their first establishment, and had begun to increase rapidly in wealth, that their commerce began to be submitted to restrictions calculated to secure all its benefits to the mother country. The act of 1651 confined the export and import trade of the colonies exclusively to British or colonial vessels, and the navigation act of 1660 enacted that certain specified articles (*enumerated articles*) should not be exported directly from the colonies to any foreign country. Besides compelling the colonists to sell their produce exclusively in the English markets, it was next provided (1663) that they should buy such foreign articles as they stood in need of entirely of the merchants and manufacturers in England. In 1672, certain colonial products transported from one colony to another, were subjected to duties. It was further a principle of the colonial policy of England, to discourage all attempts to manufacture such articles in the colonies as could be provided for them by the mother country. In 1699, it was enacted, that no wool, yarn, or woollen manufactures, should be exported from the American colonies; and in 1750, every slitting or rolling mill, platting forge to work with a tilt-hammer, &c., was declared a common nuisance which the governors were directed to cause to be abated. It is true, however, that many of these and similar acts of parliament were openly [illegible] or secretly evaded by the colonists.

Such were some of the features of the [illegible] policy of the mother country, and the causes [illegible] tation and discontent in the colonies; imposi[illegible] requisitions, and restrictions on one side, were [illegible] by petitions, remonstrances, and open resist[illegible] the other. "The colonies," said lord Chatham, [illegible] at an early period, "are already hardened [illegible] publics." In time of peace, each colony [illegible] the expenses of its civil establishment; and [illegible] money for this purpose was raised by taxes [illegible] by themselves in such way as they thought [illegible] In time of war, the crown made requisitions [illegible] and money, and apportioned them among the [illegible] nies in the ratio of their wealth and popula[illegible] with reference to their proximity to the [illegible] war: the troops were fed, clothed, and paid [illegible] colony raising them. Thus, in the two [illegible] wars, 1744—1748, and 1755—1763, the co[illegible] who were deeply interested on account of [illegible] creasing strength and encroachments of the [illegible] settlements on their borders, took an active [illegible] and often had more troops in the field than [illegible] required of them; in the latter war there [illegible] 25,000 men, and the colonial forces favour[illegible] tinguished themselves on several occasions [illegible] various Indian wars which prevailed at [illegible] all along the extensive and exposed line of [illegible] were in general conducted by the colonies [illegible] selves. Measures had been taken at an early [illegible] in some of the colonies, for providing for the [illegible] ral education of the people. Primary schools [illegible] first established in New England, and it [illegible] came a favourite object in that part of the [illegible] to enable every individual to read and write [illegible] schools were instituted in Boston in 163[illegible] 1647, the legislature of Massachusetts passed [illegible] act requiring every township with fifty [illegible] provide a school where children might be [illegible] read and write, and every township with [illegible] lies to provide a grammar school. Colleges [illegible] also founded for the higher education of [illegible] and, at the beginning of the revolutionary war [illegible] were eight institutions of this kind in the [illegible] —Harvard college (founded 1638), Massachusetts; [illegible] William and Mary (1693), Virginia; Yale [illegible] Connecticut; Princeton (1738), New Jersey; [illegible] King's (now Columbia), New York, 1754; [illegible] dence (1764), Rhode Island; Dartmouth [illegible] New Hampshire; and Hampden and Sydney [illegible] (1774), Virginia. The peace of Paris, in [illegible] annihilating the French power in North America, [illegible] relieved the colonies from the pressure of [illegible] hostilities. But a course of policy was now [illegible] ed by the British ministry, which finally [illegible] the separation of the American colonies from [illegible] British empire. Like all other points of the [illegible] British constitution, the precise limits of the [illegible] parliamentary authority over the colonies remained unsettled. Many of the acts regulating [illegible] trade of the colonies, had been submitted to with [illegible] reluctance, as violations of their rights, or [illegible] evaded, or openly disregarded; but measures [illegible] now taken by the ministry, not only rigidly [illegible] force such acts, but to raise a revenue in America [illegible] by internal taxation; and as a part of this [illegible] modifications in the colonial governments [illegible] lated to render them more dependent on the [illegible] crown, were also contemplated.* In 17[illegible]

* A scheme for taxing the colonies was proposed by [illegible] Walpole. "I will leave that," said he, "for some of [illegible]

act of parliament was passed, continuing the duties on certain articles imported into the colonies, towards raising a revenue; and it was provided that all penalties for breach of the acts of trade and revenue committed in America might be recovered in any vice-admiralty court in the colonies. In 1765 (March 22) the stamp act was passed; and soon after a bill was brought in authorizing the quartering of troops in the colonies. These acts and measures were received in America with universal opposition; and a general congress of the colonies (the first of the kind) was held at New York, which adopted a declaration of rights and grievances, asserting taxation by themselves, and trial by jury, to be the inherent rights of the British subjects in the colonies. The colonial assemblies adopted similar measures, and popular meetings throughout the country, heated essays in the newspapers, and more elaborate, but not less inflammatory, pamphlets,* served to set the whole country in a flame. In many places, the stamp officers and their supporters were exposed to personal violence; and, on the first of November, the day on which the act was to have taken effect, neither stamps nor officers were to be found in the colonies; business of all kinds was therefore transacted without the aid of stamped paper. In this state of affairs, the stamp act was repealed (March 18, 1766), and, at the same time, a declaratory act was passed, asserting the right of parliament to bind the colonies in all cases whatsoever. The Rockingham ministry, by which these measures were carried, was soon displaced; and, in June, 1767, the new chancellor of the exchequer, brought in a bill imposing duties on glass, paper, pasteboard, white and red lead, painters' colours, and tea, imported into the colonies. This act, after increasing the exasperation of the colonists, particularly as troops were quartered in Boston to enforce obedience, and giving rise to combinations among the Americans against the importation of the articles specified, was also repealed (March 5, 1770), the duty on tea being alone continued. The colonists accordingly renounced the use of that article, or obtained it from foreign countries. In 1773, the ministry procured an act, permitting to the East India company a drawback on teas exported to America, for the purpose of rendering it cheaper in that country, and inducing the Americans to submit to the small duty imposed upon it. Large shipments were made; but in Philadelphia and New York, the vessels were not allowed to land their cargoes; in Charleston, it was put into stores, but not permitted to be offered for sale; and in Boston, where the British authorities refused to allow the vessels to return, without having been entered, the tea was thrown overboard. This act of violence was followed by the Boston port bill (March 31, 1774), interdicting all commercial intercourse with the town of Boston, and by a bill (May 20) for entirely subverting the government of Massachusetts.—See Quincy's *Observations on the Boston Port Bill* (1774, republished in his Life by his son).

In this crisis, the other colonies made common cause with Massachusetts, and, September 5, a general congress met at Philadelphia. Congress adopted a declaration of rights, asserting the exclusive power of legislation, in all cases of taxation and internal policy, to be in the provincial legislatures; with a statement of grievances, declaring the acts imposing duties for raising a revenue in America, extending the power of the admiralty courts, and depriving the Americans of trial by jury, authorizing the trial in England of persons charged with certain offences in America, shutting up the harbour of Boston, altering the government of Massachusetts, &c., to be infringements and violations of the rights of the colonists. They next proceeded to interrupt all commercial intercourse with Great Britain, by the non-importation, non-consumption and non-exportation agreement, binding themselves not to import, consume or export certain articles, until the acts complained of should be repealed. These proceedings had no effect to change the policy of the British government, and general preparations were now made in the colonies for resistance: gunpowder was manufactured, warlike stores collected, and the citizens began to arm. Massachusetts was declared to be in rebellion, and new restrictions were imposed upon the trade of the colonies. A detachment of troops sent from Boston to seize some provincial stores, collected at Concord, fired upon the citizens who assembled to oppose them, and actual hostilities were now commenced. (See *Lexington*.) The second congress, which met in May, 1775, immediately determined to organize an army, and Washington was appointed (June 15) commander-in-chief of the colonial forces. "We have counted the cost of this contest," said congress, in a declaration of July 6, "and are with one mind resolved to die freemen rather than to live slaves." July 4, 1776, congress adopted a declaration of independence.†

II. *The History of the United States, from* 1776 *to* 1832, *a Period of fifty-six Years.*

1. *To the Adoption of the Federal Constitution in* 1789. The Declaration of Independence, after recapitulating those acts of the British government

cessors who may have more courage than I have, and be less a friend to commerce than I am. It has been a maxim with me, during my administration, to encourage the trade of the American colonies in the utmost latitude. Nay, it has been necessary to pass over some irregularities in their trade with Europe; for, by encouraging them to an extensive growing foreign commerce, if they gain L.500,600, I am convinced that, in two years afterwards, full L.250,000 of their gains will be in his majesty's exchequer, by the labour and product of this kingdom. This is taxing them more agreeably to their constitution and ours."

* The most important productions to which this dispute gave rise, were Otis's Rights of the Colonies (1764); John Adams's Essay on the Canon and Feudal Law (1765); Bland's Enquiry into the Rights of the British Colonies (1766). The Farmer's Letters, by Dickinson, were written on the passage of the act 1767.

† For the history of the colonies, we refer the reader to Hazard's State Papers (containing the colonial charters, and other early documents, 2 vols., 4to, 1792); Chalmers's Annals of the United Colonies, 1st vol. to 1688, chiefly compiled from documents, (London, 1780); Burke's European Settlements in America (2 vols., 8vo., 1757); Marshall's History of the Colonies (printed separately, in 1824); Holme's Annals of America (3d ed., 2 vols., 1829). For the disputes preceding the revolution, see the pamphlets already mentioned, with Franklin's Interest of Great Britain, &c. (1760); Jefferson's Summary of the Rights of British America (1774); J. Adams's History of the Disputes with America, from their Origin in 1754; Quincy's Life of Quincy; Wirt's Life of Henry; Tudor's Life of Otis; Lee's Lives of the Lees. The Massachusetts State Papers, from 1765 to 1775, and Hutchinson's History of Massachusetts, are also of general interest. The Annual Register (Dodsley's), of which the chief part of the earlier volumes was written by Burke, the volumes of the parliamentary history (Hansard's ed., 36 vols.) relating to the period, and Almon's Prior Documents, from 1764 to 1775 (1779), and Remembrancer (17 vols., 1775—84), are also valuable sources. Congress has recently made an appropriation for examining the papers in the English archives relating to the colonies, with a view to procuring copies of them. The library of Harvard university contains nearly a complete collection of works relating to America. The library of Ebeling presented by the late Israel Thorndike of Boston, contains upwards of 3200 volumes chiefly on American history, and 10,000 maps, charts and views. The original owner was fifty years in collecting it. Another collection, made by Mr Warden, late American consul at Paris, and author of a valuable work on the United States, was presented to the library by Samuel A. Eliot of Boston. This collection consists of about 1200 volumes, besides maps, prints and charts.

which were viewed as subversive of the liberties of the British subjects in America, declares the United Colonies to be free and independent states, absolved from all allegiance to the British crown, and all political connexion between them and the state of Great Britain to be totally dissolved. There is a striking parallel between the English revolution of 1688 and the North American revolution of 1776. In both cases, previous discussion had fairly put the disputed question in issue: each party to the dispute had fully weighed and settled its principles, its claims, and its duties: the people of England and the people of America were in both cases on the defensive; not aiming at establishing new rights, or setting up new pretensions against old established despotism, but defending against encroachment liberties which they had always enjoyed, and seeking new guarantees to secure them. Broken charters, insulted legislatures, and violated judiciaries, arbitrary acts defended by arbitrary principles, and injustice supported by violence, drove the English nation, in 1688, and the English colonies, in 1776, to declare that the respective sovereigns had abdicated the government. The American revolution was complete in 1776, but it still remained to defend it by arms. The affairs of Lexington and Bunker hill (see *Charlestown*), the capture of several posts, and an unsuccessful expedition against Canada (see *Arnold*, and *Montgomery*), were among the acts of hostility which had preceded the declaration of independence. General Washington had been at Cambridge at the head of an army, whose term of service expired with the year (1775), without ammunition, and but imperfectly supplied with arms. By the beginning of March, 1776, 14,000 regular troops had been enlisted, and the British were obliged to evacuate Boston March 17. June 28, the British forces under Sir Peter Parker had been repelled in an attack on Charleston. The military operations which closed the year were the capture of New York by the British forces under lord Howe and Sir W. Howe (Sept. 15), after the defeat of the Americans on Long Island (Aug. 27), the battle of White Plains (Oct. 28), the retreat of the American forces through the Jerseys and across the Delaware (Nov. 28), the battle of Trenton (Dec. 26), and of Princeton (Jan. 3, 1777). The ensuing campaign of 1777 was more favourable to the American cause. General Howe had indeed taken possession of Philadelphia (Sept. 27), and the Americans had been defeated on the Brandywine (Sept. 11), and at Germantown (Oct. 4); but the northern army, under the command of general Gates, after some partial success, had compelled general Burgoyne to surrender his army at Saratoga (Oct. 17), and thus cut off the communication attempted to be kept up between New York and Canada. On the reception of this intelligence in Europe, the French government entered into treaties of amity and commerce with the United States (Feb. 6, 1778), and thus recognised their existence as an independent nation. A complete history of the diplomatic transactions of this and the subsequent period will be found in the *Diplomatic Correspondence of the American Revolution, published by Order of Congress* (Boston, 1830, 12 vols.,8vo.). The British commander now came to the resolution to evacuate Philadelphia (June 18), and concentrate his forces at New York. While effecting this measure, his rear was attacked by general Washington at Monmouth (28th), with partial success. About the same time, a French fleet arrived on coast, having on board about 4000 French t... Congress had hitherto consisted of an assem... delegates from thirteen independent state... little more authority than that of advising the ... to adopt certain measures. Money was raise... by consent of the states; the congress ha... power to enforce obedience, and the state... held together only by external pressure. It ... been some time thought desirable that some... should be done to give security and permanen... this loose union, and to define with precis... nature of the federal compact, the powers of ... gress, and the residuary sovereignty of the ... After long and embarrassing discussions the ... of confederation were agreed upon by con... Nov. 15, 1777, and submitted to the state le... tures for ratification. Most of the legislatures ... fied them in the following year (they bec... July 6, 1778), but Delaware and Maryland ... accede to them till somewhat later. By t... articles, the exclusive cognisance of foreign ... tions, the rights of war and peace, and the ri... make requisitions of men and money, were ... to congress. But, like all former confeder... the decrees of the federal government ope... upon the states in their sovereign capacity, an... upon the individual citizens; and as soon as a... from abroad was past, this confederacy was ... to be utterly incompetent to govern the co... In 1779, the south became the principal thea... warlike operations. The successful inva... Georgia, in the preceding year, was follow... war of depredation and ruin on the coast, a... partisan warfare in the interior, which des... the country, but led to no decisive results ... continued during the following year, w... Charleston was captured (May 12) by the B... The southern guerilla war carried on by the ... woodsmen of North and South Carolina an... ginia was murderous, but there was nothing ... deserved the name of an army, capable of op... the British forces, notwithstanding the ex... and brilliant services of Greene, Morgan, S... and Marion. In 1781, the contest was ... closed by the surrender of Cornwallis, at York... to the combined French and American forces ... Washington and Rochambeau (Oct. 19). ... following year, a treaty was concluded b... Holland and the United States; and after lon... tracted negociations, a definitive treaty of ... with Great Britain was signed Sept. 3... Denmark, Spain, Sweden and Russia had pre... recognised the United States as a sovereign p... The war was attended with great sacrifices ... part of the Americans. Without arms, ammu... or pecuniary resources, congress was obl... have recourse to a paper medium. Three hu... million dollars, in bills of credit, had been em...

* For the history of the American revolution, the p... works, in addition to some of those previously men... Marshall's Life of Washington (5 vols., 8vo., and 5 v... delphia, 1804; 2d edition, omitting the history of the ... 2 vols., 8vo., and Atlas, Philadelphia, 1832); Pitkin's ... Political History of the United States to 1797 (... New Haven, 1828); Ramsay's History of the American R... tion (2 vols., 8vo., Philadelphia, 1789); Botta's Sto... *Guerre Americane* (English, 2d edition, 2 vols. 8... Stedman's History of the American War (2 vols., 4... 1794); Gordon's History of the United States (4 vo... London, 1788); Tarleton's Campaigns of 1780 and ... London, 1787); Moultrie's Memoirs; Drayton's ... Sparks's Life of Morris (3 vols., 8vo., Boston 1832); ... the Continental Congress from 1774 to 1778 (3 vols.... Secret Journals of Congress to the Dissolution of the ... deracy (4 vols., 8vo., 1821).

during the five first years of the war, and no provisions were made for redeeming them, the states neglecting, or partially complying with, the requisitions of congress. In 1780, these bills had depreciated to such a degree as to cease to circulate; the treasury was empty, the army unpaid, without clothing, and often without food. At this time, the French government made a grant of six million livres, by way of subsidy, and a further sum by way of loan; and finally a loan of ten million of livres was raised in Holland. These supplies, with a new organization of the finance department, and the establishment of a national bank, contributed to relieve the pressure. At the peace, the public debt was found to amount to forty-two million dollars, on which congress was unable to pay even the interest. The requisitions and regulations of that body were little regarded by the states, and the country was already becoming a prey to anarchy, when a convention, composed of delegates from the several states, met at Philadelphia (May, 1787), for the purpose of revising the articles of Confederation, and, under the presidency of Washington, agreed on a federal constitution (September 17), to be proposed to the people in state conventions.

2. *From the Establishment of the Federal Government* in 1789.* At an early period of the war (1776), congress had recommended to the assemblies and conventions of the several colonies, to establish governments suited to the new exigencies of the country. This was not a difficult task, to a people who had always been accustomed, with a few exceptions, to manage their own affairs, and whose legislative and judicial institutions in some cases needed only a slight reform. The constitutions of the states were, in general, modelled on the same plan, having, in imitation of the British constitution, a legislative authority vested in two houses, one or both of which were chosen directly by the people; and an executive, with definite power, chosen by the people or by their representatives. These documents are the first written constitutions of government with which history makes us acquainted. (For a full account of them, see *Constitutions*.) These governments were all highly popular in their principles, simple in their machinery, and well calculated for the management of home affairs. But the general regulation of commerce on uniform principles, the management of the intercourse with foreign states, the support of a military peace establishment, the settlement of disputed questions between thirteen sovereign powers, required a general authority competent to decide these and similar questions. The convention of Philadelphia, after a session of about four months, finally adopted the present federal constitution of the United States (September 17, 1787), with the provision that the ratification of it by nine states should be sufficient for the final establishment of the new system. The plan thus submitted to the states was warmly debated in the several conventions, but was finally adopted by all, seven of them recommending certain amendments, and six ratifying it absolutely. (The Journal of the Philadelphia convention was published in 1819, by order of congress, and the debates of some of the state conventions have also been published. The whole subject is fully argued in the celebrated essays written by Jay, Hamilton and Madison, and collected under the title of the *Federalist*.) July 14, 1788, ten states† having acceded to it, it was ratified by congress, and the first president was elected February 1, 1789. The first president was Washington, who was chosen by a unanimous vote of his fellow citizens. The first congress assembled at New York, March 4, 1789, and immediately proceeded to raise a revenue, by imposing duties; to establish a federal judiciary, consisting of a supreme court, with circuit and district courts; to organize the executive administration, by creating the departments of war, of foreign affairs, and the treasury; to fund the debt of the United States, and assume the state debts; and to create a national bank. The jealousy of state rights, which had made the adoption of a federal constitution a matter of great delicacy and difficulty, began already to manifest itself in opposition to the federal government, and the two parties of federalists and anti-federalists began to be more distinctly marked. Indian hostilities had also required an increase of the military establishment; and the duty on domestic spirits met with such open resistance from the people, that the president issued a proclamation against unlawful combinations and proceedings tending to obstruct the execution of the laws. The period for which the president was chosen having expired, Washington was re-elected by a unanimous vote of the electors, and entered upon the second term of his administration in 1793. An insurrection in the western counties of Pennsylvania, on account of the duties on domestic spirits, was quelled (1794) without bloodshed, by the prudence and vigour of the executive; and the hostilities with the Indians on the western frontier were terminated by the entire defeat of the savages, by general Wayne. Meanwhile, the progress of the French revolution, which had stirred up all the nations of Europe, had excited a lively interest in America. The sympathy aroused by the sight of a nation struggling for liberty, and particularly of a nation which had borne arms in their cause, naturally produced a degree of enthusiasm among the Americans in its favour. The president was determined to maintain a strict neutrality in the contest between the new republic and the European cabinets, in conformity with his settled principle of avoiding entangling alliances with foreigners. The minister of the convention in this country, offended with this neutral policy, actually undertook to raise troops against the Spanish possessions, to fit out naval expeditions in the ports of the United States, and to take other similar measures in direct defiance of the orders of the executive. He was supported in this conduct by a strong party, which formed democratic societies in different parts of the coun-

* *Introduction of States into the Confederacy.* The thirteen United Colonies, which issued the declaration of independence, entered into the confederation of 1778, and formed the constitution of 1789, were, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, and Georgia. The states subsequently admitted into the union are,

Vermont, separated from New York, 1791;
Tennessee, from North Carolina, 1796;
Kentucky, from Virginia, 1799;
Ohio, formed from lands north-west of the Ohio, which had been ceded to the general government by the states to which it belonged, 1802;
Louisiana, from Louisiana purchase, 1812;
Indiana, from North-west Territory, 1816;
Mississippi, from Georgia cession, 1817;
Illinois, from North-west Territory, 1818;
Alabama, from Georgia cession, 1819;
Maine, separated from Massachusetts, 1820;
Missouri, set off from Louisiana purchase, 1820.

† New York gave in her adhesion July 26 of that year; North Carolina in November, 1789; Rhode Island, May, 1790.

try; but the course of the president was finally approved by the great body of the nation. A treaty of friendship, limits and navigation, settling the boundaries between the United States and the Spanish colonies, and conceding to the former the right to navigate the Mississippi, was concluded, after protracted negociations, Oct. 27, 1795; and a treaty of amity, commerce and navigation (Jay's treaty), with Great Britain, was ratified by the American government, Aug. 14, 1795. This treaty created such divisions in the United States, as to put in danger the existence of the government. Petitions against it were sent in from all parts of the country, and it was the subject of a violent debate in the house of representatives during the next session of congress.* But public opinion was gradually settled in favour of the treaty, as being the only possible means of saving the country from becoming involved in the wars of the French revolution. In the president's message to congress (December, 1796), he urges the necessity of creating a navy, encouraging manufactures and agriculture, establishing a military academy and a national university, and declares his determination to retire from the government, which he did, accordingly, on the 4th of March, 1797. The weight of his personal character was of the highest moment in setting the machinery of the new government in motion, as it had been in carrying on the war, in preserving tranquillity on the conclusion of peace, and in effecting the adoption of the constitution by the convention. In the short period of eight years, all the disputes between the United States and foreign nations had been adjusted, with the exception of those with France, which had arisen during that time, out of the new state of things in Europe. "At home, public and private credit was restored; ample provision made for the security and ultimate payment of the public debt; American tonnage had nearly doubled; the exports had increased from nineteen to more than fifty-six million of dollars; the imports in about the same proportion; and the amount of revenues from imposts had exceeded the most sanguine calculations." (Pitkin's *History*, &c.) The depredations of French cruisers upon the commerce of the United States had been such, that, on the 7th of July, 1797, the treaties with France were declared to be no longer obligatory on the United States; an army was raised, of which general Washington was named commander-in-chief; and several engagements took place at sea between the French and American cruisers. In this crisis, the revolution of 18th Brumaire changed the policy of the French republic, and a treaty was concluded between the two powers, September 30, 1800. On the retirement of Washington, John Adams had been elected to succeed him; and, in 1801, Thomas Jefferson was chosen third president of the United States. One of the most important events of this period was the purchase of Louisiana from the French government (1803), for the sum of fifteen million dollars, two million and a half of which were retained the United States, as a compensation for the l captures made by France. An expedition wa out by the American government to explor country, which reached the Pacific, acros Rocky mountains. (See *Louisiana*.) The pe of Amiens had restored a short peace to Eu but hostilities, in which all the European po were involved, were soon renewed; and the U States was almost the only power which pres its neutrality. The Americans, under thes cumstances, had become possessed of an exte and lucrative carrying trade; but the contin system of Napoleon, and the counter measu the British government (see *Continental Sys* directed to the interruption of all commerci tercourse between the respective belligerent neutrals, led to a series of acts which threat the entire destruction of American commerc addition to the depredations committed by the powers, Great Britain also claimed the ri searching American vessels, and impressing them British seamen. In order to counteract imperial decrees and the British orders in c the general government laid an embargo, pr ting the exportation of every article fro United States (December, 1807), and thus e annihilating their foreign commerce; the coas trade was at that time insignificant, and this sure was received with so much opposition, th 1809, the embargo was repealed. At the time, all trade and intercourse with France England was prohibited by act of congress June, 1812, war was declared against Great B and was continued, with various success, for years, during which the Americans attem without success, the conquest of Canada, an British were repulsed in several attacks on maritime cities. The success of the Amer by sea were more brilliant. (See *Navy*.) was finally concluded at Ghent, December 24 by a treaty which settled nothing, and made lusion to the causes of the war. The chan European affairs, produced by the peace of P 1815, and the events of the American war, buted to introduce a considerable change policy of the American government, and the tions of domestic parties, which still contin operation. Previous to this time, party c were founded, in a great measure, upon pr foreign policy, and on foreign predilections sions. The great facilities for commerc diverted a great portion of the national capi commercial channels, and manufactures had little attention. Since that period, foreign have had little influence in the country; m turing industry has been developed to an am ing degree, and taken under the protection government; internal improvements—the co tion of roads, canals and railways—have been with wonderful vigour; the acquisition of has given a more secure southern boundar republic; six new states have been admitted Union, and twenty years of peace and pr have well developed the resources of the c

Geography and Statistics.

1. *Physical Geography.* The United form the great middle division of North Am bounded north by New Britain and L Lower Canada, east by New Brunswick Atlantic ocean, south by the gulf of M south-west and south by the country of M

* "The objections of those opposed to carrying the treaty into effect, were, generally, that it wanted reciprocity; that it gave up all claims of compensation for negroes carried away, contrary to the treaty of peace, and for the detention of the western posts; that it contravened the French treaty, and sacrificed the interest of an ally to that of Great Britain; that it gave up, in several important instances, the law of nations, particularly in relation to free ships making free goods, cases of blockade, and contraband war; that it improperly interfered with the legislative powers of congress, especially by prohibiting the sequestration of debts; and that the commercial part gave few advantages to the United States." Pitkin's *History of the United States.*

and west by the Pacific ocean. The boundary between the United States and the British dominions begins at the entrance of the St Croix into the Atlantic, proceeding up that river to its source; thence due north to the high lands which separate the waters falling into the Atlantic from those falling into the St Lawrence; thence along those high lands, in a south-west direction, to the parallel of lat. 45° N.; thence along that parallel to the river St Lawrence; thence up that river, and through the middle of the great lakes Ontario, Erie, Huron and Superior, to the north-west extremity of the lake of the Woods; thence, on the meridian line, to the parallel of lat. 49° N.; thence along that parallel to the Rocky mountains. The north-eastern boundary was long in dispute. The words of the treaty of 1783 (art. 2) are as follows:—"From the north-west angle of Nova Scotia, viz. that angle which is formed by a line drawn due north from the source of St Croix river to the high lands, along said high lands which divide those rivers that empty themselves into the river St Lawrence from those which fall into the Atlantic ocean, to the north-westernmost head of Connecticut river." This part of the country was but imperfectly known at the time of making the treaty, and the dividing ridge of high lands is by the Americans assumed to be in lat. 48°, while, by the English construction, it is placed in lat. 46° 30′. The question in dispute was referred to the arbitration of the king of the Netherlands, whose decision has been rejected by the United States on the ground that, instead of deciding upon the claims of the two parties, he has attempted to establish a new line of his own, as a matter of expediency and convenience. (The question is fully treated in vols. 26 and 34 of the North American Review.) Between the Rocky mountains and the Pacific ocean, the boundary was lately settled. The country west of the Rocky mountains was claimed by Great Britain; and, by the convention, for ten years, made in 1818 and renewed in 1827, it was agreed, between the United States and that power, that the country should remain open to both. By the convention of 1824, between Russia and the United States, it was agreed that the Russians should make no settlements to the south, nor the Americans to the north, of 54° 40′ N. latitude. The boundary on the side of Mexico, as ratified by a treaty with Spain, in 1821, begins on the gulf of Mexico, at the mouth of Sabine river, proceeding along the west bank of that river to lat. 32° N.; thence by a line due north to Red river; thence up that river to the meridian of lon. 100° W.; thence due north along that meridian to the river Arkansas; thence along the south bank of the Arkansas to its source; thence due north to the parallel of lat. 42° N.; and thence along that parallel to the Pacific ocean. Lon. 66° 49′ to 125° W.; lat. 25° to 49° N.; square miles, estimated at upwards of 2,000,000. More than half of the territory included within these limits contains few or no settlers, and is not yet formed into states. If a line were drawn from the mouth of the Sabine due north to the Missouri; thence in a north-easterly direction to the south end of lake Michigan, the eastern division would include nearly all the population, though less than half of the territory. The other division is almost wholly in the possession of the Indians. The line of frontier, taken according to the claims of the United States, was estimated by Darby as follows:—Frontier in common with British America, from the mouth of the St Croix to the Rocky mountains, 3000 miles, of which a considerable portion is a natural water boundary; west of the Rocky mountains, northern boundary in common with the Russian settlements, 600 miles; western frontier, along the Pacific ocean, from 54° to 42° N. lat., 800 miles (Darby estimated it from 42° to 51°, 560 miles); in common with Mexico, along the parallel of lat. 42° to the Rocky mountains, and thence, as above described, to the mouth of the Sabine, 2300 miles; along the gulf of Mexico to Florida point, 1000 miles; along the Atlantic ocean to the mouth of the St Croix, 1850 miles. According to this estimate, the whole line of frontier amounts to about 9550 miles, of which 3650 are sea coast. This vast extent of country, comprising one twentieth of the habitable land of the globe, is divided, by two ranges of mountains, into three great natural sections, the Atlantic slope, the Mississippi valley, and the Pacific slope. The Alleghany chain is more remarkable for its length than its height. Perhaps there is no tract of country in the world that preserves the mountain character over so great a space with so little elevation. The mean height of the Alleghanies is only from 2000 to 3000 feet, about one half of which consists of the elevation of the mountains above their base, and the other of the elevation of the adjoining country above the sea. To this height the country rises, by an almost imperceptible acclivity, from the ocean, at the distance of 200 or 300 miles on the one side, and from the channel of the Mississippi, at an equal distance, on the other. A gradual elevation of 1000 or 1200 feet upon a horizontal surface of 200 or 300 miles, would give the surface of the country, on the eastern side, an average rise of from three to four feet in the mile, and from two or three feet on the western side, allowing for the height of the channel of the Mississippi above the sea. This small degree of inclination accounts for the great extent of inland navigation which the United States enjoy. By the course of the Mississippi, Ohio and Alleghany rivers, vessels ascend over an inclined plane of 2400 miles in extent, to an elevation of perhaps 1200 or 1400 feet, without the help of canals or locks. The second great mountainous range which traverses the United States is the Rocky mountains. This ridge is more elevated than the former, but is also more distant from the Pacific ocean on the one side and the Mississippi on the other. From the Mississippi to the Pacific, in lat. 40°, is about 1500 miles; and the Rocky mountains, which crown this gradually-swelling surface, rise, with the exception of some insulated peaks, to a height of about 9000 feet. This elevation is about three times as great as that of the Alleghanies; and it is remarkable that the Mississippi, which is the common reservoir of the streams descending from both, is about three times farther from the higher chain than from the lower, so that the declivity on both sides of the immense basin included between these mountains, is nearly the same; and the streams flowing from the Rocky mountains are as susceptible of navigation as those from the Alleghanies. The Mississippi valley also presents a southern declivity, by which it gradually sinks from the high table land of the centre of the continent to the level of the ocean on the gulf of Mexico. From this table land, which is estimated to have an elevation of not more than 1500 feet above the sea

descend the great rivers of North America—Mackenzie's to the north, the St Lawrence to the east, and the Mississippi to the south. (See *Mississippi, Missouri,* and *Mississippi Valley.*) To the west of the Rocky mountains lies the Pacific slope, the declivity of which is greater and more rapid than those of the others. This region, as yet little known, and unoccupied by whites, is visited only by hunters and trading ships, and is now generally known under the name of Oregon. (See *Columbia,* and *Oregon.*) With regard to soil, the territory of the United States, to the east of the Rocky mountains, may be classed under five grand divisions:—1. That of the New England states, east of the Hudson, where the Alleghanies spread out into a broken, hilly country. The soil is here, in general, rocky, has but little depth, is barren in many places, and better adapted for pasture than tillage. 2. The sandy soil of the sea shore, commencing from Long Island, and extending along the coast of the Atlantic and the gulf of Mexico, to the mouth of the Mississippi, with a breadth varying from thirty to a hundred miles. This tract, from the Potomac southward, approaches to a horizontal plain, very little raised above the sea, and traversed through its whole breadth by the tide water at the mouths of the great rivers. The surface, which consists of sea sand, is scarcely capable of cultivation, and produces nothing but pines, except on the banks of rivers, and in marshy spots where rice is raised. 3. The land from the upper margin of this sandy tract to the foot of the Alleghany mountains, from ten to two hundred miles in breadth, the soil of which is generally formed from the alluvion of the mountains, and the decomposition of the primitive rocks beneath the surface. This tract is fertile, and generally well adapted for tillage. 4. The valleys between the ridges of the Alleghanies, the soil of which is various, but rather richer than that of the tract last mentioned. 5. The extensive region west of the Alleghanies, bottomed on limestone, well watered, inexhaustibly productive, and containing perhaps as large a proportion of first rate soil as any country in the world. The northern and western parts of the Mississippi valley, stretching for hundreds of miles along the foot of the Rocky mountains, and several hundred miles in width, is a barren desert of sand. (The geology of the United States has been fully described in the article *North America*). Volney, who visited the United States in 1796, describes the country as a vast forest, interrupted by open spaces formed by brackish marshes, and by cultivated tracts round the cities. In a state of nature, the whole Atlantic slope was, in fact, covered by a dense forest, which also spread over a great part of the basin of the St Lawrence to the fifty-fifth degree of north latitude, and nearly the whole of the Mississippi valley on the east of the river, and stretched beyond the Mississippi for the distance of fifty or one hundred miles. Of this enormous forest, one of the largest on the globe, nineteen twentieths yet remain, the efforts of man having made but partial inroads, on either its mass or its extent. This forest is bounded on its western limits by another region of much greater area, but of a very different character. "This," says Darby, "may be strictly called the grassy section of North America, which, from all that is correctly known, stretches from the forest region indefinitely westward, and from the gulf of Mexico to the farthest arctic limits of the continent." The grassy or prairie region, in general, is less hilly, mountainous or rocky than the forest region; but there are many exceptions to this remark: plains of great extent exist in the latter, and mountains of considerable elevation and size in the former. The two regions are not divided by any determinate limit, but frequently run into each other, so as to blend their respective features. With the Atlantic ocean on the east, the Pacific on the west, the gulf of Mexico on the south, and the Atlantic coast of nearly 3000 miles, the United States contain some of the finest harbours in the world. The largest bays are Passamaquoddy, Massachusetts, Delaware and Chesapeake. The principal sounds are Long Island sound, Albemarle and Pamlico sounds. The largest lakes are wholly within the United States, are Michigan, Champlain. The great lakes Superior, Huron, Erie and Ontario, lie partly within the United States and partly in the British dominions. The country is intersected by a great number of rivers which afford great facilities for inland navigation, and an unlimited natural power for mechanical purposes, which, in a great measure, renders the use of steam and other artificial powers unnecessary, and thus gives great advantages to the manufacturing establishments of the country. Some of the principal are the following:—

Rivers flowing into the Atlantic.

	Miles in Length.		Miles in Length.
Penobscot,	250	Potomac,	
Kennebec,	200	James,	
Androscoggin,	170	Roanoke,	
Saco,	160	Cape Fear,	
Merrimac,	200	Pedee,	
Connecticut,	410	Santa,	
Hudson,	294	Savannah,	
Delaware,	300	Alatamaha,	
Susquehannah,	450	St John's,	

Rivers flowing into the Gulf of Mexico

Appalachicola,	500	Tombeckbee,	
Alabama,	450	Mississippi,	

Rivers tributary to the Mississippi, &c.

Red river,	1800	Yellowstone,	
Arkansas,	2150	Ohio,	
White river,	1200	Illinois,	
Missouri,	3100	Moines,	
Kansas,	1200	Tennessee,	
Platte,	1500	Cumberland,	
Osage,	500	Wabash,	

Rivers west of the Rocky Mountains.

Columbia,	1500	Lewis's,	
Multnomah,	900	Clarke's,	

See the separate articles, and the article *Navigable.* Many details in physical geography will also be found in the articles on the separate states, written for this work, and containing the most recent information in regard to this country.

Climate. In a country having so many varieties of exposure as the United States, and extending through twenty degrees of latitude, the climate must, of course, be various. In the northern parts between lat. 42° and 45°, the winter is severe three or four months: during this season, the snow is abundant enough for the use of sledges, and the ice of the rivers sufficiently strong to bear the passage of horses and wagons. In summer, the heat is very intense during five or six weeks. In the southern parts of New York, Pennsylvania, New Jersey and Maryland, the winter is equally severe, but of shorter duration, generally commencing with the beginning of November, and the severe cold seldom continuing more than fifteen or twenty days. The temperature of the summer is nearly the same as in the Northern states. Between the first of May and the first of October, a fire is not necessary

In the Southern States, including Virginia, the Carolinas and Georgia, the cold gradually diminishes, and to the south of the Potomac there is but little snow except on the mountains. The winds which chiefly prevail, are the north-west, south-west and north-east. The first, which blows from the mountains and high table land, predominates in winter, and is by far the driest and coldest; but along the Atlantic coast, where it meets warm clouds and warm currents of air, it produces snow, hail, and sometimes rain; along the banks of the Mississippi and Ohio rivers, it produces rain in winter and storms in summer. The south-west wind prevails in summer, and is more constant on the western side of the Alleghany mountains than on the Atlantic coast. In the basin of the Mississippi, it is said to prevail throughout the year, except during two months about the winter solstice. The north-east wind, crossing a great extent of sea, brings cold and moisture on all the Atlantic coast. Proceeding southwardly, however, its effects are found to diminish. Its course is directed, in some measure, by that of the mountains, and the space over which it blows is sometimes marked by the snow which it deposits. When North America first began to be colonized by the Europeans, it was soon discovered that the temperature of any given latitude was much more rigorous than in the same latitude in Europe. Different explanations have been given of this phenomenon, of which the following are some of the most striking circumstances. Humboldt has endeavoured to connect the system of climates of the old world with that of the new, by fixing, at every ten degrees of latitude, under different meridians, a small number of places, whose mean temperature has been correctly ascertained, and through these, as so many standard points, supposing certain lines of equal heat, or isothermal lines, to pass. The observations which have been made on the temperature of places in the eastern and western continents, show that, advancing seventy degrees to the east or west, a sensible alteration in the heat of the atmosphere is found. Places situated, however, under the same latitudes in America and Europe, do not differ so many degrees as has been commonly supposed. The following tables indicate the difference of climates expressed by that of mean temperature, and by the number of degrees which it is necessary to go northward, in Europe, in order to find the same quantity of annual heat as in America; the differences under the column of latitudes are the differences between the latitude of a place in Europe and a place in America, which have the same mean temperature; and the differences under the column of mean temperatures are the differences between the mean temperature of a place in Europe and of one in America, having the same latitude. As a place could not be found in the old world, whose mean temperature was 58°, the same as that of Williamsburg, Humboldt supplied it with an interpolation between the latitudes of two points, whose mean temperatures are 56°·5 and 59°·4.

1. *Parallels of Georgia, Mississippi, Lower Egypt and Madeira.*

	Latitude.	Mean Temp.
Natchez,	31° 28′	64° 8′
Funchal,	32 37	68 7
Orotava,	28 25	69 8
Rome,	41 53	60 4
Algiers,	36 48	70 0
Difference,	7° 0′	4° 1′

2. *Parallels of Virginia, Kentucky, Spain and Southern Greece.*

	Latitude.	Mean Temp.
Williamsburg,	36° 8′	59° 0′
Bordeaux,	44 50	56 5
Montpellier,	43 36	59 4
Rome,	41 53	60 4
Algiers,	36 48	70 0
Difference,	7°	7° 7′

3. *Parallels of Pennsylvania, Jersey, Connecticut, Latium and Rumelia.*

	Latitude.	Mean Temp.
Philadelphia,	39° 56′	54° 9′
New York,	40 40	53 8
St Malo,	48 39	54 5
Nantes,	47 13	54 7
Naples,	40 50	63 2
Difference,	7° 0′	9° 5′
Ipswich,	42° 39′	50° 0′
Cambridge, (N. E.)	42 25	50 4
Vienna,	48 13	50 5
Manheim,	49 29	51 3
Toulon,	43 7	62 1
Rome,	41 53	60 4
Difference,	6° 30′	11° 0′

4. *Parallels of Canada, Nova Scotia, France and Southern Germany.*

	Latitude.	Mean Temp.
Quebec,	46° 47′	41° 9′
Upsal,	59 51	41 9
Padua,	45 24	57 7
Paris,	48 50	51 4
Difference,	13° 0′	15° 6′

5. *Parallels of Labrador, south of Sweden and Courland.*

	Latitude.	Mean Temp.
Nains,	57° 0′	26° 4′
Okak,	57 20	29 8
Umea,	63 50	33 3
Enoutekies,	68 20	27 0
Edinburgh,	55 58	47 8
Stockholm,	59 20	43 8
Difference,	11° 0′	17° 1′

By an analogous method, he found that the isothermal line of 32° passes between Uleo and Enoutekies, in Lapland (lat. 66° to 68°), and Table bay, in Labrador (lat. 54°); 2. that the isothermal line of 41° passes by Stockholm (lat. 60°) and the bay of St George, Newfoundland (lat. 48°); 3. that the isothermal line of 50° passes by Belgium (lat. 51°) and Boston (lat. 42° 30′); 4. that the isothermal line of 59° passes between Rome and Florence (lat. 43°) and near Raleigh (lat. 36°). The direction of these lines of equal heat gives for the two systems of temperature known by precise observation, viz. that of the middle and west of Europe and that of the east of America, the following differences;

Lat.	Mean Temp. of west of Old World.	Mean Temp. of east of New World.	Diff.
30°	70°·52	66°·92	3°·60
40	63 ·14	54 ·50	8 ·64
50	50 ·90	37 ·94	12 ·96
60	40 ·64	23 ·72	16 ·92

In tracing the directions of the isothermal lines from Europe to the Atlantic countries of the new world, they are found to have the character of parallelism towards the south, and to converge towards the north, particularly between the thermometric curves of 41° and 50°. In pursuing these lines to the west, the thermometric means prove that they do not again rise, the quantity of heat which each point of the globe receives under the

same parallels being nearly the same on the east and west sides of the Alleghany mountains. The presence of the *gleditsia monosperma*, the *catalpa*, and other vegetable productions, several degrees farther to the north, in the basin of the Ohio, than on the coast of the Atlantic, led, at one time, to the supposition that there was a difference of temperature amounting to three degrees; but Humboldt has now clearly explained that the migration of vegetables towards the north is favoured in the basin of the Mississippi by the form and direction of the valley, which opens from north to south; while, in the Atlantic states, the valleys are transverse, and oppose great obstacles to the passage of plants from one valley to another. The following is a comparison of the mean temperature of an Atlantic city with that of one in the Mississippi valley:—

	Cincinnati. Lat 36° 6′ N.	*Philadelphia.* Lat. 39° 56′ N.
Winter,	32° 9′	32° 2′
Spring,	54 1	51 4
Summer,	72 9	73 9
Autumn,	54 9	56 5
Mean,	53 7	53 5

If the isothermal lines remain parallel, or nearly so, to the equator, from the Atlantic shores to the Rocky mountains, it cannot be doubted that they rise again beyond the mountains, between 35° and 55° N. latitude. Through 122° 40′ W. longitude, the isothermal line of 50° of temperature appears to pass, almost as in the Atlantic part of the eastern continent, at 50° of latitude. The western coasts of the continents resemble one another to a certain point. But these returns of the isothermal line do not extend beyond 60°. The distribution of heat over different parts of the year, differs extremely in the same isothermal line on the two continents. The whole of Europe, compared with the eastern parts of America and Asia, has an insular climate; and upon the same isothermal line, the summers become warmer, and the winters colder, as we advance from the meridian of Mont Blanc towards the east or west. Europe may be considered as the western prolongation of the old continent, and the western parts of all continents are not only warmer at equal latitudes than the eastern parts, but even in zones of equal annual temperature, the winters are more rigorous, and the summers hotter, on the eastern coast than upon the western coasts of the two continents. The northern part of China, like the Atlantic region of the United States, exhibits seasons strongly contrasted; while the coasts of New California and the mouth of the Columbia have winters and summers almost equally temperate. The meteorological constitution of these countries in the north-west resembles that of Europe as far as 50° or 52° N. latitude. In comparing the two systems of climates, we find at New York the summer of Rome and the winter of Copenhagen; at Quebec, the summer of Paris and the winter of Petersburg. At Pekin, China, the scorching heats of summer are greater than at Cairo, and the winters as rigorous as at Upsal. It appears, according to the observations of Darby, that the mean annual fall of rain in the United States amounts to about 37½ inches, while in north-western Europe it amounts to about 31·2 inches; but that the number of rainy days in the latter region is much greater than in the former. This is explained by the fact, that rains are much more heavy in the United States than in Eu- See *Climate*, *Temperature*, and *Winds*.

Productions. The vegetable productions United States are exceedingly various; the some, however, common to every section Union. Maize, or Indian corn, an American plant, is cultivated from Maine siana, but succeeds best in the Western dle States. It is adapted to a greater soils and situations than wheat, and yields double the produce: land of the first been known to give 100 bushels to an acre. is also cultivated from one extremity of to the other, but of superior quality in the and Western States.

Inspection of Wheat and Rye Flour, and Indian Meal, during ten Years.

	Wheat Flour. Barrels.	Rye Flour. Barrels.	Indian Meal. Barrels.
1821	1,767,350	63,976	17,49
1822	1,599,973	58,263	14,1
1823	1,557,794	73,288	14,7
1824	1,714,410	68,388	17,4
1825	1,502,611	97,410	14,5
1826	2,021,553	87,283	15,0
1827	2,061,530	84,057	14,4
1828	2,243,257	85,283	17,5
1829	2,234,123	77,245	17,0
1830	2,051,576	61,281	16,7

The cultivation of tobacco begins in Ma about the parallel of 39° or 40°, and through all the Southern States, and pa the Western States south of the Ohio. the staple of Maryland and Virginia, wh raised to a greater extent than in any othe the Union. (See *Tobacco*.) The soil an favourable for cotton is not found be though it can be raised as far north as 3 sides of the Alleghanies. It was first c for exportation in 1791, and is raised f Roanoke to the Sabine, forming the sta Southern and South-western States. (See The rice crops require great heat and a m commence about the same parallel with th and have nearly the same geographical ran is cultivated to a great extent in the C Georgia, &c., Louisiana, and as high as St Missouri. The sugar-cane grows in low s situations as high as the latitude of 33°; climate favourable for its production doe tend beyond 31° 30′. It is now cultiva great extent in Louisiana: in 1829, there plantations in that state, producing 81,0 heads of 1000 pounds each. Oats, rye a are raised in all the Northern and in t districts of the Southern States. Flax and hops are produced of an excellent Hemp grows naturally in the Western Sta hops in the Western and Middle States. T has been successfully cultivated in various the Union, and the mulberry-tree grows v eously, and has been extensively planted years. Fruits of all kinds of the tempera tropical climates, and the culinary ve which have been introduced from Europe here. The forest contains a great variety trees, some of which are of great size a Among the forest trees are numerous specie ash, beech, pine, magnolia, elm, maple, &c ing an unbounded supply of excellent w ship-building, carpentry, cabinet work, &c stores, sugar (see *Maple*), &c. The do mals are the same as those of Europe, a found to thrive remarkably well. Among animals there are many which bear the na

with those of the old continent, but which differ from them in their characteristics. Some of the most remarkable wild animals are the bison (improperly called *buffalo*), the black bear, the grisly bear, the cougar or puma (incorrectly called *panther*), the wild-cat, the wolf, the lynx, &c., the Rocky mountain sheep, the moose, elk and other species of deer (q. v.), the antelope, &c.; among the smaller animals, the beaver, skunk, glutton, raccoon, marten, badger, opossum, squirrel, fox, otter, porcupine, &c. (See the articles.) The birds are numerous. Among them are the wild turkey, wild pigeon, swan, wild goose and wild duck, quail, &c.; the eagle, mocking-bird, hummingbird, &c. (see the articles), some of which are remarkable for the beauty of their plumage, the richness and variety of their song, or the excellence of their flesh. Among the reptiles, the alligator, tortoise, serpents, frogs, &c. are separately described. (The works of Michaux, Wilson, Audubon, Bonaparte, Nuttall, Godman, treat fully of the forest trees, the birds and the quadrupeds of the United States.) The mineral kingdom is equally rich in its productions. Iron, coal, lime and salt, articles of primary importance, exist in great abundance. Lead is found in inexhaustible quantities in Missouri. Salt, which is obtained from the sea on the eastern side of the Alleghanies, is procured on the western side from salt springs, which are numerous and copious in their produce, all over the Western States. The supply of coal is equally abundant: on the west of the mountains, immense beds of bituminous coal stretch for hundreds of miles through the valley of the Mississippi; and on the east anthracite coal is found in various positions. Gold has recently been found, in considerable quantities, in some of the Southern States.

2. *Political Divisions and Population.* The United States are divided politically into twenty-four states, three territories, and the district of Columbia; all of which, with the exception of Louisiana and Missouri states and Arkansas territory, lie on the east of the Mississippi. The states are Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut (familiarly known as the Eastern or New England States*), New York, New Jersey, Pennsylvania, Delaware (Middle States), Maryland, Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana (Southern States), Tennessee, Kentucky, Ohio, Indiana, Illinois and Missouri (Western States). The territories are Florida, Michigan and Arkansas. The regions to the west of Missouri and lake Michigan have few inhabitants, and have no separate governments. The whole inhabited part of the country within the limits described in the beginning of this article, is about 800,000 square miles in extent; and the total population, according to the official census of 1830, is 12,858,670, of which 10,530,044 are whites, 319,576 free coloured persons, and 2,009,050 slaves. The government of the United States is entitled to the honour, we believe, of having at its first institution, set the example of establishing a system of an official census of the inhabitants, at regular periods. The following table exhibits the area in square miles, and the population, according to five official enumerations, of the several states and territories:—

* Foreigners often confound these geographical with political divisions, and speak of the "state of New England," &c.

STATES	Square Miles.	POPULATION. 1790.	1800.	1810.	1820.	1830.	Increase per ct. in 10 yrs.
Maine,	32,629	96,540	151,719	228,705	298,335	399,427	33.9
New Hamp.	9,491	141,885	183,858	214,460	244,161	269,328	10.4
Vermont,	10,212	85,539	154,465	217,895	235,764	280,657	19.0
Massachus.	7,800	378,787	422,845	472,040	523,287	610,408	16.6
Rhode Island,	1,340	68,825	69,122	76,931	83,059	97,199	17.0
Connecticut,	4,764	237,946	251,002	261,942	275,248	297,675	8.2
New York,	46,085	340,120	586,050	959,049	1,372,812	1,918,608	39.4
New Jersey,	8,320	184,139	211,149	245,562	277,575	320,823	15.6
Pennsylvania,	44,000	434,373	602,545	810,091	1,049,313	1,348,233	28.6
Delaware,	2,120	59,096	64,273	72,674	72,749	76,748	5.5
Maryland,	13,950	319,728	345,824	380,546	407,350	447,040	9.7
Virginia,	64,000	747,610	880,200	974,622	1,065,366	1,211,405	13.7
N. Carolina,	48,000	393,951	478,103	555,500	638,829	737,987	15.6
S. Carolina,	26,000	249,073	345,591	415,115	502,741	581,185	15.7
Georg'a,	62,000	82,548	162,686	252,433	340,989	516,823	51.5
Alabama,	46,000	}	8,850	40,330	} 127,901	309,527	141.6
Mississippi,	45,760	}			} 75,448	136,621	80.1
Louisiana,	48,220			76,556	153,407	215,739	40.7
Tennessee,	40,000		105,602	261,727	420,813	681,903	62.7
Kentucky,	42,000	73,677	220,959	406,511	564,317	687,917	22.1
Ohio,	39,128		45,365	230,760	581,434	937,854	61.3
Indiana,	37,000		4,651	24,520	147,178	343,031	132.1
Illinois,	32,000		215	12,282	55,211	157,445	185.4
Missouri,	63,000			19,783	66,586	140,455	110.9
Michigan,	40,000		551	4,762	8,896	31,639	250.1
Arkansas,				1,062	14,273	30,388	113.3
Florida,	45,760					34,730	
Dist. Colum.	100		15,000	24,023	33,039	39,834	20.1
Total		3,929,326	5,309,758	7,239,903	9,638,166	12,858,670	33.4

Slaves, according to five official Enumerations.

STATES.	1790.	1800.	1810.	1820.	1830.
Maine,					
New Hampshire,	158	8			
Vermont,	16				
Massachusetts,					
Rhode Island,	948	380	108	48	14
Connecticut,	2,764	951	310	97	25
New York,	21,324	20,613	15,017	10,088	75
New Jersey,	11,423	12,422	10,851	7,557	2,254
Pennsylvania,	3,737	1,706	795	211	403
Delaware,	8,887	6,153	4,177	4,509	3,292
Maryland,	103,036	105,534	111,502	107,398	102,994
Virginia,	292,627	346,968	392,518	425,153	469,757
North Carolina,	100,571	133,296	168,824	205,017	245,601
South Carolina,	107,094	146,151	196,365	258,475	315,401
Georgia,	29,264	59,399	105,218	149,656	217,531
Alabama,	}	3,489	17,088	} 41,879	117,549
Mississippi,	}			} 32,814	65,659
Louisiana,			34 686	69,064	109,588
Tennessee,		13,584	44,535	80,107	141,603
Kentucky,	12,430	40,344	80,561	126,732	165,213
Ohio,	3,417				
Indiana,		133	237	190	
Illinois,			168	917	746
Missouri,			3,011	10,222	25,096
Michigan,			24		32
Arkansas,				1,617	4,576
Dist. Columbia,		3,244	5,395	6,377	6,119
Florida,					15,501
Total,	697,896	896,849	1,191,364	1,538,384	2,009,050

It was provided by the constitution, that the first census of the United States should be made within three years after the first meeting of congress, and within every subsequent term of ten years, in such manner as they shall by law direct. The first census was accordingly taken in 1790, and the sixth in 1840. These several enumerations furnish satisfactory views of the rapid progress of population; but it is much to be regretted that a more uniform and philosophical system of classification of the inhabitants, with respect to age, has not been adopted. In this respect there is a great diversity among the several censuses, yet there has been a gradual improvement, and the division adopted in the last is far the best, and, with respect to the white inhabitants, very satisfactory. But, in this census, there is a want of uniformity in the division of ages between the white and the coloured population—a circumstance which renders it very defective as a basis for comparative views relating to these two classes.

The First Census.—1790.

In the first census, the whole population of the United States was divided into only five classes, in which the total amount of the several classes was as follows:

Free White Males.

1. Under 16 years,	893,127
2. Of 16 years and upwards,	813,895
3. *Free white females,*	1,675,696
4. *All other free persons except Indians not taxed,*	10,011
5. *Slaves,*	697,696
Total,	3,929,326

The Second Census.—1800.

In the second census, the total population of the United States was divided into twelve classes, the free white males and the free white females being each distributed into five classes, according to age, and all other free persons, except Indians not taxed, forming the eleventh class, and the slaves the twelfth. The following statement exhibits the total amount of each of the several classes:

Free White Males.

1. Under 10 years of age,	719,846
2. Of 10 and under 16 years,	349,550
3. Of 16 and under 26 years,	392,994
4. Of 26 and under 45 years,	472,530
5. Of 45 years and upwards,	253,073

Free White Females.

6. Under 10 years of age,	736,774
7. Of 10 and under 16 years,	325,962
8. Of 16 and under 26 years,	403,323
9. Of 26 and under 45 years,	466,307
10. Of 45 years and upwards,	254,991
11. *All other persons except Indians not taxed,*	110,072
12. *Slaves,*	896,849
Total,	5,305,756

The Third Census.—1810.

In taking the third census, the same divisions were adopted as in the second; and the numbers of the several classes were as follows:

Free White Males.

1. Under 10 years of age,	1,023,275
2. Of 10 and under 16,	469,188
3. Of 16 and under 26,	547,397
4. Of 26 and under 45,	579,247
5. Of 45 and upwards,	264,726

Free White Females.

6. Under 10 years of age,	991,425
7. Of 10 and under 16,	466,220
8. Of 16 and under 26,	561,660
9. Of 26 and under 45,	544,156
10. Of 45 and upwards,	238,276
11. *All other free persons except Indians not taxed,*	186,446
12. *Slaves,*	1,191,364
Total,	7,239,903

The Fourth Census.—1820.

In the first three enumerations, "all other free persons except Indians not taxed" were thrown into one mass, without distinction of age or sex, and the same course was adopted respecting the slaves; but in the fourth census, each sex of both these descriptions of persons was distinguished, according to age, into four classes, and each sex of the free white inhabitants was divided, as in the second and third censuses, into five classes; and, in addition, the number of free white males between sixteen and eighteen years was exhibited in a distinct column. Persons engaged in agriculture, commerce and manufactures, were also distinguished into three several classes; and "foreigners not naturalized" formed an additional class. This census gave the following results:

Free White Males.

1. Under 10 years,	1,249,229
2. Of 10 and under 16,	612,309
3. Of 16 and under 26,	776,139
4. Of 26 and under 45,	703,622
5. Of 45 and upwards,	389,625

Free White Females.

6. Under 10 years,	1,209,9
7. Of 10 and under 16,	5,3
8. Of 16 and under 26,	7
9. Of 26 and under 45,	7
10. Of 45 and upwards,	4

Slaves.

11. Males under 14 years,	3
12. " of 14 and under 26,	3
13. " of 26 and under 45,	1
14. " of 45 and upwards,	7
15. Females under 14 years,	3
16. " of 14 and under 26,	3
17. " of 26 and under 45,	1
18. " of 45 and upwards,	7

Free Coloured Persons.

19. Males under 14 years,	1
20. " of 14 and under 26,	1
21. " of 26 and under 45,	1
22. " of 45 and upwards,	1
23. Females under 14 years,	1
24. " of 14 and under 26,	1
25. " of 26 and under 45,	1
26. " of 45 and upwards,	1
27. *All other persons except Indians not taxed,*	1
Total,	1
28. *Free white males between 16 and 18,*	1
29. *Foreigners not naturalized,*	1
30. *Persons engaged in agriculture,*	1
31. *Persons engaged in commerce,*	1
32. *Persons engaged in manufactures,*	1

The Fifth Census.—1830.

In the fifth census, a new division of wh[ite] has been adopted, each sex, under two being distributed into quinquennial divi[sions] above twenty, into decennial divisions, [the] sex of free coloured persons and slaves into six classes. This census gives the results:

White Persons.

	Males.	
Under 5 years,	972,194	
Of 5 and under 10,	799,057	
10 " 15,	671,393	
15 " 20,	575,611	
20 " 30,	993,993	
30 " 40,	692,705	
40 " 50,	393,370	
50 " 60,	250,340	
60 " 70,	134,910	
70 " 80,	56,120	
80 " 90,	15,040	
90 " 100,	1,592	
Upwards,	174	
Total,	5,387,108	
Total whites,		

Free Coloured Persons.

	Males.	
Under 10 years,	68,737	
Of 10 and under 24,	42,126	
24 " 36,	27,139	
36 " 55,	23,392	
55 " 100,	11,473	
Upwards,	366	
Total,	133,463	
Total free coloured,		

Slaves.

	Males.	
Under 10 years,	252,940	
Of 10 and under 24,	313,570	
24 " 36,	169,854	
36 " 55,	113,265	
55 " 100,	43,496	
Upwards,	718	
Total,	1,002,339	
Total slaves,		
Total population,		

Number of Deaf and Dumb Persons

WHITES.

Under 14 years of age,	
Upwards of 14 and under 25,	
Upwards of 25,	

BLACKS.

Under 14	373	
Under 25	246	
Upwards	124	
		743
Total,		6166

Blind Persons.

Whites,	3974	
Blacks,	1470	
Total,		5444
Aliens,		107,322

These facts give the following results illustrative of the density and distribution of the population:—Number of inhabitants to a square mile in the United States, 16; in New England, 20·9; in the Middle States, 36·3; in the Southern States, 7; in Massachusetts, 81; in New York, 41·5; in Pennsylvania, 30·6; in Ohio, 24; in Illinois, 3; in the Western States, 11. In England, the density of the population is about 230 persons to the square mile; in France, 160; in Germany, it varies from 100 to 200. The number of Indians within the United States was estimated, in 1830, at about 313,000, of which upwards of 215,000 were to the west of the limits above described as inhabited by the whites; but measures have since been in progress for removing those within the limits of the states to a region on the western borders of Arkansas territory; and we have no certain data as to the actual number now remaining within the settled parts of the United States. Many of those who remain have become so much intermingled with blacks, that they may be more properly designated as coloured persons than as Indians. See *Indians, American; Indian languages of America; and Tuskarees.*

Towns with a Population of more than 5000.

Maine.

Portland,	12,601

New Hampshire.

Portsmouth,	8,082
Dover,	5 449

Massachusetts.

Boston,	61,392
Salem,	13,895
Charlestown,	8,787
New Bedford,	7,592
Gloucester,	7,512
Nantucket,	7,202
Springfield,	6,784
Lowell, (1832)	16,060
Newburyport,	6,388
Lynn,	6,175
Cambridge,	6,071
Taunton,	6,045
Roxbury,	5,249
Marblehead,	5,150
Middleboro',	5,006

Rhode Island.

Providence,	16,832
Newport,	8,010
Bristol,	3,153
Warwick,	3,369

Connecticut.

New Haven,	10,678
Hartford,	9,789
Middletown,	6,892
Norwich,	5,169

New York.

New York,	202,589
Albany,	24,238
Troy,	11,405
Utica,	8,323
Rochester,*	8,878
Hudson,	5,672
Schenectady,	5,629
Johnstown,	7,760
Geneva,*	7,484
Malden,	7,275
Poughkeepsie,	7,222
Salina,	6,822
Brighton,*	6,310
Newburgh,	6,424
Hempstead,	6,218
Ithaca,	6,181
Bethlehem,	6,092
Brookhaven,	6,055
Kingsession,	5,766
Onondaga,	5,668
Huntington,	5,542
Hudson,	5,310
Hillsburgh,	5,288
Ithaca,	5,270
Hester,	5,218
Dryden,	5,206
Oyster Bay,	5,188
Canandaigua,	5,182
Schoharie,	5,140
New Paltz,	5,102
Lenox,	5,020
Warwick,	5,018

New Jersey.

Newark,	10,953
New Brunswick,	7,831
Paterson,	7,731

Pennsylvania.

Philadelphia,	167,811
Pittsburg,	12,568
Lancaster,	8,744
Reading,	5,856

Delaware.

Wilmington,	6,628

Maryland.

Baltimore,	80,625

District of Columbia.

Washington,	18,827
Georgetown,	8,441
Alexandria,	8,459

Virginia.

Richmond,	16,698
Norfolk,	9,816
Petersburg,	8,326
Wheeling,	8,221

South Carolina.

Charleston,	30,289

Georgia.

Savannah,	7,523
Augusta,	6,696

Louisiana.

New Orleans,	46,310

Tennessee.

Nashville,	5,566

Kentucky.

Louisville,	10,352
Lexington,	6,104

Ohio.

Cincinnati (1831)	28,014

Missouri.

St Louis,	5,852

The following is the census of 1830, of a number of the smaller towns of the United States.

Andover, Mass.,	4,540	Crown Point, N. Y.,	2 641
Annapolis, Md.,	2,623	Detroit, Michigan,	2,222
Athens, Ohio,	722	Dover, Del.,	2,416
Augusta, Me.,	3,980	Fayetteville, N. C.,	2,628
Ballston Spa, N. Y.,	2,113	Frankfort, Ky.,	1,898
Bennington, Vt.,	3,419	Frederick, Md.,	4,427
Brighton, Mass.,	973	Fredericksburg, Va.,	3,207
Brunswick, Me.,	2,747	Germantown, Penn.,	4,622
Burlington, Vt.,	3,526	Guilford, Conn.,	2,344
Carlisle, Penn.,	3,522	Hagerstown, Md.,	3,371
Castine, Me.,	1,155	Hanover, N. H.,	2,361
Chillicothe, Ohio,	5,046	Indianapolis, Ind.,	1,980
Cleveland, Ohio,	1,076	Lebanon, New, N. Y.,	2,295
Columbia, S. C.,	2,310	Lexington, Mass.,	1,311
Columbus, Ohio,	2,437	Litchfield, Conn.,	4,464
Concord, N. H.,	3,727		

There are in the United States 205 towns with a population of upwards of 3000 and less than 5000 inhabitants, 64 with upwards of 5,000 and less than 10,000, and 20 with upwards of 10,000.

3. *Commerce, Manufactures, Agriculture, and Mechanic Arts.*—We have already treated, at considerable length, of the commerce and agriculture of the United States, in the articles *Commerce of the World, Agriculture,* and *Horticulture,* to which we refer the reader for further information on these subjects. Previous to the war which ended in the independence of the United States, that country was supplied from England with most articles which were required for domestic comfort or household decoration. The almost entire dependence of the colonies upon the parent country for almost every article of common use, is curiously illustrated by an order sent to Glasgow for supplies for General Washington's family, in the general's own handwriting, dated 20th Sept. 1759, and which may be found in Cleland's Statistical Account of Glasgow. Although the industry and skill of the Americans have subsequently been exerted on home manufactures as substitutes for these foreign commodities, yet such has been the growing prosperity of both countries since that period, that the average annual amount of the exports from Britain to the United States of America is now much more than quadruple what it was between the years 1750 and 1760. The following tables will serve to show, in some degree, the progress of the commerce of the country, and the nature of the articles exported and imported.

Commerce of the Colonies.

	Exports to G. Britain.	Imports from G. Britain.
1701,	£309,136	£243,688
1710,	349,816	266,622
1720,	466,190	319,705
1730,	652,566	536,622
1740,	716,418	813,304
1750,	904,770	1,313,076
1760,	761,101	2,611,708
1770,	1,018,538	2,735,575
1773,	1,268,328	1,979,416

It should be remarked, in regard to this table, that there was a very active trade kept up with other countries by the colonies, though prohibited by the navigation laws of Great Britain.

* The village of Rochester is situated in the townships of Gates and Brighton.

Estimated Value of the Domestic and Foreign Produce exported from the United States to Foreign Countries, during each Year, from 1790 *to* 1830; *each Year ending on the* 30*th September.*

Year.	Articles, the Growth, Produce or Manufacture of the United States.	Articles, the Growth, Produce or Manufacture of Foreign Countries re-exported.	Total Value of the exports from the U. States.
	Dollars.	*Dollars.*	*Dollars.*
1790			20,205,156
1791			19,012,041
1792			20,753,098
1793			26,109,572
1794			33,026,233
1795			47,989,472
1796	40,764,097	26,300,000	67,064,079
1797	29,850,206	27,000,000	56,850,206
1798	25,527,097	33,000,000	61,527,097
1799	33,142,522	45,523,000	78,665,522
1800	31,540,903	40,130,077	70,971,780
1801	47,473,204	46,642,721	94,115,925
1802	36,708,139	35,774,971	72,483,160
1803	42,205,961	13,594,172	55,800,033
1804	41,467,477	36,131,597	77,599,074
1805	43,387,902	52,179,019	95,566,021
1806	41,253,727	60,283,236	101,536,963
1807	48,799,362	59,643,358	108,543,150
1808	9,433,946	12,997,414	22,430,960
1809	31,603,702	20,797,631	52,203,333
1810	42,366,375	24,391,395	66,757,970
1811	45,294,042	16,022,790	61,316,833
1812	20,037,109	8,495,127	28,527,236
1813	23,003,153	4,847,945	27,851,097
1814	6,772,372	115,169	6,927,441
1815	45,974,403	6,583,350	52,557,753
1816	64,781,396	17,138,856	81,920,452
1817	68,313,500	13,358,069	82,671,569
1818	73,854,127	19,426,696	93,281,153
1819	50,976,338	19,165,183	70,142,521
1820	51,683,540	18,008,089	69,691,669
1821	48,671,394	21,302,488	64,974,328
1822	46,874,979	25,266,202	72,140,281
1823	47,114,406	27,543,622	74,690,030
1824	50,649,500	23,257,157	73,906,657
1825	64,944,745	31,590,043	99,535,988
1826	53,055,718	24,339,012	77,395,322
1827	58,921,891	23,403,136	82,324,827
1828	50,921,389	21,395,017	72,316,786
1829	49,700,193	16,658,478	72,358,671
1830	59,462,989	14,387,479	73,949,508

The following statement for the year 1831 shows the nature of the domestic exports:—

Summary Statement of the Value of the Exports of the Growth, Produce, and manufacture of the United States, during the Year commencing on the 1*st of October,* 1830, *and ending on the* 30*th of September* 1831.

THE SEA.

	Dollars.
Fisheries—	
Dried fish, or cod fisheries	695,268
Pickled fish, or river fisheries – herring, shad, salmon, mackerel	264,641
Whale, and other fish oil	854,440
Spermaceti oil	53,826
Whalebone	139,942
Spermaceti candles	217,690

THE FOREST.

Skin and fure	750,988
Ginseng	115,988

Product of Wood—	
Staves, shingles, boards, and hewn timber	1,467,068
Other lumber	214,185
Masts and spars	7,806
Oak bark and other dye stuffs	99,116
All manufactures of wood	275,219
Naval stores, tars, pitch, rosin, and turpentine	397,687
Ashes, pot and pearl	989,813

AGRICULTURE.

Product of Animals—	
Beef, tallow, hides, and horned cattle	899,963
Butter and cheese	264,796
Pork, (pickled), bacon, lard, live hogs	1,301,654
Horses and mules	219,015
Sheep	14,409

Vegetable Food—	
Wheat	932,579
Flour	9,028,488
Indian corn	324,617
Indian meal	995,496
Rye meal	71,261
Rye, oats, and other small grain and pulse	122,717
Biscuit, or ship bread	550,163
Potatoes	61,167
Apples	81,749
Rice	2,016,987
Tobacco	1,815,?
Cotton	2,216,?
Flaxseed	14,?
Hops	21,?
Brown sugar	1,?

MANUFACTURES.

Soap, and tallow candles	61,?
Leather, boots and shoes	3?,?
Household Furniture	21,?
Coaches and other carriages	8,?
Hats	2,?
Saddlery	2,?
Wax	1,?
Spirits from grain, beer, ale, and porter	1?,?
Snuff and tobacco	2?,?
Lead	4,?
Linseed oil and spirits turpentine	3?,?
Cordage	1,?
Iron, pig, bar, and nails	2,?
—— castings	1,?
—— all manufactures of	16,?
Spirits from molasses	2,?
Sugar, refined	2,?
Chocolate	1,?
Gunpowder	1,?
Copper and brass	1,?
Medicinal drugs	14,?

Cotton Goods—	
Printed or colored	47
White	1?,?
Nankeens	1,?
Twist, yarn, and thread	7,?
All other manufactures of	6,?

Flax and Hemp—	
Cloth and thread	2
Bags, and all manufactures of	18

Wearing apparel	8,?
Combs and buttons	1?,?
Brushes	1,?
Billiard tables, and apparatus	1,?
Umbrellas and parasols	1,?
Leather and morocco skins, not sold per pound	2,?
Printing presses and type,	,?
Musical instruments	,?
Books and maps	1,?
Paper and other stationery	1,?
Paints and varnish	1,?
Vinegar	,?
Earthen and stone ware	,?
Fire engines and apparatus	1,?
Manufactures of glass	,?
—— of tin	,?
—— of pewter and lead	,?
—— of marble and stone,	,?
—— of gold and silver and gold lace	,?
Gold and silver coin	12,?
Artificial flowers and jewelry	,?
Molasses	,?
Trunks	,?
Brick and lime	1,?
Salt	3,?

ARTICLES NOT ENUMERATED.

Manufactured	1?,?
Other articles	1,?

RECAPITULATION.

Products of the sea	1,?
—— forest	5,?
—— agriculture	6,?
Manufactures	1?,?
Articles not enumerated	1,?
Total	81,?
Deduct gold and silver coin,	1?,?
Total produce and manufactures of the United States	81,?

The exports of foreign produce for the same year amounted to 20,033,526 dollars.

Value of merchandise imported into the United States from 1821 *to* 1830.

	Dollars.
1821	62,?
1822	77,?
1823	83,?
1827	79,?
1828	77,?
1830	70,?

In 1831, the value of imports was 103,19? dollars; of exports, as above given, 81,310,? dollars. In 1833, the value of imports was 1??,??? dollars, of exports, 90,140,433 dollars.

It has been the policy of the United States, for the last twenty years, to encourage domestic manufactures; and the tariffs of 1816, 1824, 1828, and 1832 have been constructed with reference to that principle. On the termination of the three years' war with Great Britain, in 1814, it was found that the restrictive system which had preceded it, and the necessities attending the war itself, had created and fostered a new and more extensive manufacturing interest than had before existed. The capital thus vested has been protected by heavy duties upon the importation of such articles, the produce of the manufactures of foreign countries, as would interfere with the permanent growth and stability of the manufacturing establishments thus brought into being. The cotton crop of the United States at present amounts to 1,038,347 bales, or 376,000,000 lbs.: in 1816, it was 68,000,000 lbs. The number of cotton mills is 795, with 1,246,503 spindles, and 33,506 looms, producing annually 230,461,990 yards of cloth, consuming 77,757,316 lbs. of cotton, and employing 18,539 men, 38,927 women, and 4691 children under twelve years of age: annual value of manufactured articles, 26,000,000 dollars: the quantity of cotton goods printed is estimated at 40,000,000 yards: about one third of the goods manufactured are bleached: the number of hand-weavers is not more than 5000. (See *Cotton Manufacture.*) The number of sheep is estimated at 20,000,000, producing 50,000,000 lbs. of wool annually; value of cloth manufactured, 40,000,000 dollars; persons employed, 50,000. Of glass, porcelain, and other manufactures in clay, there are annually produced articles to the value of about 3,000,000 dollars, the manufacture of which employs 2140 persons. The annual value of the paper manufactured is estimated at 7,000,000 dollars; of chemical articles used in manufactures, about 1,000,000 dollars, in thirty chemical establishments. Hats and caps are manufactured to the value of 10,500,000 dollars, occupying 18,000 labourers. Cabinet ware manufactured to the annual value of 10,000,000 dollars, employing 15,000 workmen. Of iron were made, in 239 furnaces, in 1830, 191,536 tons,* converted into 112,866 tons of bar-iron, and 28,273 tons of castings, which gave an aggregate value of 13,329,760 dollars, employing 29,254 hands. Quantity of salt manufactured, 4,444,929 bushels (besides which 5,901,157 bushels were imported during 1831, chiefly from Great Britain). Lead, from United States mines at Fever river and in Missouri, in 1830, 14,541,310 lbs. (in 1831, the quantity was only 6,449,080 lbs.). Sugar, from the cane, 100,000,000 lbs. (with 5,000,000 gallons of molasses), the whole consumption of the country being 176,000,000: 150 steam-engines are employed on the sugar plantations; and there are about forty sugar refineries in the United States. The inspections of flour and meal for 1831 give the following results: 3,117,112 bbls. wheat flour, 37,399 bbls. rye flour, 17,337 hhds. and 56,476 bbls. of Indian corn meal. The whale fishery employed, in 1831, 102,500 tons of shipping, yielding 110,000 bbls. of sperm oil, and 115,000 bbls. of whale oil, with 100,000 lbs. of whalebone: about 2,500,000 lbs. of sperm candles are manufactured: the annual product of the whale fishery is about 3,500,000 dollars. (See *Whale Fishery.*) Within a few years, the consumption of coal for fuel has greatly increased in the United States, and anthracite coal, which is found on the eastern side of the Alleghanies, has been much used for this purpose: in 1820, the quantity mined was 365 tons of twenty-eight bushels; in 1823, 5823; in 1826, 48,047; in 1830, 174,925. In 1824, gold to the value of 5000 dollars, the product of the Southern States,† was received at the mint of the United; in 1830, 466,000 dollars, and in 1831, 496,000 dollars, from the same source. The whole annual value of the produce of the commerce, manufactures and agriculture of the United States has been estimated at from 1,200,000,000 to 1,500,000,000 dollars. An inspection of the table of articles of domestic growth and manufactures exported in 1831, will give some indications on this subject.

4. *Constitution, Administration, Finances.* The government of the United States is a representative democracy, in which the people intrust the administration of affairs to executive and legislative officers of their choice. The powers of these officers are strictly defined by a written act, the constitution, which was framed by the people, through their delegates, adopted by them, and can be altered only by them. The confederation consists of a number of states, united together so as to form a federal republic, in which each state reserves its internal legislation, and leaves to the representatives of the whole people, in general congress, the adjustment of the relative claims of the members; the levying, direction and government of the common force of the confederation; the requisition of subsidies for the support of this force; the making of peace and war; the entering into treaties; the regulation of commerce, &c. The government rests on the basis of a full, fair and equal representation, the elective franchise being nearly universal. (See our articles *Constitution of the United States, Congress of the United States, President of the United States, Courts of the United States,* and *Elections.*) In the executive administration of the government, the president is assisted by the several heads of departments, who hold their offices at his will. 1. The department of state was created by an act of congress of Sept. 15, 1789: by a previous act of July 27, 1789, it was denominated the "department of foreign affairs;" and it embraces what, in other governments, are styled the "department of foreign affairs" and the "home department." The secretary of state conducts the making of all treaties between the United States and foreign powers, and corresponds officially with the public ministers of the United States at foreign courts, and with the ministers of foreign powers resident in the United States. He is intrusted with the publication and distribution of all the acts and resolutions of congress, and of all treaties with foreign powers and Indian tribes; preserves the originals of all laws and treaties, and of the public correspondence growing out of the intercourse between the United States and foreign nations; is required to procure and preserve copies of the statutes of the several states; grants passports to American citizens visiting foreign countries; preserves the evidence of copyrights, and has control

* Erroneously stated, in our article *Iron*, at 50,000 tons.

† The gold region extends from the Potomac into Alabama; and gold has also been recently found in Tennessee. There are, at present, about 20,000 labourers employed, partly in washings and partly in mines. The whole value of the gold produced has been estimated at 5,000,000 dollars annually, which is chiefly exported to Europe, where gold bears a higher price, in proportion to silver, than in the United States. It is also said that there are proofs of these mines having been formerly worked, pieces of machinery and crucibles, much superior to the Hessian crucibles now in use, having been found there.

of the office which issues patents for useful inventions. He has the charge of the seal of the United States, but cannot affix it to any commission, until signed by the president, nor to any act or instrument, without the special authority of the president. 2. The treasury department was created by an act of congress of September 2, 1789. The secretary of the treasury superintends all the fiscal concerns of the government, and, upon his own responsibility, recommends to congress measures for improving the condition of the revenue. All the accounts of the government are finally settled at the treasury department; and, for this purpose, it is divided into the office of the secretary (who has a general superintendence of the whole), the offices of the two controllers, five auditors, a treasurer, a register, and a solicitor. The first auditor receives all accounts in relation to the revenue and civil list; the second and third, those relating to the army, fortifications, and the Indian department; the fourth, those relative to the navy department; the fifth, those connected with the department of state, the post-office, light-houses, &c. The first controller examines the accounts settled by the first and fifth auditors; the second, those of the other three auditors. The following tables will show the amount of the revenue, and the mode of raising it. The two sources of revenue are duties on imports, and the sale of public lands. The internal duties (on spirits, sugar, licenses, &c.) which had previously existed, and the direct tax on lands, houses and slaves, imposed in 1798, were abolished in 1802. In 1813, direct taxes and internal duties (on licenses, carriages, sales by auction, &c.) were again laid, in consequence of the increased expenditure arising from the war, and the diminution of the revenue on imports from foreign countries. The acts imposing these taxes were repealed soon after the war, and the two sources of revenue first mentioned have been amply sufficient to meet the expenses of the government, and to pay off the public debt.

The receipts into the treasury during the year 1830 were 24,844,116 dollars; balance remaining from past year, 5,668,540 dollars; expenditures, 24,585,281 dollars; as follows:

Receipts.

Customs,	21,922,391
Lands,	2,329,356
Dividends on bank stock,	650,000
Incidental receipts,	102,069

Expenditures.

Civil list, foreign intercourse, &c.,	3,987,416
Military, including fortifications, internal improvements, &c.,	6,768,698
Naval service,	3,239,436
Debt,	11,355,748

The debt created by the revolutionary war amounted to forty-two millions of dollars, and the debt contracted by each individual state was assumed by the United States on the organization of the new government. This debt was to be redeemed by the proceeds of the national domains, and the interest of several species of stock, under the direction of the commissioners of the sinking fund.

Years.	Amount of Debt.	Years.	Amount of Debt.
	Dollars.		Dollars.
1791,	75,169,974	1828,	58,109,432
1801,	82,908,167	1829,	61,064,059
1804,	85,353,043	1827,	73,987,357
1812,	45,985,122	1828,	67,475,833
1816,	123,016,276	1829,	58,228,139
1820,	91,015,566	1830,	48,565,406
1825,	83,966,676	1834,	4,760,082

The following tables exhibit more at large the Public Debt and Finances of the United States

PUBLIC DEBT.

Funded and Unfunded Debt of the United States, in

Stocks.	Date of acts constituting stocks.	Amount. Dollars. Cts.	Dec
* Funded debt—6 per cent. stock.	Mar. 3, 1821		4,73
† Unfunded debt—registered debt, being claims for services and supplies during the Revolutionary war	July 9, 1798	27,476 70	
† Treasury notes issued during the late war	Feb. 24, 1815	6,0 3 00	
† Mississippi stock	Mar. 3, 1815	4,220 05	
			4,7

* Redeemable after the 1st Jan. 1835. † Redeemable a

FINANCES OF THE UNITED STATES.

Statement of the Receipts and Expenditure for the Ye with Total Amount from 1789 to 183

RECEIPTS.

	In 1832. Dollars. Cts.	Fro
Customs	28,465,237 74	3
Internal Revenue	11,630 65	
Direct Taxes	6,791 13	
Postage	244 56	
Public Lands	2,623,381 03	
Loans, Treasury Notes, &c.		15
Dividends and sale of Bank Stock	698,000 00	
Miscellaneous	99,276 16	
Total Receipts	31,953,961 16	9

EXPENDITURES.

	In 1832. Dollars. Cts.	Fro
Civil List	1,800,797 74	
Foreign Intercourse	235,181 07	
Miscellaneous	2,451,208 64	
Military Establishment—		
Military service, including Fortifications, Arsenals, Armories, Ordnance, Internal improvements, &c.	5,446,694 88	13
Revolutionary pensions	1,057,121 35	
Other Pensions	127,300 82	
Indian Department	1,252,419 73	
Naval Establishment	3,956,320 29	11
Public Debt	17,540,309 29	6
Total Expenditure	34,386,698 06	8
Balance in Treasury	2,011,777 35	

By the report of the director of the mint the operations of that office for 1831 were as follows: Amount of coinage, 3,923,473 dollars, comprising 714,270 dollars in gold coins, 3,175,200 dollars in silver coins, and 33,603 dollars in copper coins, making together 11,792,284 pieces. Of gold coined, 26,000 dollars worth was from North Carolina, 294,000 dollars from North Carolina, and 26,000 dollars from Georgia. The total value of the coinage from 1792 to 1831 is 40,000,000 dollars.

3. The war department was created, by act of congress, August 7, 1789, and at first em-

only military but naval affairs. The secretary at war superintends every branch of military affairs, and has under his immediate direction a requisition bureau, a bounty land office, a pension bureau, a bureau of Indian affairs, an engineer office, an ordnance office, an office for the commissionary general of subsistence, a paymaster-general's office, and a surgeon-general's office. This department has the superintendence of the erection of fortifications, of making topographical surveys, of surveying and leasing the national lead mines, and of the intercourse with the Indian tribes. The military peace establishment of the United States was fixed, by act of congress of March 2, 1821, at 6000 men. The army, as organized according to this law, is under the command of one major-general, and two brigadier-generals. It consists of four regiments of artillery (2240 men), and seven regiments of infantry (3829 men). This might be increased to 12,000 men without a proportionate increase of the expenses in the war department, the number of privates being reduced as low as possible, while the officers are kept up on a scale adapted for thrice the effective numerical force; by which arrangement the general expenses are diminished in time of peace, and a sufficient number of officers are in readiness on the breaking out of war. This circumstance, and that of the high price of labour in the United States, render the expenses of the military peace establishment much greater in proportion than those of the European powers. It appeared, from the report of the secretary of war (December, 1831), that the United States then had, in serviceable condition, 465,000 muskets. The annual demand to supply the necessary loss in the army and the militia, and to furnish the issues to the respective states, is 18,300; the number manufactured in the public armouries is about 25,000, which, with 11,000 made at private works, gives a total annual production of 36,000. In 1815, there were but 20,000 in the arsenals. There are at present 623 cannon for field service, and at the arsenals and in the old fortifications 1165, of antiquated patterns, and, with the exception of about 400 pieces, unserviceable. 1214 cannon of the improved pattern have been procured for new fortifications, in addition to which, 2587 are required; and for works now constructing, 4045 pieces will be necessary. The United States have no public armouries for the fabrication of cannon. The number of militia is 1,262,315; but the organization is very defective. The military academy at West Point, supported by the federal government, consists of the corps of engineers, professors and teachers, and 250 cadets, who are trained to the duties of privates, of non-commissioned officers, and of officers. To the bureau of Indian affairs, all matters touching the Indian relations are referred. This bureau is subordinate to the department of war.

4. The navy department was created by act of congress of April, 30, 1798. The secretary issues all orders to the navy of the United States, and superintends the concerns of the navy establishment in general. The board of navy commissioners, consisting of three officers of the navy, in rank not below that of a post-captain, was established in 1815. The board is attached to the office of the secretary of the navy, and, under his superintendence, discharges all the ministerial duties of that office relative to the procurement of naval stores and materials, and the construction, armament, equipment and employment of vessels of war, as well as other matters connected with the naval establishment of the United States. There are navy-yards at Portsmouth (N. H.), Charlestown (Mass.), Long Island (N. Y.), Philadelphia, Washington, Gosport (Va.), and Pensacola. The naval force consists of twelve ships of the line, seventeen frigates, sixteen sloops of war, and seven smaller vessels. (See *Navy*.) Two dry docks have been completed at Charlestown and Gosport, at an expense of 500,000 dollars each, and timber has been procured for five ships of the line, five frigates, and five sloops of war.

5. The postmaster-general has the appointment of the postmasters throughout the United States, the making of contracts for carrying the mails, and the direction of every thing relating to the post-office department. The revenue arising from the post-office has been principally expended upon the extension and improvement of the establishment, by which means the regular conveyance of letters, newspapers, pamphlets, &c., has been extended to the inhabitants of every part of the Union, even to the remotest territorial settlements.

Post-offices in 1790,	75	Extent of post-road in miles,			1,875
....	1800,	903	..	..	20,817
....	1810,	2300	..	..	36,406
....	1820,	4500	..	..	72,492
....	1830,	8450	..	..	115,176

In July, 1831, the number of offices was 8686. The amount of postage accruing in 1829 was 1,707,418 dollars; in 1830, 1,850,583 dollars; in 1831, 1,997,811 dollars; the expenses of the department during the latter year, 1,935,559 dollars, of which 635,028 was in compensation to postmasters, and 1,252,226 for transportation of the mail. See *Post*.

5. *Education*. The general education of all classes has no where been so much attended to as in the United States, where it is well understood that free institutions can be rendered secure only by the diffusion of intelligence among the citizens. A remarkable proportion of the first colonists of New England were educated men. The tone which they imparted has never been lost; and the principle which they established, that the education of the community should be carried on at the common expense, has never been abandoned in the states they planted, but has been successively adopted by other states, until, at last, though its practical operation has been extended only to eight or nine, its soundness and importance are acknowledged by all. From this principle has grown up whatever is peculiar in American education: and in order to understand how this is carried on, and how it differs from education in other countries, it is necessary to trace its operations through the three stages of instruction provided for or protected by law in the different states—common schools, or free schools, supported at the public expense; incorporated academies; and incorporated colleges. 1. *Common Schools*, or *Free Schools*. It is obvious that the character of the mass of the people will be formed in these schools, because the great majority cannot, from their circumstances, afford to seek higher or better education than can be obtained in them. These schools, therefore, demand the first attention in a free state, and, happily for New England, received this attention so early, that they have always constituted the foundation of what is most peculiar and valuable in the character of its inhabitants. (See *Schools*.) One of the advantages of the system is, that the whole population is

made to take a direct personal interest in the business of education, and to carry it on in the way best suited to supply the general wants. The people, in their town-meetings, vote the money, by their committees spend the money, and by their children get the benefits of the outlay: the whole management of the schools is directly in their hands. Another great advantage is, that the schools are supported by a tax upon property, although this remark does not apply strictly to all the states, in some of which there is a public fund for bearing a certain proportion of the expense. But every where in New England, except in Connecticut, they are supported by a tax on the property of all. It is therefore an arrangement eminently beneficial to the poorer classes of the community. In most towns, one fifth of the inhabitants pay at least one half of the tax, and, instead of sending one half of the scholars, do not send one sixth. Of course the school tax is substantially a tax on the rich to educate the children of the poor; and it is thus equally beneficial in its operation upon both parties. The poor have the promise of the law and the constitution that their children shall be educated, and thus preserved from the greatest temptation to crime: the rich are assured that they shall live in a community where universal education shall keep the foundations of society safe, and afford them a greater personal security than the law can offer. In this way the system of free schools, as practically carried into operation in New England, is to be regarded as a great moral police, to preserve a decent, orderly and respectable population; to teach men, from their earliest childhood, their duties and their rights; and, by giving the whole mass of the community a sense of character and a general intelligence, make them understand the value of justice, order and moral worth, and more anxious to maintain them than the law itself can be. The means of improvement being thus given to all, we find daily examples, in the United States, of men raised to the most commanding influence from the poorer classes of the obscurest villages, who, but for the opportunity offered by the free schools, at their own doors, to make the first step in their career, would never have risen from the humble station in which they were born. The following remarks are from an article in a number of the Quarterly Journal (published in London), written by professor Ticknor of Boston, United States:—"This system of universal education has now, therefore, become, to a remarkable degree, the basis of the popular character which marks the two millions of people in New England. The laws, indeed, differ in the six states, and have been altered in each, from time to time, since their first enactment; but all the states have laws on the subject: the leading principles are the same in all of them; and the modes of applying them, and the results obtained, are not materially different. Indeed, in almost every part of these six states, whatever may be the injunctions of the law, the popular demand for education is so much greater, that the legal requisitions are generally or constantly exceeded. The most striking instance of this is, perhaps, to be found in the city of Boston, where the requisitions of the law could be fulfilled by an expenditure of three thousand dollars annually, but where from sixty to seventy thousand are every year applied to the purpose. And yet multitudes of the poor and small towns in the interior show no less zeal on the subject, and in proportion to their means, make no less exertion. The mode in which this system of popular edu carried into effect is perfectly simple, and principal cause of its practical efficiency. In England states are all divided into territo munities called *towns*, which have corpora leges and duties, and whose affairs are ma a sort of committee annually chosen by th tants, called *selectmen*. These towns are size; but in the agricultural portions of c try, which contain four fifths of the peop are generally five or six square miles; a them, in their corporate capacity, rests the making provision for the support of fre This duty is fulfilled by them, in the fre voting, at a meeting of all the taxable ine tants over twenty-one years old, a tax su of all kinds to support schools for the ens always as large as the law requires, a larger; or, if this is neglected by any tow surely complained of to the grand jury dissatisfied inhabitants, who want educ their children, that instances of such ne almost unknown. The next thing is wisely and effectually the money thus r all but the smallest towns, one school is kept through the whole year, in wh Greek, the lower branches of mathema whatever goes to constitute a comm education in reading, writing, geograph &c., are taught under the immediate s ence of the selectmen, or of a special appointed for the purpose. This, however not be carrying education near enough t of the people, in agricultural districts them fully to avail themselves of it, esp poorer classes and the younger children this difficulty, all the towns are divide tricts, varying in number, in each town, to twelve, or even more, according to ti ties and convenience. Each district has school committee, and receives a part imposed for education; sometimes in pr the population of the district, *but* oftc number of children to be educated. The of the district determine where the schoo kept, select its teacher, choose the books to be used, or delegate that power to the and, in short, are responsible, in all partic the faithful fulfilment of the trust com them; the general system being that a kept in each district during the long winter when the children of the farmers are gen by a male teacher capable of instructing in writing, arithmetic, English grammar, ge and history; while in the same school-house the summer months, schools are kept by w to instruct the smaller children in knowled more elementary. In this way, *for the pop* of New England, consisting of two millions o not less than from ten to twelve thousa schools are open every year, *or, on an aver* school to every two hundred souls—a pro undoubtedly quite sufficient, and larger than be necessary, if the population were not s parts very much dispersed." 2. The com free schools give instruction in the elemen English education (reading, *writing*, and geography), and in the larger towns lat and Greek. The public legislation goes no in its requisition, but has *generally stood re* assist the people, whenever they have show selves disposed to go beyond this point.

visible in the number of academies, incorporated by law for the purposes of giving higher instruction than can be obtained at the common schools. Individuals desirous of securing better teaching for their children than the law provides, associate together and raise funds, obtain an act of incorporation from the legislature for the management of their funds, and sometimes receive a grant of money from the public authorities. These institutions are often also founded by charitable donations of individuals, and are supported in part by the tuition fees of the pupils, which are generally very low. They give instruction in the ancient languages, and often in French, with the lower branches of the mathematics and natural philosophy. Children from the neighbouring towns are sent to them, and are prepared for the colleges, or for active life as traders, mechanics, farmers, &c. There are about 500 such institutions in the country, and they are of great importance, by bringing the means of a useful practical education within the reach of a very large portion of the community. 3. The last step in education, of which the government and the people take any direct cognizance, is in the colleges, which are incorporated institutions, possessing more or less funds, a regular body of teachers, and the power of conferring degrees. (See *Colleges*.) The oldest and amplest of the colleges is Harvard college, in Cambridge, founded in 1638. The example of Massachusetts was early followed by the other colonies; and in 1776 there were eight of these institutions in the United States. The number at present is sixty, differing, however, extremely in the extent of the course of studies, the number of teachers, and other advantages which they afford to the students. The course of studies in all of them lasts four years, and embraces Greek, Latin, natural philosophy, mathematics, metaphysics, moral philosophy, chemistry, &c.; but all these studies are pursued very superficially, as may be inferred from the circumstances of the age and qualifications of the pupils when they enter the institution, and of all being required to pass through the same course without regard to the very unequal attainments, and the different talents and objects of each. The colleges have done much good in preparing many, in some degree, for their professional studies; but they do not give that thorough education which is now more and more felt to be wanted in the country. The period of education is itself too limited; most young men, in the United States, completing their preparatory studies at about the age of eighteen. These remarks, though still applicable, in all their force, to nearly all the institutions of the country, are less strictly true at present of two or three of the oldest, in which attempts have been made to introduce a better method of study. On leaving the colleges, the young men who have been educated in the manner described, have hitherto, with few exceptions, entered upon the study of one of the three professions; but at present those who devote themselves to the business of manufacturing and engineering are more numerous than formerly. Beyond the colleges little has been done by public legislation for education. The law, medical and theological seminaries have been generally established and maintained by the exertions of private individuals, although this remark is not without exceptions. There are at present twenty-six theological seminaries in the country; but a small portion of the clergy have, as yet, been educated in these institutions, most of which are, indeed, yet in their infancy. The great body of the clergy pursue their studies under the direction of some individual clergyman, or do not study at all. The standard of theological instruction in the United States must therefore be considered as very low. The number of medical schools is eighteen, in some of which the standard of education is high, and the advantages for scientific instruction great. The number of law schools is nine, most of which are of recent origin; the lawyers hitherto having been educated chiefly in the offices of the older and more eminent counsellors, little more having been required, for obtaining permission to practise, than reading more or less, according to the inclinations of the student, for a certain course of time. Besides these more public and general means of instruction, the private schools (i. e. such as are kept and managed by individuals at their own risk and discretion) are numerous; and, in many cases, they afford greater advantages than the public schools; several of these have been organized and conducted on the plan of the German gymnasia, and several mechanical and agricultural institutes have recently been established. Infant schools and Sunday schools also exist in great numbers. Subsidiary to direct teaching, the state of the public libraries should be considered; and in this respect there is a deplorable deficiency in the country. The only respectable libraries are those of Cambridge (36,000 volumes), Boston Athenæum (26,000 volumes), of Philadelphia (24,000 volumes), of congress (16,000 volumes), and of Charleston (13,000 volumes); and these must, of course, be very imperfect. (See *Libraries*.) Until the libraries of the country are put upon a better footing, it is not to be expected either that the scholars and scientific inquirers in that country can take their place at the side of those of Europe, or that instructors can be formed who will give the coming generations such advantages as their situation and wants will require. There are other institutions, which are of great importance in promoting general instruction, and which are little known in the United States. There are botanical gardens at Cambridge, New York and Philadelphia; there are few collections of instruments for teaching natural philosophy and mechanics; there are some good collections of minerals, especially those at Cambridge, New Haven and Brunswick; but there is neither an observatory nor a good cabinet of natural history in the country. These are defects which also call for remedies. On the whole, it will be seen that, while popular education is very widely diffused, and a great amount of knowledge is communicated to the mass of the people, the means of education, as we ascend to the higher departments of literature and science, grow more and more imperfect, and at last almost entirely fail.

6. *Condition of the People*. The population of no country in the world ever enjoyed the necessaries and comforts of life in such abundance as that of the United States. The high rate of wages, the great demand for labour of all kinds, the plenty of provisions, the cheapness of land, and the lightness of taxes, connected with the absence of all restrictions upon industry, and the character of the institutions, would naturally produce such a result. It has been computed that a labourer can earn as much in one day as will furnish bread and meat to himself, wife and four children for three days nearly. It is observed by travellers—and the observation agrees with facts known regarding the lower ani-

mals—that this abundance of substantial and nourishing diet has had a visible effect upon the human frame. In the western country, in particular, where the climate is good, and rural occupations prevail, the great size and athletic frames of the men have struck foreigners with surprise. Where the means of subsistence are so easily procured, no person able to work need be in want; but there must be some in all countries, who, from age, or bodily or mental infirmities, are unable to support themselves: the number of these, however, is small, and comfortable provision is made for their support by state legislation. The actual expense is light; but we have no accurate data for determining its amount in the different states. A beggar is rarely seen in any part of the country. To have a just idea of the advantages which industry enjoys in the United States, we must take into account that, while labour yields larger returns than in any other country, a much smaller proportion of the produce is taken away in the shape of taxes. The revenue of the general government is raised from the customs and the sale of the public lands—no direct taxes being paid except state taxes, which are very light. It should also be borne in mind, that the distribution of taxes is regulated on juster principles in the United States than in other countries; so that the burden falls more directly upon property and consumption. The following statements will serve to illustrate these general remarks:—It is estimated by Mr Holmes (Speech in the Senate of the United States, 1832), that, if the industry of this country were divided into twelve equal parts, we might assign to commerce two, to navigation one, manufactures two, and agriculture seven. The price of agricultural labour must, therefore, regulate that of the rest; though, of course, the price of other labour will be lower or higher according to the demand, skill, certainty of success, constancy of employment, &c.; yet it will rise or fall relatively with that of agriculture. The average price of agricultural labour, in 1830, was 8 dollars 95 cents per month throughout the United States, in addition to the board of the labourer; in the New England and Middle States, varying from 8 to 10 dollars per month; and in the Southern and Western, generally, from 6 to 10 dollars; while in Georgia it was 12 dollars, and in Missouri 15 dollars. Some attempts have recently been made to estimate, with more accuracy than had previously been done, the total amount paid by each individual for expenses of government, including the federal and state budgets, the amount paid for public schools, the clergy, the poor, and all incidental expenses. Some statements in the *Revue Britannique* for June, 1831, have elicited estimates on this subject from Mr Cooper and from general Bernard. The writer in the *Revue Britannique* had calculated the sum of the public charges paid by each inhabitant of the United States at thirty-five francs, and that of each person in France at thirty-one francs. Mr Cooper makes this amount fourteen francs five centimes (or 2 dollars 64½ cents); and general Bernard, who, however, leaves out the ecclesiastical expenditure, eleven francs forty-seven centimes (2 dollars 16½ cents), or, exclusive of that paid for the public debt, six francs eight centimes (1 dollar 27 cents). An estimate by Francis Lieber, in the *Courrier des Etats Unis*, makes the local charge on each citizen of Massachusetts, where the taxes are higher than in the rest of the Union, as follows:

	Dollars	Cents
Town taxes, for schools, roads, &c.	1	0
County taxes, for gaols, courts, county roads, &c.	0	1
State taxes, for militia, state governments, &c.	0	3
Paid for clergy,	0	8
Total,	1	8

An estimate in the same journal calculates the [illegible] charges upon a citizen of New York at 1 dollar [illegible] cents. If these estimates are correct, the total charge for a citizen of Massachusetts would be, after the year 1832, 4 dollars 30 cents, and for a citizen of New York, 2 dollars 55 cents. Whatever the amount may be, it is very certain that the public charges are not felt as a burden. "[illegible] of sanguinary executions and injustice, we have in America a penal code, singularly mild, and carried to an extreme in taking away human existence. The system of punishment formed with a view to the prevention of crime, and not in a vindictive spirit, and adapted for the reclamation of the criminal rather than for his destruction. Instead of confiscation or pillage, we see no country in which the possession and disposal of property are better protected, or its acquisition by judicious industry better secured. And, above all, there is no country in which religion and its ministers are more generally respected and supported by the mass of the population, although without compulsory provision, and where the lives and example of the clergy more nearly approach to those of their great prototype and models."—Ouseley's *Statistics of the United States*. See our articles *Crime*, *Criminal Law*, *Prison Discipline*, *Temperance Societies*.

There is no national church in the United States; the support of religion is left to the voluntary contributions of individuals. The number of clergymen at present is estimated at about 13,000; many of these, however, among the Methodists, are continually travelling about, and preaching in different places; and there are, besides, many persons who officiate as clergymen, although engaged in some other occupation. In 1830, Boston, with a population of 61,392, had forty-three churches; New York, with 203,000 inhabitants, upwards of one hundred; Philadelphia, with a population of 167,000, had one hundred churches; and Cincinnati, with 24,831 inhabitants, twenty-three. For further information concerning the United States, see Warden's *Account of the United States of North America* (Edinburgh, 1819, 3 vols., 8vo.); Seybert's *Statistical Annals of the United States* (1 vol. 4to., Philadelphia, 1818); Pitkin's *Statistical View of the United States* (2d edition, 1 vol., 8vo., New York, 1817); Bristed's *Resources of the United States* (New York, 1818); Darby's *View of the United States* (Philadelphia, 1828); Lambert's *Geography and History of North America*; Balbi's German, Hamburg, 1793—99, 5 vols.); Flint's *Geography of the Mississippi Valley*, with a [illegible] *of the Physical Geography of the Atlantic States* (2d edition, Cincinnati, 1831);* Hinton's *History and Topography of the United States* (2 vols. 8vo., London, 1832); Everett's *America*; Lyman's

* A great mass of statistical matter is to be found in the reports made annually by the head of each department to congress, and in the reports of the different committees of congress, all of which are printed. In 1828, the first of a series of statistical inquiry was presented to the public in the shape of memorials and reports of two conventions, held, the one at New York, the other at Philadelphia, on the subject of the contemplated modifications of the tariff. The American Almanac, printed at Boston, and the National Calendar printed at Washington, also contain full statistical tables on all subjects relating to the United States.

plomacy of the United States (2d edition, Boston, 1828, 2 vols., 8vo.); Kent's *Commentaries on American Law* (New York, 1826—1830, 4 vols., 8vo.); Story's *Commentaries on the Constitution of the United States* (Boston, 1832, 3 vols., 8vo.). The *North American* and *American Quarterly Reviews*, published in Boston and Philadelphia, and the *American Annual Register* (5th vol., Boston, 1832), are also repositories of much valuable information on all subjects illustrative of the recent history, politics and statistics of the country.

Literature. The first printing press in the United States was set up at Cambridge, by the exertions and joint contributions of different individuals in Europe and America, in 1638. The first work published was the Freeman's Call, and the second, the Almanac for New England, both in 1639: the first book printed was the New England Version of the Psalms, an octavo volume of 300 pages. In 1676, books began to be printed in Boston: in 1686, printing was known in Philadelphia; and, in 1693, in New York. In 1700, there were but four printing-offices in the colonies; at the beginning of the present century, there were 300 in the United States; and in 1830, there were about 1200. In 1800, about 100 original books and pamphlets were printed annually: in 1825, the titles of 590 original works and 257 reprints were collected without difficulty, and the number of all kinds now published is much greater, including nearly all books of general interest and value which appear in London and Edinburgh, and many translations from the German and French. During the first century, by far the greater part of the books printed were on theological subjects, and the remainder were chiefly publications made by order of the government. All were under the restraints of authority, which at last became so severe as seriously to impair the freedom of the press, and were more or less felt throughout the country till after the middle of the eighteenth century. But, from this period, a great change took place. Political, historical and miscellaneous works, a few in the belles-lettres, and several on scientific subjects, began to appear; and since the revolution, school books, periodical publications, political discussions, historical and miscellaneous works,—which, till 1700, were entirely unknown in the country,—gradually obtained the superiority, and, since 1800, have constituted the great mass of what has issued from the press. It is our intention to notice here the most prominent of those publications which have obtained a permanent value and reputation.

1. *Newspapers.* No newspaper appeared in the colonies until 1704, when the News Letter was issued at Boston, and continued till 1776. The first paper published in Philadelphia was issued in 1719, and the first in New York in 1733. In 1775, there were thirty-seven; in 1801, there were 203; in 1810, 358; and, at present, probably not less than 1200. (See *Newspapers.*) Their number and cheapness, and the extent of their diffusion, are unparalleled. It may, in fact, be asserted, that almost every man in the country reads a newspaper; for, as every man has a direct personal interest in public affairs, and as the policy of the country has been to facilitate their distribution by the mail, they penetrate every where, and constitute, probably, the greater part of the reading of at least the agricultural portion of the people.* Their tone is favourable to morals, and to the diffusion of good knowledge, though, on the subjects which divide the political opinions of the country, they almost uniformly take party ground, and maintain it with extreme warmth and prejudice. Their influence is greater than any other element of society, except that of the schools and of the pulpit.

2. *Periodical Publications.* The earliest magazine attempted in the colonies was the General Magazine, published at Philadelphia (1741) by Benjamin Franklin, then a printer in that city; but it was sustained only six months. In 1743, a weekly magazine was started in Boston, but was continued only four weeks. In the course of the succeeding twenty years, twelve or fourteen others were attempted in the different cities, which, however, all failed; and it is believed that, in 1775, not one existed in the country, with the exception of the Pennsylvania Magazine, begun in that year, of which Thomas Paine was a principal contributor. All such works, in fact, made their way, for a long time afterward, slowly and with much difficulty. In 1810, there were twenty-four, of which the Portfolio, edited by Mr Dennie, in Philadelphia, and the Anthology, edited at Boston, were the principal of general interest. The number is now greatly increased, amounting, probably, to about 100. The London Quarterly and the Edinburgh Reviews are regularly republished; the North American Review, long edited in Boston, by A. H. Everett, and the American Quarterly once conducted in Philadelphia, by R. Walsh, the former since 1815, the latter since 1827, are the leading reviews of the country, and have each a circulation of between 3000 and 4000 copies, to which their execution amply entitles them. (See *Reviews.*) The Southern Review, published at Charlestown, and the Western Review, at Cincinnati, were discontinued after having been issued a few years.

3. *Publications of Learned Societies.* The passion for learned societies, which sprang up in England and France about the middle of the 17th century, was not felt in the colonies till past the middle of the 18th. The oldest and most active of the scientific societies in the United States, is the American philosophical society, instituted at Philadelphia, in 1769, over which Franklin and Rittenhouse were successively called to preside. It has published twelve quarto volumes of Transactions, principally on scientific subjects, and, in 1815, appointed a committee to superintend the historical department, in which two volumes, octavo, have been printed, including Heckewelder's Account of the Delaware Indians. No other society of the kind existed in the United States until after the revolution, when, in 1780, the American academy of arts and sciences was founded at Boston, which has published several quarto volumes of Transactions. In these are found mineralogical articles by professor Cleaveland, papers on literary subjects by John Pickering, and mathematical and astronomical papers by N. Bowditch, the translator and commentator of Laplace. The Massachusetts historical society was founded in Boston, in 1791, and has been the most active of the literary societies in the United States. It has published many octavo volumes of collections, which constitute a rich mine for the history of the United States, and particu-

* The number of post-offices, in 1831, was 8686. The postage on each newspaper is one cent, if not carried beyond the state in which it is published, or not more than 100 miles, if carried out of the state; and one and a half cent for any distance above 100 miles, and out of the state. It has been proposed to abolish all postage on newspapers. See *Posts.*

larly of New England. An academy of arts and sciences has existed at New Haven since 1799, but it has published only one volume of Transactions. The historical society of New York was established in 1809; and it has published several volumes, octavo. The literary and philosophical society of New York, established in 1815, has published two or three volumes, quarto. The academy of natural sciences, founded at Philadelphia, in 1818, has published several octavo volumes, which are indispensable to a knowledge of the natural history of the United States. The lyceum of natural history, founded at New York, in 1818, has published two or three volumes, octavo. There are some other associations in the United States, which, like the New Hampshire historical society, and the Columbian institute, at Washington, are beginning to publish their transactions; and yet others, especially several devoted to natural science, which send their papers regularly to some of the more prominent periodical publications of the time.

4. *Theological Writings.* The Puritan colonies of New England were, from the first, addicted to religious discussions and controversies; and as the press existed among them for a long time before it was found in other parts of the country, the early books of the colonies are, in a great degree, of a theological character. Even before printing was introduced, theological controversy was already known. Roger Williams had been banished from Massachusetts for heretical opinions as early as 1634; and the vanity and enthusiasm of Mrs Hutchinson had disturbed the whole colony, and nearly unsettled its foundations, before 1638. For the first ten years after the press was established, nothing was printed on theological subjects, except the version of the Psalms and a catechism; but, in 1649, was published the Platform of Church Discipline, commonly known by the name of the *Cambridge Platform*, which had been adopted the year previously, and continued to be the constitution and rule of government for the New England Congregational churches down to the period of the revolution, and is even now appealed to by those who are desirous to follow most strictly the ways of the Puritan fathers. This and the Indian Bible of Eliot, accompanied by Psalms in verse, in 1663, were the most important theological works that came from the press in the first century. The controversy with the Quakers, however, which was at its height between 1650 and 1660, produced two curious, among many worthless books—the Heart of New England rent by the present Blasphemies, written by John Norton, by order of the general court of Massachusetts, and printed in 1650; and George Foxe digged out of his Burrow, by Roger Williams (1676). At the beginning of the eighteenth century, the two Mathers were the leading divines of the colonies, and published a vast amount of books, which, however, are almost without value. The elder (see *Mather, Increase*) took part in some discussions with the Baptists as early as 1680; and the younger (see *Mather, Cotton*) is chiefly famous for his *Magnalia Christi Americana* (London, folio, 1702), containing the Ecclesiastical History of New England, from 1625 to 1698. It has much that is curious and striking, mingled with a strange credulity and the most fantastic learning, destined, perhaps, one day, to furnish abundant materials for works of fiction. The most powerful divine and metaphysical writer whom the country has yet produced was Jonathan Edwards, whose works have been frequently reprinted in England and the United States (8 vols. 8vo.). (See *Edwards.*) His principal treatise, on the Freedom of the Will, is written in opposition to the Arminians, as well as with the stricter followers of Calvin. The preaching of Whitfield in America between 1740 and 1769, produced the same remarkable effects which it had done in England, and called forth Chauncy's Seasonable Thoughts on the State of Religion in New England (1743), a work of great firmness, dignity and Christian tenderness. It was a warm controversy broke out in Massachusetts on the subject of Episcopacy, in consequence of the attempts, on the part of the English church, to set up her authority, and introduce her system of church discipline into that strong-hold of Puritanism. About thirty works were published on this subject by Mayhew, Johnson, archbishop Secker, &c. The principal works were Mayhew's Observations on the Charter and Conduct of the Society for the Propagation of the Gospel in Foreign Parts (2nd ed. Boston, 1763); his Defence and Second Defence of the Observations; and Chauncy's View of Episcopacy from the Fathers (1771). In the years immediately before the breaking out of the revolution, the clergy of the country generally took a deep interest in the political discussions of the times; and when the revolution had actually commenced, they almost uniformly took part with the colonies. Doctor Cooper of Boston, was the confidential friend and correspondent of Franklin, Quincy and Warren; doctor Stiles, president of Yale college, and one of the most learned men the country has produced, both preached and wrote on the same side; and doctor Witherspoon, of New Jersey, signed the Declaration of Independence, was, from 1776 to the end of the war, a most able member of congress. Until some time after the peace of 1783, theological controversy almost ceased, and was not revived till the country was once more settled. In 1793, doctor Hopkins of Connecticut, published his System of Divinity, in which the doctrines of Calvinism are carried to the extreme which many of their advocates would not admit, and which laid the foundation of a new sect of ultra-Calvinists, who bore the name of *Hopkinsians.* Dwight's System of Divinity (4 vols. 8vo., 7th edit., 1830) is perhaps the ablest exposition of Calvinistic divinity that has appeared, and continues to be frequently reprinted both in England and in America. Since the beginning of the present century, anti-Trinitarian and anti-Calvinistic doctrines have been very extensively adopted by many of the clergymen of Boston and its vicinity (see *Unitarians*); and a warm controversy has been carried on between them and the orthodox clergy, in which doctor Noah Worcester, doctor Channing, doctor Ware and Mr Norton have been the leading writers in defence of Unitarianism, and Mr Stuart, doctor Woods and doctor Alexander Worcester on the opposite side of the question. The controversy has been managed with great ability, acuteness and learning on both sides, and cannot yet be considered at an end. The sermons of doctor Freeman (1812; second collection, 1824), of Mr Buckminster (published in 1830), of Mr Thacher (1824), and of Dr Channing (1829; second collection, 1832), exhibit the prevailing views and style of thought among the Unitarians, with a less mixture of a polemical character than the strictly controversial works of the Unitarian writers. Apart from polemical and

tical divinity, very little has yet been done in America for the advancement of theological science. Whilst the best foreign works, both of former and recent times, on biblical criticism and interpretation, are appreciated and studied, scarcely any original works in these departments have yet appeared. A few elementary books have been prepared for the use of students, such as Stuart's Hebrew Grammar (4th edition, 1831), and Chrestomathy (2d edition, 1832); Gibb's Hebrew Lexicon, on the basis of Gesenius, and Robinson's translation of Wahl's Lexicon of the New Testament. Some subsidiary works have likewise been translated for the same purpose, of which it may be sufficient to mention Jahn's Biblical Archæology, translated by Thomas C. Upham (1823); Jahn's Introduction to the Old Testament, translated by Samuel H. Turner and William R. Whittington (1827); Jahn's Hebrew Commonwealth, translated by Calvin Stowe (1828); Winer's Grammar of the New Testament (1825), and Ernesti's Elements of Interpretation (1822). The most important original contributions that have as yet been made to theological literature in the United States are the new translations of Job, with an Introduction and explanatory Notes (1827), and of the Psalms (1831), both by George R. Noyes. A new version of the Epistle to the Hebrews, with a Commentary and Notes (1827), and a similar work on Romans (1832), by Moses Stuart, display much learning and research; and the New Testament in the common version, conformed to Griesbach's standard text, by John G. Palfrey (8vo., Boston, 1828), deserves honourable mention. Much of the theological literature appears in the form of contributions to religious periodicals—a species of publication with which the country abounds, from the weekly newspaper to the tri-monthly journal. At the head of this department stands the Christian Examiner and General Review, published, once in two months, at Boston—a work distinguished for its talent and literary character, as well as for its elevated moral tone and deep religious spirit. The Biblical Repository, published quarterly at Andover, is no less celebrated for its critical and exegetical learning; whilst the Christian Spectator, published quarterly, at New Haven, displays great acuteness in discussing the vexed questions of dogmatic theology. The theology of the United States is as distinctive as any other feature in its character. Perhaps in no other nation on the earth is there so much diversity of religious sentiment, or so great a variety of sects. This is doubtless owing, in a great measure, to the absence of a church establishment, and to the consequent freedom enjoyed by each individual for forming his opinions for himself. American theology, in its various forms, may be considered as the native growth of the land; for, though originally imported from abroad, it can hardly be said to have been since subjected to any extraneous influence. Multiform as it is, it has sprung up from the varying sentiments held by the first settlers,—coming as they did from different countries, England, Holland, Germany, Sweden,—from the subsequent intermixture of these sentiments, and from the free scope here given to religious thought and feeling. Neither the orthodox nor the liberal system of theology has been perceptibly affected by foreign influence. The works of the most eminent European theologians, particularly the German, are diligently studied, and are prized as the most valuable helps in the criticism and interpretation of the Scriptures. Yet, though highly esteemed as verbal critics, they are not regarded as very safe guides in matters of taste and judgment. Their theological deductions are not held in any undue honour; and the extravagant interpretations and wild conjectures advanced by some of these scholars, meet with no sympathy or encouragement from any denomination of Christians. In short, American theology, like its literature, is yet in its infancy; and many years must elapse before it arrives at its full growth. At present, its products are green and crude. Nor till it has reached its maturity, will it yield fruit that shall be for the healing of the nation.

5. Law. The earliest colonists, of course, needed laws, in order to maintain among themselves civilization and the rights of persons and property. Those who settled Virginia brought out with them a code of laws, which rested on the authority of the company in England: but the religious adventurers at the north were republicans from the first contract for a civil government, signed on shipboard, Nov. 11, 1620; and they elected their governor, and made such regulations as they thought expedient, by popular vote. In 1640, 100 ordinances were prepared, under the direction of the legislature of Massachusetts, by the reverend Nathaniel Ward, of Ipswich, who had formerly been a lawyer in England. They were called the *Body of Liberties*, and were published by the constables through the villages of the colony. In 1648, they were enlarged, and printed at Cambridge, and thus form the first law book prepared and printed in the colonies. They were again enlarged and printed in 1660 and 1672. This collection was followed, in 1672, by the Book of the General Laws of New Plymouth, and, in 1673, by the Book of the General Laws of Connecticut, and so on, in succession, by the codes of the other colonies. But, excepting such special laws as were needed to suit the particular circumstances of the country, there was nothing done, for a long time, to enlarge or perfect either legislation itself or the study of the law as a profession. The students of legal and political science resorted to the mother country; and thence, too, came nearly all the judges. Even down to the period of the revolution, excepting Mercer's Abridgment of the Laws of Virginia, in 1758, Simpson's Justice of the Peace, in 1761, and the County and Town Officer, in 1768, with perhaps one or two more practical works of the same kind, nothing appeared but the records and acts of the different colonial legislatures. The whole of this state of things, however, was necessarily changed as soon as the country became independent, and was compelled to look within its own limits for no small part of its judicial authority and construction. Since that period, therefore, the following division may be made of the legal writings that have been published in the United States:—1. In the first place, the United States, as a government, have published their statutes regularly from 1789 to the present time; and an excellent edition has been printed under the direction of judge Story (3 vols., 8vo., Boston, 1827). The decisions of the supreme court of the United States have also been published regularly, from 1791, by Dallas, Cranch, Wheaton and Peters. Besides these, the circuit courts of the United States have sometimes had reporters, of whom the most prominent are Gallison and Mason in the eastern circuit, whose reports, beginning in 1812, contain the decisions of judge Story. The reports of the third circuit contain the decisions of judge Washington. Some in-

dividual cases, which excited great interest, have also been published separately, of which the most remarkable are Burr's trial for high treason (1807), and the Dartmouth college case, which, in 1819, settled the question of legislative interference with chartered rights. To these should be added some works of a more general nature, which relate to the laws of the United States, such as Elliott's Debates of the Conventions on the Adoption of the Constitution (4 vols., 8vo., 1827—30), the three first volumes containing the proceedings of the Massachusetts, New York, Virginia, Pennsylvania and North Carolina conventions; the fourth, the journal of the federal convention, with the subsequent acts of congress and decisions of the courts upon constitutional points;—Sergeant's Constitutional Law (1822); Rawle's View of the Constitution (2d ed., Philad., 1829); Duponceau's Jurisdiction of the Courts of the United States (Philad., 1824); Kent's Commentaries on American Law (4 vols., 8vo., 1826—1830); and Story's Commentaries on the Constitution (3 vols., 8vo., Boston, 1832). These works, especially Wheaton's and Peters's Reports, in which are the decisions of chief justice Marshall, the Report of the Dartmouth college case, and Kent's and Story's Commentaries, comprise a body of sound, learned and able law, and give a complete view of the principles and practice of the federal courts, and of the constitutional law of the country.—2. In the second place, the separate states have published their statutes; and the decisions of the supreme courts of nearly all of them have also been from time to time reported, making a large mass of materials, of very unequal value, depending on the degree of talent and learning assembled at the bar and on the bench of each state. Considered in this point of view, the state of New York has produced Johnson's Cases and Reports (from 1799 to 1822), continued by Cowen; Blake's Chancery Practice (1818); Dunlop's Practice of the Supreme Court (1821 and 1822); Duer and Paine's Practice:—Massachusetts, Tyng's and Pickering's Reports (from 1804); Adams's Essay on Feudal and Canon Law (1784); Livermore on Principal and Agent (1811); Fessenden's Law of Patents (1822); Phillips on Insurance (1824); Story's Law of Bailments (1832); Dane's Abridgment of American Law (6 vols., 1823—1829); American Jurist (since 1829); and Jackson On Real Actions (1828):—Pennsylvania, the Reports of Dallas, Yeates, Binney, and Sergeant and Rawle (1799—1822); Hall's Law Journal (6 vols.). Virginia has an excellent edition of her Statutes by Henning, and Reports by Henning and Munford, Wythe, Washington, Call, and others. In New Jersey, Griffith's valuable Law Register appeared in 1822 (2 vols.). Connecticut has Day's Reports (since 1802); Swift's System of the Law (1795—6), and work On Evidence (1810): and South Carolina, Reports by Bay, Desaussure, Nott and M'Cord, beginning 1783. In Rhode Island, Angell's treatises on Tide Waters and Water Courses should not be passed over. In the Western States, the peculiar tenure of the lands, which, more than any thing else, tends to modify the character of a people, and the administration of the law among them, has brought forth, particularly in Kentucky, a bar of great acuteness and power; and in Louisiana, the *siete partidas* of the fourteenth century so far prevail as law, that it has been necessary to reprint part of them, and the French law is still oftener called in. (See *Louisiana Code.*)—3. The last kind of law books published in the United States, which needs to be noticed, is the English law books reprinted there, generally with notes to make them better suited to the particular wants of the country. The number of these, both reports and treatises, is very great; and it may in fact, be said, that the whole body of the English law, as it appears from Westminster hall, is immediately republished in America. Of those which to which the notes have added the most value be mentioned Tucker's Blackstone (1803, 4 Marshall on Insurance; Dunlop's Phillips dence; Story's Abbott on Shipping (18 calf's editions of various works. From what been said, it is evident that the number books published in the United States is very The number of merely American books ceeds seven hundred volumes, of which by far the greater part consists of statutes ports. The number of reprints is yet large the amount of both is constantly increasing the articles in this Encyclopedia, *Law*, *Codes*, and also the articles *Common Law* and *of Law*.

6. *Medicine.* The practice of the medical the early period of the colonies, was much hands of the clergy. Physicians, indeed, among the first settlers, and were among the valuable of them, both in Virginia and Pen The first medical work published in Amer a Brief Guide in the Small-Pox and Measles reverend Thomas Thacher of Boston (16 the first introduction of inoculation for the pox, in 1721, was under the influence of the end Cotton Mather. It was, however, long medical books were freely published in the States, because it was necessarily long before cal schools and hospitals could furnish the means of observation and instruction; and mean time, the entire dependence of the for medical education and medical books England and Scotland. Doctor Cadwalader Philadelphia, doctor Tennent, of Virginia tor Lining, of South Carolina, published treatises on medical subjects, between 1750; and from that period medical writ not ceased to appear in considerable numbers troubles of the revolution, indeed, for a terrupted them; but the success of the schools, established on the return of peace them forth again in still greater numbers most prominent writer in the period imme succeeding the revolution, was doctor Ben Rush of Philadelphia, well known both and America, by his Medical Inquiries, his vations on the Diseases of the Mind, his Le and other works, all of which bear mark original and adventurous mind. Caspar published a System of Anatomy, and doctor who died in 1818, at the age of thirty-five Elements of Surgery, which are much while, among contemporary authors in Phila doctors Chapman and Dewees should be m with distinction. Doctor Warren (died who founded the medical school at Cambridge with it the medical education of New Engla doctor J. C. Warren, his son, and doctor all of Boston, doctor Edward Millar and doc sack, of New York (whose writings have be lished under the title of Medical Essays, New 1824—1830, 3 vols.), with others, both places and elsewhere, have been advantag known at home and abroad, and have pa

medical character of the country as high as any part of its general intellectual character.

7. *Theatre.* The early settlers of any country are little likely to resort to theatrical amusements; still less the early settlers of a country a great part of which was colonized by persons who came to it for the sake of enjoying, in stern freedom, the exercise of their religious opinions. And, in fact, the wants of the American colonists every where, and their scrupulous severity at the north, long kept out all dramatic entertainments. It was, however, in Boston, the centre of Puritanism, that they first appeared. In 1750, two young Englishmen, assisted by volunteers from the town, acted privately Otway's Orphan, at the coffee-house in State (then King's) street. But some disturbances took place about the door, from the anxiety of the crowd to get admission. The whole affair became matter of discussion and inquiry, and all such exhibitions were immediately prohibited by a law, which was renewed by successive legislatures, till public opinion was changed, and a theatre regularly established. At about the same period, a strolling company, called the *American company of comedians*, under the management of David Douglass, a Scotchman, came from England, and occasionally gave representations, both on the continent and in the West Indies. In 1758, they acted first in New York in a sail loft; and, in 1762, performed at Providence the first play that was publicly represented in New England. During the revolution, while the British troops were in possession of Boston and New York, the officers, especially at the latter place, performed plays in amateur companies, and in one or two instances wrote farces ridiculing the Americans, one of which was printed. But there was no regular theatre any where until after the war of the revolution. The first was established in New York, the next in Boston, in 1793, and the third in Philadelphia. They have since been established in all the principal cities, and are now fast increasing. The first play written in the United States was probably the Prince of Parthia, by Thomas Godfrey, son of the inventor of the quadrant called by the name of *Hadley*. This young man died in 1765, and his Poems, including the tragedy above mentioned, were published the year after his death. It was never acted, and, though it shows some talent, discovers so little skill in the construction and style, that it cannot be looked upon as any thing better than the forlorn hope of the coming drama. The next play was probably a comic opera, in ridicule of an opinion prevalent, in the middle of the last century, among the common people, that the Buccaneers had hidden treasure along the coast. It is called Disappointment, or the Force of Credulity, and was written by John Leecock, of Philadelphia, and printed in 1767 and 1796, but was never acted, though by no means without spirit and humour. At Boston, during the revolution and previously, several farces and plays were written and printed by the patriots, and probably some of them were acted. The best of them was the Adulateur, a Tragedy, as it is now acted in Upper Servia (1773), a composition by no means without poetical merit, and expressing very strongly the feeling that prevailed in New England after the massacre of March 5, and before the final outbreak of hostilities at Lexington and Bunker hill. It was written by Mrs M. Warren. Of less value were the Group (1775, also by Mrs Warren), in ridicule of the tories; the Blockheads, or the Affrighted Officers (1776), in ridicule of the British troops, and the Motley Assembly, also in ridicule of the tories. Such expressions of public feeling, of course, disappeared with the causes that produced them; and when a regular theatre was established, a different class of dramas came to supply their place. The first regular author appeared in New York with the first theatre: this was William Dunlap, who, beginning, in 1788, with a comedy called the Father of an Only Child, wrote and translated successively between forty and fifty pieces, among which was the Archers (1796), a tragedy on the story of major Andre (1798), and a good many pieces for public occasions and celebrations, which had much success. He was the manager of the theatre, and may be considered as the only person who has done much in America to support the public drama by the means that sustain it in Europe, though in his latter years he abandoned it, and became an historical painter of some local reputation. Mr. Dunlap published a History of the American Theatre (New York, 1832). It is not worth while to go into a minute account of authors and pieces which have no permanent value. Mrs Warren, who wrote the Adulateur and the Group, above mentioned, and a History of the Revolution, published (1790) two tragedies, the Sack of Rome, and the Ladies of Castile; Thomas P. Lathy published (1800) Reparation, or the School for Libertines, a comedy; David Everett published (1800) Daranzel; C. J. Ingersoll, now an eminent lawyer, published (1801) Edwy and Elgiva, and (1831) Julian, a tragedy; W. Jones (1801), Independence; W. C. White (1810), two pieces, the Clergyman's Daughter, and the Poor Lodger. James N. Baker (between 1807 and 1817) wrote often for the stage; and his Marmion and Superstition are much praised for poetical talent. Some others have occasionally furnished pieces to the acting theatre, which have received a share of transient applause. In general, however, the American theatre has been supplied with plays from the English theatre.

8. *Romantic Fiction.* Compared with the other departments of elegant literature, romantic fiction is of recent origin. It is the only form of the belles-lettres which is absolutely due to modern invention, and has reached or approached its perfection only in our time. At the period when America was colonized, the domestic form of romance—that which rests on private manners and character for success—was unknown in the world; nor, excepting Don Quixote, had a single work of romantic fiction been produced which is still read, except from curiosity. It is not, therefore, remarkable, that works of prose fiction should have been the last that appeared in America; for there was certainly nothing in the severe theology of the Eastern States, or in the anxiety and wants that were every where encountered by the early settlers, to give birth to those light and fanciful forms of literature, which had not yet taken their final character even amidst the refinements of the English and French courts. Up to the period of the American revolution, therefore, no symptom of it appeared on the other side of the Atlantic. The first work of prose fiction which appeared in the United States seems to have been the Foresters, which was originally published in the Columbian Magazine at Philadelphia, in 1787—88, but was printed separately in 1792, and again in 1796. It was written by doctor Belknap, of Boston, author of a History of New

Hampshire, and was an imitation, and, in some respects, a continuation, of Arbuthnot's John Bull, giving, with much humorous solemnity, an account of the first settlement of the country, the war of the revolution, and, in part, of the French revolution. The next work of fiction published in the United States seems to have been the Algerine Captive (1797), written by the late Royall Tyler, then a lawyer in Walpole, and since chief justice of Vermont: the first volume contains sketches of manners in the interior of New England, which have much freshness, spirit and truth; but the second, in which the hero becomes a captive in Algiers, is dull and common-place. This was the first genuine novel published in the United States. The first author, however, who can be considered a regular writer of novels in America, was Charles Brockden Brown. Between 1798 and 1801, he published six novels—Wieland, Ormond, Arthur Mervyn, Edgar Huntley, Clara Howard, and Jane Talbot. He was a writer of high gifts. His manner sometimes resembles that of Godwin, who was then in great reputation; and his sketches of the sleep-walker, in Edgar Huntley, are among the most vivid in the language. His writings have often been published separately in England and the United States, and, in 1827, an edition of his novels was printed at Boston (7 vols.). In some respects, he is still the principal novelist whom the country has produced; but the more dramatic form of romance writing, since become common under the influence of Sir Walter Scott's example, has changed the public taste; and Brown's novels are less interesting and less read than they otherwise would be. In 1810, Washington Irving published his Knickerbocker's History of New York (2 vols.), an imitation, in many respects, of Swift's Tale of a Tub, and containing, under a similar allegory, though with a more strict adherence to fact, a history of the Dutch government of the province of New York. It is a work of much genuine humour, and contains descriptions of natural scenery of great beauty and power, so that, though much of it is local, it has been often reprinted both in England and America, and has been translated into French and German. It is hardly necessary to enumerate the other works of this accomplished writer. Jonathan Oldstyle's Letters, first published in the New York Morning Chronicle (1802); Salmagundi, or the Whim Whams of Launcelot Langstaff and others (1807); and, at a later period, the Sketch Book, Bracebridge Hall, Tales of a Traveller, &c., have all been translated into German. Under this head should also be mentioned the Old Bachelor (1812), and the British Spy, of Mr Wirt (late attorney-general of the United States), of which the tenth edition, published in 1832, contains a biographical sketch of the author. A few other persons, in the period just passed over, also wrote novels which had a limited success. Mrs Foster wrote the Boarding School, and the Coquette; Mr Dennie wrote Female Quixotism; and Mrs Rowson, Rebecca, Sarah, and some other stories. In general, however, this was not a popular form of writing, and very few attempted it. This state of things continued until Sir Walter Scott gave an impulse to the whole empire of romantic fiction, which has been felt through all the borders of Christendom, and no where with more force than in the United States. The person who has shown the most power and disposition to imitate this form of romance is Mr Cooper. He began, in 1820, with Precaution, a novel, the scene of which was laid in England; and its style the manner of Miss Burney; but the direction wrong, and his success was small: it was only he touched his native earth, that he put strength. In 1821, he published his Spy, the scene of which is laid amidst the American revolution and from that time to the present, he has produced a variety of similar tales, with a degree of success to which no American author has before attained in this department. Miss Sedgwick, the author of a New England Tale (1822), Redwood, and Hope Leslie (1827), and Clarence (1830), whose American subjects, should be distinguished among the popular writers of the time: her works have been reprinted with success in England. Mrs Francis (more known as Mrs Child), the author of several successful works in other departments, should be mentioned here on account of her Hobomok (1824), and her Rebels (1825). Paulding's novels (Dutchman's Fireside, Westward Ho!, &c.) have found many readers on both sides of the Atlantic; and Flint's Francis Berrian shows much freshness and vigour. Since 1820, the whole face of things in relation to romantic fiction has changed. Before that time, an American romance was extremely rare: it is now the most common of all the forms of American literature.

9. *Arts and Sciences.* The progress of the Americans has been greater in the useful arts than in the sciences, though their advances in the latter are respectable, considering the shortness of their career. Inventions and discoveries in the arts have been promoted by means of the patent laws, which secures, to persons who apply for it, the exclusive right to the fruits of their ingenuity. An office is attached to the department of state, where models and drawings of the machines of which the right is obtained, are deposited with the description of the invention, the name and residence of the patentee, and date of the patent. The whole number of patents issued, from the establishment of the patent office in 1790, to the first of January, 1832, was 6911. The Americans have, indeed, shown a particular aptitude for making discoveries and improvements in the mechanic arts. A great number of remarkable inventions, of which the cotton-gin, the practical working of the steam-boat, the nail and card machines, and the machine for spinning hemp, are only the most prominent among a hundred others, with essential improvements upon many processes of manufacture, and upon many machines previously in use, have been made in the United States. In ship-building the Americans are decidedly superior to any other people, combining beauty of form, speed in sailing, and capacity of carriage, in their vessels. (See *Ship.*) In regard to the fine arts, though there is no such thing as an American school, the United States have produced several eminent painters; and some works of sculpture of merit have been executed in the country. The names of Copley, Stewart (see the articles), Trumbull, Vanderlyn (who, in 1808, gained the French medal for his Marius on the Ruins of Carthage), Jarvis, Wood, Allston, Leslie, Peale, Sully, Harding, Newton, Neagle, Doughty, Fisher, King, Thompson, Cole, and others, are, some of them, well known in Europe, particularly West, Copley, Leslie, and Newton. Academies for the cultivation of the fine arts have been established at Philadelphia, New York; and a picture-gallery has been

nected with the Athenæum in Boston, in which the annual exhibition of paintings is very respectable. Plaster casts of the principal antique statues have been obtained for these institutions, which have been liberally patronised. A statue of Washington has been executed by Canova for the state of North Carolina; another, by Chantrey, for a number of citizens of Boston; and Greenough, a native artist, favourably known by his Chanting Cherubs, and some busts of distinguished Americans, was employed by the congress to execute a colossal statue of the same great man for the capitol at Washington. Augur, a self-taught artist, has executed a group, Jephthah's Daughter, and some single statues. It was a long time before any attention was paid to the natural sciences in the colonies; for, although the early inhabitants of the United States found themselves literally in a new world, surrounded with objects, in the vegetable, animal and mineral kingdoms, which had never been accurately described, yet the imperfect state of education, the want of collections and apparatuses, could only be slowly overcome. In 1725, a professorship of mathematics and experimental philosophy was founded in Harvard college, by Mr Hollis, a friend of the institution, in England; but New England, at least, could not furnish a man capable of discharging the duties of the office. Mr Greenwood went out to England, and, after studying a short time under Desaguliers, returned to America, and was appointed professor. There was also a professorship of natural philosophy and mathematics at William and Mary's at an early period, but there was none at Yale college until 1770. Logan, Godfrey (inventor of the quadrant), Rittenhouse (inventor of the orrery), Franklin, Rumford, &c. (see the articles), were self-taught men. During the last thirty years, scientific studies have been pursued in a more systematic and thorough manner, and valuable treatises upon almost all subjects of natural science and natural history, so far as relates to the United States, have been produced. Mineralogy has been studied with much zeal; and Cleaveland's Treatise on Mineralogy and Geology (2d edition, 2 vols, 8vo., 1822), and Maclure's Geology of the United States (1817), deserve to be mentioned. Among the botanical works, Elliot's Botany of South Carolina and Georgia; Bigelow's American Medical Botany (3 vols., 8vo., Boston, 1817—20), and Florula Bostoniensis; Barton's Flora of North America (3 vols., 4to., 106 coloured engravings, Philadelphia, 1821—23), and Medical Botany of the United States (2 vols., 4to, 50 coloured plates, 1825); Nuttall's Genera of North American Plants, a good sequel to Pursh's Flora, &c., are valuable. Say's American Entomology (with coloured plates, 3 vols., 8vo., 1824—25); Godman's American Natural History (3 vols., 8vo., 1826—28); Wilson's American Ornithology (9 vols., folio, Philadelphia, 1808—1814); Bonaparte's American Ornithology (3 vols., 4to., Philadelphia, 1825); Nuttall's American Ornithology (2d vol., Boston, 1832), are works of great merit. The splendid work of Audubon has been executed in London (with coloured engravings); that of Michaux, a foreigner (the North American Sylva, or a Description of North American Forest Trees, with 150 coloured engravings), though published in Philadelphia (3 vols., 8vo., 1817), was executed in Paris. In addition to these works, we must mention Conrad's Fossil Shells (with coloured plates); Shepard's Fossil Remains; Say's Conchology (with coloured plates), &c. The principal mathematical work which has been produced in the United States is Bowditch's translation of the *Mécanique Céleste* of Laplace, with a commentary (2d vol., 4to., Boston, 1832). Silliman's Journal of Science and Arts began to be published in 1818.

10. *Poetry.* The first book published in the United States (8vo., 1640), was an original version of the Psalms, in metre, "for the use, edification and comfort of the saints," made by Eliot, Welde, and Mather, three clergymen appointed for this purpose. This version was afterwards improved by Dunster, president of Harvard college, and Mr Lyon, with additions, of which the twentieth edition was published in 1722: it was often, also, reprinted in Scotland and England, and used by many of the dissenting congregations. Mrs Anne Bradstreet published a volume of poems in 1642, which contains some good descriptions. P. Folger, of Nantucket, grandfather of Franklin, wrote a Looking-Glass for the Times (1676). These works, with Michael Wigglesworth's Day of Doom, a Poetical Description of the Last Judgment, which went through many editions, and was republished in London, and a few elegies, stanzas, &c., without taste or spirit, appear to constitute the colonial Parnassus of the seventeenth century. Nor does the first half of the eighteenth century present a more attractive prospect. A volume of poems by John Adams (Boston, 1745); another by Thomas Godfrey (Philadelphia, 1765), including the Prince of Parthia, a tragedy, and the Court of Fancy; W. Livingston's Philosophic Solitude (1747), hardly deserve to be mentioned. The excitement of the revolution produced several satirical poems of considerable merit. Trumbull's M'Fingal, written in 1775, to ridicule the British and the tories, passed through more than thirty editions, and was often republished in England. Philip Freneau, author of a number of poems, began to write just before the revolution, but continued till a comparatively recent period. He is distinguished for ease, humour and sprightliness. Timothy Dwight was the author of the Conquest of Canaan, an epic poem, in eleven books (1785); Greenfield Hill, a descriptive and didactic poem; and the Triumph of Infidelity, a satirical poem. Joel Barlow published his Vision of Columbus in 1787, and cast anew under the title of the Columbiad, in 1808; the Conspiracy of Kings in 1793, and his Hasty Pudding in 1799. More recently, the poems of Allston, Pierpont, Paulding, Sands, Hillhouse, Percival, Halleck, Wilcox, Brainard, Bryant, Dana, Sprague, Willis, and others, have enjoyed different degrees of popularity in their own country. Independently of other circumstances, which operated more powerfully, indeed, at an earlier period, but which still continue to operate with great force, the superior popularity of some of the forms of prose fiction at the present day may partly account for the poverty of the Americans in the poetical department.

11. *History and Biography.* It is a peculiarity in the history of the United States, that, from the beginning of the first European settlements of their territory, we have accounts of the events which occurred in them, of the chief actors in those events, and, even farther back, that the written charters which described their objects, and defined their privileges, are yet in our hands. We know the family names, the condition in life, the local origin, even the features of the first settlers; and, from

the period of the first emigrations downward, we have contemporaneous narratives and documents, with few interruptions. It is true, that the first 150 years of colonial history, or rather the public history of that period, presents little variety of incidents, and has none of the grandeur and brilliancy which gives a charm to the story of great empires. It is also true, that the Americans have produced no historical works which can lay claim to high literary merit, or which attract notice merely from the excellence of their execution. But, though most of the works which we shall enumerate in this department are local in their nature, many of them are of general interest to those who would trace the developement of seminal principles into life, watch the cradle of a recent people, and witness the growth of families and villages into populous communities and powerful states. Among the earlier works on colonial history are Morton's New England Memorial (Cambridge, 1669), of which the fifth edition (Boston, 1826) contains notes by the editor, J. Davis; Winthrop's Journal (first complete edition, with notes, by J. Savage, Boston, 1825); Hubbard's History of New England (Boston, 1825); Mather, Magnalia Christi Americana (folio, London, 1702); Beverly's History of Virginia, from 1587 to 1700 (London, 1705); Stith's History of Virginia (Williamsburg, 1747); W. Smith's History of New York (London, 1757); Hutchinson's History of Massachusetts (2 vols., 1764; 3d vol., London, 1828); Franklin's Historical Review of the Constitution and Government of Pennsylvania (London, 1759); Proud's History of Pennsylvania (1745); Smith's History of New Jersey, to 1721 (1765). Many of these works were written at a much earlier period than the date of their publication, and, though several were published in England, were from the pens of colonists. Of a more recent date are Jefferson's Notes on Virginia, Burk's History of Virginia (3 vols., 8vo., 1803); Ramsay's History of the Revolution in South Carolina (2 vols., 1785); and History of South Carolina (2 vols., 1809); Moultrie's Memoirs of the Revolution in North and South Carolina and Georgia (2 vols., 1802); Drayton's View of South Carolina (1802), and Memoirs of the Revolution in South Carolina (2 vols., 1821); Lee's Memoirs of the War in the South (2 vols., 8vo., 1812); Williamson's History of North Carolina (1812); Minot's History of Massachusetts (2 vols., 8vo., 1789); Bradford's History of Massachusetts, from 1764 (3 vols.); Belknap's History of New Hampshire (3 vols., 1792); Williams's History of Vermont (2 vols., 1809); Sullivan's History of Maine (1795); Williamson's History of Maine (2 vols., 1832); Yates and Moulton's History of New York (1825); Trumbull's History of Connecticut (2 vols., 1818); Flint's History and Geography of the Western States (2d edition, 2 vols., 1832); Stoddard's Sketches of Louisiana (1812); M'Call's History of Georgia (2 vols., 1816). Of works of a more general nature may be mentioned Ramsay's History of the United States (3 vols., 1816), and his Universal History (12 vols., 8vo., 1819); Holmes's Annals of America, from 1492 to 1826 (2d edition, 1829, 2 vols., 8vo.); Marshall's History of the Colonies (2d edition, 1824); Pitken's Political and Civil History of the United States, from 1763 to 1797 (2 vols., 8vo., 1828); Douglass' Summary, Historical and Political, of the British Settlements in North America (2 vols., 1749); Trumbull's General History of the United States to 1765; Thomas's History of Printing in America (2 vols., 8vo., [illegible]; Millar's Retrospect of the Eighteenth Century, vols., 8vo., New York, 1803); Wheaton's History of the Normans (Philadelphia, 1831); Lyman's History of the Diplomacy of the United States, vols., Boston, 1828). In biography, we mention Marshall's Life of Washington (2d edition, vols., 1832); Ramsay's and Bancroft's Lives of the same; Tudor's Life of Otis; Wirt's Life of Henry; Lee's Lives of the Lees; Quincy's Life of [illegible]; Wheaton's Life of Pinkney; Kirkland's Life of Ames; Franklin's and Jefferson's Autobiographies; Johnson's Life and Correspondence of [illegible]; Austin's Life of Gerry; Sparke's Life of Morris; Sanderson's Lives of the Signers of the Declaration of Independence (by different hands, 12 vols., Philadelphia, 1823—27); Belknap's American Biography; Sparks's Life of Ledyard; Irving's Life of Columbus; Biddle's Memoir of Sebastian Cabot, &c.—We have given this long list of works certainly, on account of their literary value, but in general as the most authentic sources of information in regard to the United States.

12. *Miscellaneous.* Some political works of merit have issued from the American press, but nothing by those of earlier date, we shall mention only the Federalist; Adam's Defence of the American Constitutions (London, 1787); Europe (1822), and America (1827), and Washington's Letters on the Genius and Spirit of the Government. The results of the expeditions sent out by government, at different times, to explore the interior of the continent, are given in Lewis and Clarke's Expedition to the Sources of the Missouri (2 vols., Philadelphia, 1814); Pike's Expedition to the Sources of the Mississippi (8vo. and 4to., 1810); Long's Expedition to the Rocky Mountains (2 vols., 8vo., and atlas, 4to.); Keating's Narrative of Long's Expedition to the Source of St Peter's River, &c. (2 vols., 8vo.). Noah, Silliman, Griscom, Slidell, Dwight, Jefferson, Bigelow, and others, have published travels in different countries of Europe; Stuart, Dwight, Flint, Brackenridge, Schoolcraft, &c., their travels in the United States. Cooper's Notions of the Americans (1828) also belong to this class of works. Dr Cooper, Cardozo, Raymond, Everett and Phillips have published on political economy. In geography, Morse's Universal Geography, which has passed through three editions, and Worcester's Universal Geography (2 vols., 8vo., 2d edition, 1823), deserve mention. In lexicography, Webster's Dictionary (2 vols., 4to., New York, 1828) is complete in respect to the vocabulary. Murray's English Grammar was the first considerable attempt of the kind in the English language: it has gone through many editions, and has been translated into the [illegible]. John Quincy Adams, since president of the United States, is the author of two volumes of Lectures on Rhetoric and Oratory (8vo., 1810). The most complete of the English encyclopædias, the Cyclopædia, and Brewster's Edinburgh Encyclopædia, have been republished in the United States with large additions.

Contents of the article United States of America.

History,
From 1607 to 1776, ...
From 1776 to 1832, ...
Geography and Statistics,
1. Physical Geography, ...

	Page
Climate,	734
Productions,	736
2. Political Divisions and Population,	737
3. Commerce, Manufactures, Agriculture, and Mechanic Arts,	739
4. Constitution, Administration, Finances,	741
5. Education,	743
6. Condition of the People,	745
LITERATURE,	
1. Newspapers,	747
2. Periodical Publications,	ib.
3. Publications of Learned Societies,	ib.
4. Theological Writings,	748
5. Law,	749
6. Medicine,	750
7. Theatre,	751
8. Romantic Fiction,	ib.
9. Arts and Sciences,	752
10. Poetry,	753
11. History and Biography,	ib.
12. Miscellaneous,	754

UNITED STATES OF CENTRAL AMERICA. See *Central America.*

UNITY of a work is the correspondence of its parts in one harmonious whole. It is indispensable in every work of art. For the unities in the drama, see *Drama.*

UNIVERSALISTS; those Christians who believe in the final salvation of all men, in opposition to the doctrine of eternal punishment. There is, however, a great difference of opinion, in regard to the future state, among those who are called Universalists: some believe in a remedial punishment of limited duration, which will end in a universal restoration to goodness and happiness; others believe that all men will be happy after the dissolution of the body, but in different degrees, until the resurrection; and yet others hold that the future state of all will be alike perfect and happy immediately after death. (See *Sects.*)—*Universalists* is also an appellation given to those who teach, in opposition to the doctrine of absolute predestination, that Christ died for all, and not for an elect number, and that all men, therefore, may partake of salvation through belief in Jesus Christ. They are also called *hypothetical* Universalists, because they represent faith in Christ as a necessary condition of salvation.

UNIVERSALS; the name given by the schoolmen to general notions, especially those of genera and species. It was a long-agitated question, whether general notions correspond to any real existences out of ourselves, or are derived merely from our conceptions; whether such existences are of a corporeal nature or not; and, in the latter case, whether they are separate from individual existences, or only within them. On these points, a dispute was long maintained between the nominalists and realists. See *Nominalist.*

UNIVERSE, SYSTEM OF. See *System of the Universe.*

UNIVERSITIES; establishments for instruction, in which all the most important branches of science are taught, and which have, at the same time, the right to confer honorary distinctions on scientific merit. They differ from academies, which are societies of scholars for some common scientific purpose, without the connexion of teacher and learner, and without any distribution of dignities. The epithet *academical*, however, is often applied to both kinds of institutions. The Latin name *universitas* originated in the beginning of the thirteenth century, and signified, originally, the body of students; at a later period, the body of teachers and students assembled in one place. At a still later period, the expression *universitas literarum* was used to indicate that all the most important branches of science were to be taught in these establishments. With the ancients, the superior institutions for instruction were called *scholæ*, or *studia*. This latter appellation remained longest in Italy; and we find, in old authors, the expressions *studium Patavinum*, *Bononiense* (university of Padua and Bologna). The time of the origin of the first universities in Europe cannot be precisely ascertained. Previous to the age of Charlemagne, Europe had sunk into the greatest barbarism, in consequence of the migrations of the northern and eastern tribes, and the incessant and devastating wars which attended them. Charlemagne deserves the praise of having zealously striven to promote the cultivation of science throughout his vast dominions, with the aid of the Englishman Alcuin. By his command, schools were established in every convent and cathedral, intended chiefly for the education of clergymen; but young men of high families, not destined for religious orders, also received instruction in them These convent and cathedral schools were, for a long time, the highest institutions for education in the countries where they were established. From them proceeded men like Adam of Bremen, Lambert of Aschaffenburg, &c. By degrees, the light of science, which had been so long obscured, began to shine more brightly; teachers arose in various places; an ardent thirst for knowledge collected numerous scholars around them, and a new kind of schools arose, the heads of which called themselves *rectores.* In Paris, several such teachers appeared in the twelfth century, who gave instruction chiefly in rhetoric, philosophy and theology. They were not all of the clerical order: even the celebrated Abelard, when he opened his school, was not yet a clergyman. The advantages and the pleasures connected with a city like Paris, as well as the great reputation which these teachers acquired, drew a vast number of young men to that city; and thus the first European university grew up there. It was not founded by any monarch, nor endowed with any privileges. Teachers and scholars were entirely independent, and could change their residence at pleasure. They regulated their conduct by a constitution of their own making, which seems to have been tacitly acquiesced in by the government. Towards the end of the twelfth century, king Philip Augustus granted them immunity from the jurisdiction of the royal courts. Teachers and students formed themselves into corporations. Originally, each school had its own rector; but now, in 1206, a common rector was chosen: thus the whole mass of students and teachers came to constitute one body, called, on that account, *universitas.* The continually increasing number of teachers and students, however, made several ordinances of the government necessary for the maintenance of good order. A public insult offered, in 1229, to the students of Paris, and for which they could not obtain the required satisfaction from the court, made them so indignant, that a great part of them removed, with their teachers, from Paris. Their departure seems to have been severely felt, and the court strove to bring them back: by the mediation of pope Gregory IX., a reconciliation was effected; and the privileges of the university, which had been, so far, only acquiesced in, were increased and confirmed. About the time when the schools of Paris were established, perhaps even somewhat earlier, the first teachers of medicine appeared at Salerno, in Naples, and

Montpellier. The school of Salerno (*schola Salernitana*), at a later period, acquired celebrity, even in foreign countries, by the dietetic rules published under its name. At Bologna, the first instruction in Roman law was given. Irnerius (Werner) taught it here in the twelfth century with great applause. To all these places many young men resorted. The relations between the students and teachers, and between the schools and the government, were similar to those in Paris. The constitutions which they had made for themselves were confirmed, and their privileges even increased in the twelfth century. At the same time when the teachers and students constituted themselves into one body, the division of students into *nations* originated. These were associations of those who were natives of the same nation. They had their separate heads (*procuratores*), funds and regulations. This division into nations is an essential feature in the original constitutions of the oldest universities. The time of its origin cannot be accurately settled. The university of Paris, however, is the one in which the division into nations is earliest mentioned in diplomas and in historical works. In 1206, the division into four nations had become established. These were the French (in which, also, the students from Italy and Spain were included), the Picard, the Norman and the English. The last comprehended also the Germans, and all students from the north of Europe. At a later period, this *nation* was called the *German*. This number, probably at first merely accidental, was subsequently adopted also in the German universities. In the Italian universities, a similar division into nations took place. Equally uncertain with the origin of this division is also the origin of the distribution of academic honours, and the institution of distinct faculties. Probably they also originated in Paris, in the second half of the twelfth century. The first public teachers (Abelard in Paris, Irnerius in Bologna, and others) had received no invitation nor permission to teach from any one. But, subsequently, the state, as well as the members of the university, were careful that only well-qualified persons should lecture. Examinations were therefore established. He who was found qualified to teach, received a formal permission to lecture publicly, accompanied with certain symbols in the spirit of the age. The first academical degree was that of *baccalaureus* (see *Bachelor*); the second that of *licentiati*. (See *Licentiate*.) If the licentiate afterwards received the cap of *magister* (for which a certain sum was paid), he became a colleague of his former teachers, and participated in all their privileges. Such examinations and solemn distributions of academic honours (*promotiones*) were customary in Paris as early as the beginning of the thirteenth century. The title of *magister* (master) at Paris corresponded to that of *doctor* at Bologna. These *promotiones*, with the previous examinations, gave rise to the faculties. The *facultas artium* (the faculty of the seven liberal arts, or what is now called the philosophical faculty) existed long before. As these sciences had been taught in Paris from a very early period, the faculty of arts had the precedence of the others, which, however, has been subsequently denied to it. The other faculties were, as they still are, those of theology, law and medicine. The year 1259 is considered as the time of the establishment of faculties. In this year, the mendicant orders and secular clergy united, and formed a sort of corporation of teachers of theology. In 1260, the teachers of medicine imitated them, as did those of the canon law; the four nations, which remained in the possession of all their privileges, formed the faculty of arts. The faculties elected deans from among their number, who, with the *procuratores* of the nations, presented the university. Among the peculiar institutions which were established in the universities in the thirteenth and the following century were the colleges (*collegia*), buildings in which students, especially poor ones, might live together under superintendence, without paying for their rooms. In some cases, they also received their board, or had still further allowances. The first and most distinguished of these colleges were at Paris; but here, as in other places, they degenerated in many degrees, and did not remain the asylum of poor students. In England, the colleges have acquired a greater extent and importance—in fact, the whole university consists of a number of such colleges, in which the business of instruction is mainly carried on. In German universities something similar was introduced, namely, the *bursæ* (charitable establishments, in which students live for a very low rent). The same name is also given to certain boarding-houses, kept by professors. Those who lived in such houses were called *bursarii*; hence the German word *Bursch*. The first teachers of the ancient universities were not paid by government: they were supported entirely by fees received from the students. Men of high reputation could then acquire wealth, as the number of students was generally very great. At a later period, scholars sometimes received presents from the magistrates of a town, to induce them to remain in it: at a still later period, a fixed salary was given to them. In the beginning of the sixteenth century, in most universities, the fees and salaries of the professors were increased, and they were now enjoined to deliver public lectures gratis. In the Protestant German universities, which advanced far beyond the Catholic, the public lectures were, after a time, found insufficient, and more lectures were delivered *privatim*, that is, these were lectures for which fees were received from students, so that a stronger motive to competition was excited among the teachers. The lectures delivered *privatim* are, at present, more numerous and important than the public ones. In German universities. Before the invention of the art of printing, in the fifteenth century, the professor dictated and the students wrote after him. Much time was lost, and a course of lectures on a particular branch always lasted a long term. When it became frequent after printing was invented, which has been said respecting the origin of the universities of France and Italy, is true also of England—Oxford, founded about 1200, Cambridge, about the same time. The division which took place in the university of Paris, mentioned above, in 1229, was advantageous to the English universities. Several distinguished teachers of Paris accepted the invitation of Henry III. of England, and went to Oxford. The first universities founded in Germany were those of Prague, in 1348, and Vienna, 1365, both after the model of Paris: in both the division into four nations was adopted. This circumstance caused the ruin of the former, and the foundation of a new one. The emperor Charles IV. had divided the foreign students, when the university of Prague was founded, into the Bohemian, Polish, Bavarian and

nations. The Germans, therefore (as the Polish nation consisted chiefly of German Silesians,) had the advantage over the Bohemians; and, as these were unwilling to suffer their oppressions, John Huss and Jerome of Prague induced the emperor Wenceslaus to make three nations of the Bohemian and one of the two German. Several thousand students and teachers withdrew immediately, and gave rise to the university of Leipsic, in 1409, where they were divided into four nations, the Misnian, Saxon, Bavarian and Polish. None of the other German universities, founded in the fifteenth century, adopted the division into nations. Universities were now expressly established, and not left to grow up of themselves, as before. For almost three centuries, the popes continued to erect these institutions, and exercised the right of protecting and of superintending them. Monarchs who wished to establish a university, requested the papal confirmation (which never was denied), and submitted to the authority which the Roman see arrogated over them. Wittenberg was the first German university which received its confirmation (in 1502), not from the pope, but from the German emperor: but even this institution eventually requested the papal confirmation. Marburg was established in 1525, without papal or imperial confirmation: the latter, however, was subsequently given. Even Göttingen, founded in 1734, obtained imperial privileges, after the model of those of Halle. The unhappy thirty years' war did much injury to the German universities; but, since that period, they have advanced beyond those of any other country; and it may be said that the principal part of the liberty left to the Germans has been academical liberty; hence, also their abuse of it; hence, too, the fondness with which a German recalls his life at the university; and hence the students' jealousy of their privileges. Though the organization of the German Protestant Universities is, in general, much superior to that of any others, we do not think it desirable to place students in precisely the same relation in other countries, particularly those in which men's energies are not cramped by arbitrary political institutions. Germany has more universities than any other country. After the *bursæ* had been established, they degenerated in a great degree. Some *bursæ* were not charitable institutions, and the students had to pay a fee to the person whose duty it was to superintend their conduct. These superintendents often allowed their wards to indulge in all kinds of vices, in order to obtain many students. The reformation broke out and its regenerating power was felt in the scientific institutions. The students saw the corruption of the *bursæ*, and elected their own superintendents, to each of whom was committed the charge of the students coming from a particular district or part of Germany: thus the *Landsmannschaften* (countrymanships) originated. These, also, soon degenerated. All the students divided themselves into *Schorists* (*preceptores*) and *Pennale* (pen-cases). (See *Pennalism*.) The latter were abused by the former, and when they succeeded to their places, abused those who came after them. (See Schöttgen's *History of Pennalism*, 1747). This lasted almost 100 years. In the beginning of the eighteenth century originated the orders. The chiefs of the orders were called *seniors*. They made their own constitutions, called *comments*. The orders generally comprised but few members, and in their turn, degenerated, owing partly to the spirit of the time, and partly to the circumstance that the students had a particular academical jurisdiction. New *Landsmannschaften* were created to oppose them, which were chiefly founded on very misconceived notions of honour. The abuses to which these institutions led, continued until 1813, when the feeling that Germany ought to be united, inspired all classes with a common sentiment of patriotism; and, after those individuals who had fought and bled for their common country returned to the universities, they felt the petty character of the *Landsmannschaften*, and the *Burschenschaften* were established—unions of all the students of a university, without regard to the particular German territory from which they came. Better morals and notions of honour became prevalent; but, as the liberal principles, which animated all Germany, were manifested in a particular degree by the young men at the universities, the German governments became suspicious, and abolished the *Burschenschaften*.*

In order to give an idea of the character of the English universities, we have extracted the following observations from an account of Oxford university, in the English Quarterly Journal of Education, No. III., for July, 1831. Oxford is an establishment for the purposes of education, which corresponds to a federal body united for political purposes. As, in this latter case, the several states have separate jurisdictions, separate duties, and, to a certain extent separate interests, so the several colleges and halls which compose the academical body, have each its own private regulations for the education of its members, but all contribute to the university education. This may be brought under the heads of public examinations and college preparation. In its early constitution, and in the gradual additions which for many ages were made to it, the system now followed in the German universities was kept in view, and professorships or readerships in the different arts and sciences were established; but

* The general organization of a German university is as follows:—A number of *professores ordinarii* are appointed for the various branches. They divide themselves into four *faculties*, each having a dean annually chosen by themselves from among their number. All these professors generally form the senate at the head of which is the rector, who is chosen annually. They have jurisdiction over the students, in regard to small offences and matters of police, and make the general provisions respecting instruction with the consent of the government. Professors in most universities are appointed by the government. Besides these professors, there are an indefinite number of *professores extraordinarii*, for the same branches, or for particular parts of them. They receive small salaries, and are the persons to whom the government look to fill vacancies. They are generally persons who have distinguished themselves, and whose talents the government wish to secure. In Berlin there are a great many of these extraordinary professors. The last class of lecturers are the *docentes*, or licentiates, who, after undergoing an examination, have obtained permission to teach (*licentia docendi*). They receive no salary. Any person can request to be examined by the faculty in this way, and thus capacitate himself to teach. From them the *professores extraordinarii* are ordinarily taken. Every person in these three classes can lecture upon whatever subject he may choose, the professors being only obliged to deliver lectures also on the branches for which they are particularly appointed. Thus we constantly find theologians lecture on politics, philosophers on theological subjects and statistics; theologians on philology, &c. Very often three or four courses are delivered on the same subject. The German student, in the Protestant universities, is left at full liberty to choose the lectures which he will attend. No official examination takes place during his term of study. The only regulation is that, in the case of most sciences he is required to attend certain lectures, and study full three years, if he wishes to obtain an appointment, practise a profession, &c., if he is not specially exempted from so doing. If he wishes to practise medicine, he must study in Prussia four years. The German student usually divides his term of study among two or more universities; but whilst he is thus left almost at full liberty while at the universities, he must go through a severe examination, particularly in Prussia, if he wishes to become a clergyman, statesman, practise as physician, lawyer, or teacher in a superior school. These examinations are both oral and in writing, and the successive steps of promotion are attended with new examinations.

these university officers are no longer the main sources of instruction. The demand for instruction created by the degree examination, is met almost exclusively by lectures delivered in the several colleges and halls, or, rather by private tutors in the colleges and halls; so exclusively indeed, that, although some knowledge of Greek is essential for a degree, and a considerable proficiency for the higher class degrees, the Greek professor has no lectures. What is actually required for a degree of bachelor of arts, is, that the student should display some acquaintance with the facts and doctrines of the Christian religion, and especially with the peculiar tenets of the church of England, as set forth in its articles; some proficiency in the Greek and Latin languages, in one or more of the ancient philosophical treatises, or, in lieu of this, in a portion of ancient history; some knowledge, also, either of the elements of logic or of the elements of geometry. The statute, however, contemplates the probability of a much higher standard of qualification in a portion of the students; and for these it provides honours additional to that of a mere degree. Their names are printed, arranged in four classes, according to a fixed standard of merit for each class. The candidate is permitted to name the books in which he wishes to be examined; and the examiners are, besides, at liberty to examine in any books which they may select. The following may serve as a specimen of the ordinary lists admitted by examiners:—Virgil, Cicero *De Officiis*, the five last books of Herodotus, Porson's four plays of Euripides, and some work on logic. For the highest honours in classes, the catalogue usually comprises two or more treatises of Aristotle, with the addition, occasionally, of some of Cicero, or some parts of Plato, Herodotus and Thucydides, and often the whole or part of Xenophon's Hellenics, and Polybius; a selection of Greek plays, and sometimes Pindar; a portion of Latin history, most commonly two decades of Livy; two or more Latin poets, which are almost always Virgil, Horace, Lucretius or Juvenal. Besides the examination in these books, the student is obliged to perform exercises in English, Latin and Greek, in prose and in verse, at the discretion of the examiners. The mathematical examinations have been, for the last three or four years, conducted principally by means of printed questions, answered in writing. A candidate for the first class may be stated generally to have acquired a knowledge of, 1. the elements of analytical geometry and trigonometry; 2. the differential and integral calculus and its applications; 3. mechanics, including the principles of its application to the solar system, embracing the substance of the three first sections of Newton's *Principia*, which are also read in the original forms; 4. the principles of hydrostatics, optics and plane astronomy. The examinations take place twice a year. Prizes are given for the encouragement of composition in prose and verse, in Latin and English. There are also public scholarships, which operate as rewards and encouragements of general proficiency or particular acquirements. These include classical literature, mathematics, Hebrew and law. The university also affords facilities for the acquirement of various branches which do not enter into the qualifications for a degree. Thus the several professors of geology, chemistry, and many other branches of science, are always provided with classes, often with numerous ones.

We now proceed to the college preparation for the public examinations. It is this that really constitutes the Oxford education. The process of instruction in the colleges is by means of private tuition. Every head of a house appoints a certain number of tutors for this purpose. Questions are put by the tutor, and remarks made by him on the book which is the subject of study. He also gives directions respecting the proper mode of studying. The students usually attend two, three or four tutors who thus give instruction in different branches. The college tutor, moreover, has interviews from time to time, with his pupils, separately, for the sake of ascertaining the individual's state of preparation for the public examination, assisting him in difficulties, &c. Besides these college tutors, however, there are private tutors, who superintend the studies of individuals, and prepare them for assistance on the exercises of the college tutors. These private tutors are particularly useful to the numerous class of students who come to college ill-prepared. The course of college instruction ends at the end of each term, with a formal examination of each member separately, by the head and tutors who assemble for this purpose. This scrutiny of the business of the term is called, in the technical language of the place, *collections*, or *terms*. Each student presents himself in turn, with the books in which he has received instruction during the term, and, in many colleges, with the essays or other exercises which he has written, in the form of scientific works, abridgments of history, or the like. In some colleges, the students are required to present, for their examination, such books also, in which they have not received instruction during the term. Besides the other studies pursued in the colleges, the students write weekly essays on a given subject, occasionally indeed with a copy of Latin verses, for those in versification. The liberality of donors has enabled the colleges to provide indirectly for the promotion of study by means of exhibitions, scholarships and fellowships. Every college and hall examines, as it thinks fit, its own candidates for admission, and pronounces, each according to a standard of its own, on their fitness or unfitness for the university. The university has public examinations, called *Examinations*, for members who have been matriculated not less than six, nor more than nine terms. These are conducted principally with a view to ascertaining the elementary knowledge of the student, rather than his progress in those branches of knowledge which he is supposed to be pursuing. In regard to the expenses, i. e. the necessary expenses of a student at Oxford, the Journal from which we have extracted the preceding remarks states, that the ordinary college account for the year, including university and college fees of all kinds, postage, board, lodging, washing, coals and servants, is often as low as of £80 or £90 than above £100.—For further information respecting the English universities, see *Oxford*, *Cambridge*, *King's College*, *London* [U. of] (in article *London*), and for notices of the Scottish Universities, see *College*, *Education*, and *Scotland*.

The word *university* was used in France during the period of the empire, to designate the whole body of the higher institutions of education, consisting of twenty-six academies in the principal towns, all under the control of a common head.

In the United States of America, the word *university* is sometimes applied to the college, but there are no institutions in the country entitled to or deserving the name.

The following is a list of the universities in the different countries of Europe; but the reader should be aware of the immense difference between the establishments bearing this name; for instance, those of Berlin and Göttingen, on the one hand, and a Spanish university, on the other, in which, a short time since, it was prohibited to lecture on philosophy. In general, it may be said, that, with the exception of Paris, the Catholic universities out of Germany are very far behind the Protestant universities. See Cousin's *Letters to the French Minister of Instruction and Worship*; count Montalivet on the state of public instruction in Germany; also Russell's *Tour in Germany*, in 1820, 21 and 22, and Dwight's *Travels in the North of Germany*, in 1825 and 1826.

Austria has eight universities.

	Founded.
Vienna,	1365
Prague,	1348
Padua,	1228
Pavia,	1361
Pest,	1469
Lemberg,	1784
Innspruck,	1818
Gratz,	1826

Prussia, six.

Berlin,	1810
Bonn,	1818
Breslau,	1702
Greifswalde,	1456
Halle,	1694
Konigsberg,	1544

Besides Catholic theological and philosophical faculties at Munster and Braunsberg.

Bavaria, three.

Wurtzburg,	1402
Erlangen,	1743
Munich,	1810

Saxony, one.

Leipsic,	1409

Hanover, one.

Gottingen,	1734

Wurtemberg, one.

Tubingen,	1477

Baden, two.

Heidelberg,	1386
Freiberg,	1457

Electoral Hesse, one.

Marburg,	1527

Hesse-Darmstadt, one.

Giessen,	1607

Mechlenburg, one.

Rostock,	1419

Saxe Duchies, one.

Jena,	1557

France, twenty-six.*

Paris,	about 1200
Strasburg,	1538
Toulouse,	1229
Aix,	1409
Amiens	
Angiers	
Besançon,	1564
Bordeaux,	1447
Bourges	
Caen,	1438
Cahors	
Clermont	
Dijon,	1722
Douai	
Grenoble	
Limoges	
Lyons,	1350
Metz	
Montpellier,	1289
Nancy	
Nismes	
Orleans	
Pau	
Poitiers,	1431
Rennes,	1561
Rouen,	901

* These institutions, however with five exceptions, are only schools, containing but one or two faculties.

Great Britain, nine.

Cambridge,	1229
Oxford,	1263
Edinburgh,	1582
St Andrews,	1412
Glasgow,	1454
Aberdeen, { King's college,	1506
Aberdeen, { Marischal,	1593
Dublin,	1320
London university,	1825
King's college,	1829

The *Kingdom of the Netherlands*, three.

Leyden,	1575
Groningen,	1614
Utrecht,	1636

Belgium, three.

Louvain,	1426
Liege,	1816
Ghent,	1816

Russia, eight.

Petersburg,	1821
Moscow,	1803
Charkow,	1804
Casan,	1803
Dorpat,	1632
Wilna,	1578
Helsingfors,	1828
(transferred from Abo).	

Poland, one.

Warsaw,	1816

Sweden and Norway, three.

Upsal,	1476
Lund,	1668
Christiana,	1811

Denmark, two.

Copenhagen,	1479
Kiel,	1665

Spain, eleven.

Valladolid,	1346
Huesca,	1264
Salamanca,	1404
Valencia,	1404
Saragossa,	1474
Alcala de Henares,	1490
Seville,	1504
Granada,	1531
St Jago di Compostella,	1531
Oviedo,	1580
Cervera,	1717

Portugal, one.

Coimbra,	1279

Cracow, one.

Cracow,	1400

Switzerland, five.

Basle,	1460
Lausanne	
Geneva	
Berne	
Zurich	

The four latter are called *academies*, but are considered as universities.

ITALY.—*Naples*, three.

Naples,	1224
Palermo,	1394
Catania,	1445

Sardinia four.

Turin,	1405
Genoa,	1812
Cagliari,	1720
Sassari,	1769

States of the Church, four.

Rome (*Sapienza*),	1303
Bologna,	1109
Perugia,	1307
Urbino, re-established	1808

Tuscany, three.

Sienna,	1320
Pisa,	1338
Florence,	1488

Parma, one.

Parma,	1422

Modena one.

Modena	

Lucca one.

Lucca	

Ionian Republic, one.

Corfu,	1824

UNTERWALDEN, or UNDERWALDEN; one of the smaller Swiss cantons, in the centre of Switzerland, bounded north by Lucerne and Walstädter lake, east by mountains which separate it from Uri, south by Berne, and west by Lucerne; square miles, 265, with 20,000 Catholic inhabitants; chief towns, Stantz and Sarnen. The government is democratic. The pasturage of cattle is the chief support of the inhabitants, and the exports consist of cattle, hides, cheese, butter and tallow. The surface is mountainous; and two of the summits, Tittles or Titlis (10,296 feet high) and Surenes, are covered with perpetual snow. The canton measures about eight leagues each way, and is divided into two valleys, Upper and Lower, by a forest called *Kernwald*, which crosses it from north to south. Sarnen is the principal place of the Upper Vale, and Stantz of the Lower and of the whole canton. The two valleys send alternately a deputy to the Swiss diet. Unterwalden is one of the cantons which, in 1308, concluded the league which gave origin to the Swiss confederacy. It furnishes 382 men to the army of the confederacy. Its quota of money is 1907 Swiss francs. See *Switzerland*.

UPAS TREE (*antiaris toxicaria*); a Javanese tree, celebrated for its poisonous qualities, which, however, have been very much exaggerated. It was long believed in Europe, that this tree was a solitary one situated in a valley in Java, the pestilential qualities of which were so great, that neither herb nor animal could live within many miles of its circle, and that criminals alone were sent to gather poison from it, few of whom ever returned. Dr Horsfield (in volume seventh of Batavian Transactions) was among the first to give a correct account of the poison-tree of Java. He says that, though the ordinary accounts of it are fabulous, still there exists a tree in Java, from the sap of which a fatal poison is prepared. This tree is the "Anchar," which grows in greatest abundance at the eastern extremity of the island. It belongs to the twenty-first class of Linnæus, or the Monœcia. The male and female flowers are produced on the same branch at no great distance from each other; the females being in general above the males. The seed-vessel is an oblong drupe, covered with the calyx; the seed, an ovate nut with cell. The top of the stem sends off a few stout branches, which spreading nearly horizontally with several irregular curves, divide into smaller branches, and form an hemispherical, not very regular crown. The stem is cylindrical, perpendicular, and rises completely naked to the height of sixty, or seventy, or even eighty feet; near the surface of the ground it spreads obliquely like many of our large forest trees. The bark is whitish, slightly bursting into longitudinal furrows. Near the ground this bark is, in old trees, more than half an inch thick, and when wounded, yields copiously the milky juice from which the poison is prepared. This juice or sap, is yellowish, rather frothy; and when exposed to air its surface becomes brown. In consistence it is much like milk, but thicker and more viscid. The sap is contained in the true bark, or *cortex*. The inner bark (*liber*) is a close, fibrous texture like that of the paper mulberry-tree called *morus papyfera*; and when separated from the other bark and cleansed, resembles coarse linen. It has been worked into strong ropes; and that from young trees is often converted by poor people into a coarse stuff which they wear while working in the fields. If wetted by rain, however, this flimsy covering affects the wearer with an intolerable itching. Although curious property of the prepared juice has been known wherever the tree grows, yet the preparation of poison from its sap is a secret exclusively possessed by the inhabitants of the eastern extremity of Java.

In making his numerous experiments on the sap, Dr Horsfield had some difficulty with his native labourers, who feared a cutaneous eruption, and nothing more. This eruption, and other symptoms, are produced by the well-known Chinese varnish tree, whose sap, like that of this poison-tree, is procured by making incisions in the trunk.

The anchar is one of the largest trees in Java; it delights in a fertile, not very elevated, soil, and is found only in the midst of the largest forests. "It is," says Dr Horsfield, "on all sides surrounded by shrubs and plants, and in no instance within a barren desert." The largest specimen he saw was embosomed in common trees and shrubs which could hardly approach it; wild vines and other climbing shrubs, in complete health, adhered to and ascended half the height of its stem. While he was collecting its sap he observed several young trees that had sprung up spontaneously from seeds dropped by the parent plant.

Dr Horsfield also describes the preparation of the poison, as the process was performed before him by an old Javan, who was famed for his skill in the art. The poison thus made seems to affect quadrupeds with nearly equal force, proportioned in some degree to their size and disposition to rage; fatal to dogs in an hour, to mice in ten minutes, to monkeys in seven, to cats in fifteen minutes, and to a poor buffalo subjected to the experiment in two hours and ten minutes in dying.

UPPER CANADA. See *Canada*.

UPPER HOUSE AND LOWER HOUSE; names sometimes used for the house of lords and of commons, or, in other countries, for the house of peers and the house of deputies, or the first and second chamber, as in Baden. Its application to the British parliament is more common than to other legislative bodies.

UPSAL (in Swedish, *Upsala*); a town of Sweden, in Upland, capital of a district of the same name; thirty-five miles north of Stockholm; long. 17° 39′ E.; lat. 59° 52′ N.; population, 4412. It is situated on the small river Fyris, or Sala, which divides it into two parts, and opens a communication with lake Malar. It contains a large cathedral and two other churches: the cathedral is the largest in the kingdom, and contains the tombs of several Swedish kings, and many other monuments, among which is that of Linnæus. The archbishop of Upsal is the only one in Sweden. The private houses are mostly built of wood, the public buildings of stone or brick. The university of Upsal was founded in 1477. Gustavus Adolphus and Christina did much for it. It can boast of Loccenius, Wallerius, and a number of other distinguished professors. It has twenty-one professors, a library of 56,000 volumes and 1000 manuscripts, among which is the *Codex Argenteus*. (See *Argenteus*.) There is also the manuscript deposited by Gustavus with directions that it should not be opened for fifty years after his death, a botanical garden, an astronomical observatory, an anatomical theatre, and cabinets of natural history and mineralogy, with a cabinet containing 11,000 coins. The number of students in 1829 was 1525; in 1815, 1200; 35 in theology, 150 of law, and 123 of medicine. The

Upsal was long the residence of the Swedish monarch, who bore the title of *king of Upsal* till the tenth century; and the kings of Sweden are still crowned here. Upsal is used by the Swedish geographers as the first meridian, from which they compute their longitude. King Frederick founded here, in 1728, the *societas literaria et scientiarum*.

URAL MOUNTAINS (from *ural*, girdle); a chain of mountains running along the frontier of Asia and Europe, nearly 1500 miles, from the Frozen ocean to the Caspian sea, containing the richest veins of metals in Russia. The northern part is called the Verchoturie, or Jugoric mountains. Verchoturi is the name of the height at the source of the Tura (58° N. lat.), where is situated the place of the same name, with 3000 inhabitants, and many iron works, the emporium of the Siberian trade. South of the great ridge of the Ural, the mountains of Guberlinki extend far into the steppes of the Kirguises. The highest summit of the Ural, the rock of Padwinski, is 6397 feet above the surface of the Caspian sea. Several rivers on the eastern and western declivities of the Ural promote the internal commerce of the government of Perm, which contains 120,000 square miles and 1,143,902 inhabitants. The crown has here nine mines and establishments for the manufacture of iron, fifty-one copper mines, a gold washing, and a mint. There are, besides, eighty-one iron and eighteen copper mines belonging to private individuals. The annual product amounts to 200,000 poods* of copper, 1,500,000 poods of wrought iron, and 8,500,000 poods of cast iron. The salt works of the crown yield annually 1,300,000 poods of salt; the private salt works, 6,136,000 poods. Above 120,000 men are employed in the mines. Tin is not found at all on the Ural; but the mountains afford some lead and silver. The platina obtained is considerable. The whole mineral product of the Ural, including the gold of the gold washings, may be estimated at from forty-five to fifty millions of roubles. Perm has also considerable manufactures. Of late the veins of gold have been worked much more extensively than before Alexander von Humboldt's visit to the Ural, in 1829, added to the knowledge of its stores.† The gold sands of the Ural were known as early as 1774. They extend over a tract containing 36,000 square wersts, and are found both in the mountains and on the banks of rivers. Fourteen thousand persons, including 4380 crown peasants, are occupied in the washings. The proprietors of private gold washings are obliged to pay ten per cent. to the government. Up to 1817, the gold obtained in the Ural did not amount to more than eighteen poods annually. Now it is above two hundred poods. In 1824, three million gold roubles were coined from two hundred poods of gold, of which more than a fourth part belonged to the emperor. The gold mines on the eastern declivity of this chain are said to be much more productive than those on the western. In April, 1825, several pieces of pure gold were found in the mines of Slatansk, in the government of Orenburg, the largest of which weighed above sixteen pounds, the middling-sized ones from five to nine pounds. According to the investigations made there, the gold is supposed to have been produced by the agency of water, and not by that of fire. The ancient name of the Ural mountains was *Montes Hyperborœi*, or *Montes Riphœi*.

URAL RIVER (formerly called *Jaik*, and anciently *Rhymnus*) falls, after a course of 2000 wersts, or 1330 miles, through several mouths, into the Caspian sea, at Gurjew; lon. 52° 14′ E.; lat. 47° 15′ N. It rises twenty-four miles north of Verchouralsk, in lon. 58° 44′ E., lat. 54° N. It is shallow in some parts, but abounds in fish, particularly the sturgeon, of the spawn of which caviare (q. v.) is made. On the right bank live the Ural Cossacks; on the left the Kirguises. Among the former appeared, in 1772, the adventurer Pugatscheff. (q. v.) In consequence of their participation in his enterprise, they lost their privileges. Catharine restored them, but altered the name of *Jaik Cossacks*, which they had previously borne, to that of *Ural Cossacks*. The name of the river was also changed into *Ural*. These Cossacks furnish 20,000 men to the Russian army in case of war.

URANIA; the muse of astronomy. She is generally represented with a crown of stars, in a garment spotted with stars, and holding in her left hand a celestial globe, or a lyre. Some give her also a telescope and a circle. See *Muses*.

Urania is likewise the name of the heavenly Venus, or of pure, intellectual love, in contradistinction to that which is merely sensual. The ancient Greek poets also call one of the Oceanides, or sea-nymphs, *Urania*.

URANIUM; the name of one of the metals, from οὐρανος (the heavens). We shall first describe its ores, which are two in number; viz. *pitchblende* and *uranite*.

1. Pitchblende occurs massive, with a columnar or impalpable composition; fracture conchoidal or uneven; lustre imperfect metallic; colour grayish-black, inclining sometimes to iron-black, also to greenish and brownish-black; streak black, a little shining; opaque; brittle; hardness below feldspar; specific gravity 6·46. According to Klaproth, it consists of

Protoxide of uranium,	86·50
Protoxide of iron,	3·50
Silex	3·00
Sulphuret of lead	6·00

Alone, before the blow-pipe, it is infusible, but, with borax, melts into a grey scoria. If reduced to powder, it is slowly soluble in nitric acid. It is found chiefly in veins, accompanied by various ores of silver and lead. Its chief localities are Johanngeorgenstadt and Schneeberg, in Saxony, and Joa-

---

* One pood is equal to 36 pounds 1 ounce 11 drachms; but among merchants, it is reckoned equal to 36 pounds.

† The following account is part of a letter from M. Humboldt to M. Arago:—"We spent a month in visiting the gold mines of Berezowsk, the malachite mines of Goumeschewski, and of Tagilsk, and the washings of gold and platinum. We were astonished at the *pepites* (water-worn masses) of gold, from two to three pounds, and even from eighteen to twenty pounds, found a few inches below the turf, where they had lain unknown for ages. The position and probable origin of these alluvia, mixed generally with fragments of greenstone, chlorite slate, and serpentine, was one of the principal objects of this journey. The gold annually procured from the washings amounts to 6000 *kil.* The discoveries beyond fifty-nine and sixty degrees of latitude become very important. We possess the teeth of fossil elephants enveloped in these alluvia of auriferous sand. Their formation, consequent on local irruptions and on levellings, is perhaps, even posterior to the destruction of the large animals. The amber and the lignites, which we discovered on the eastern side of the Ural are decidedly more ancient. With the auriferous sand are found grains of cinnabar, native copper, ceylanites, garnets, little white zircons, as brilliant as diamonds, anatase, elvite, &c. It is very remarkable, that in the middle and northern parts of the Ural, the platinum is found *west*, on the western European side. The rich gold washings of the Demidov family at Nijnei-tagilsk, are on the Asiatic side, on the two acclivities of Bartirsya, where the alluvium of Villuni alone has already produced more than 2000 pounds of gold. The platinum is found about a league to the east of the separation of waters (which must not be confounded with the axis of the high summits), on the European side, near the course of the Ouika, at Sakei Vissim, and at Martian."

chimsthal, in Bohemia. In Cornwall, it has been found in the tin mines of Tincroft, near Redruth.

2. *Uranite.* This beautiful species is found in small, but very perfect crystals, of the form of the right square prism, which is usually so low as to appear tabular. The terminal and lateral edges are often replaced. Cleavage takes place parallel to the sides of the primary form, and with great ease parallel to the terminal planes; lustre pearly or adamantine; colour emerald-green, leek-green or siskin-green; streak corresponding to the colour; transparent to translucent on the edges; sectile; hardness a little above that of gypsum; specific gravity 3·115. It also occurs massive, having a granular composition. It consists of

Oxide of uranium,	60·00
Phosphoric acid,	16·00
Oxide of copper,	9·00
Silex,	0·50
Water,	14·50

Alone, it becomes yellow before the blow-pipe, and loses its transparency. Upon charcoal, it intumesces a little, and melts into a black globule. It occurs in veins of copper, silver, tin and iron. Beautiful varieties have been found in the Gunnis lake mine, in Cornwall. It also occurs in the Saxon and Bohemian mining districts. It is likewise met with at Bodenmais, in Bavaria, and at Limoges, in France.

History of the Metal and its Compounds. The easiest method of procuring the metal from the ore is the following:—The pitchblende is reduced to a fine powder, and digested in nitric acid till every thing soluble is taken up. The solution is then rendered as neutral as possible by evaporation, and a current of sulphureted hydrogen gas passed through it as long as any precipitate continues to fall. The liquid is filtered and heated, to drive off all traces of sulphureted hydrogen. It is now precipitated by caustic ammonia; and the precipitate, after being well washed, is digested, while still moist, in a pretty strong solution of carbonate of ammonia. A fine lemon-yellow liquid is obtained, which, being set aside for a few days, deposits an abundance of fine yellow crystals, in right rectangular prisms. These crystals, being exposed to a red heat, give out water, carbonate of ammonia, and oxygen gas, and leave a black oxide of uranium, which is easily reduced to the metallic state by passing a current of dry hydrogen gas over it, placed in a glass tube, and heated by a spirit lamp. The metal presents a liver-brown colour, and remains in the state of a powder. No heat that we can raise is sufficient to melt it into a mass: of course its malleability and ductility are unknown. It has considerable lustre, and is soft enough to yield to the file. Its specific gravity is 8·10. It undergoes no change in the ordinary temperature of the atmosphere; but when heated to redness, it takes fire, swells, and is converted into green oxide. It is insoluble in sulphuric and muriatic acids, whether concentrated or diluted; but nitric acid dissolves it with facility. Uranium combines with two different proportions of oxygen, and forms two oxides. The *protoxide* is green, and the *peroxide*, or acid of uranium, is yellow. The former of these is obtained by exposing metallic uranium to a red heat. Its colour, while in grains, is black; but when in powder, it is dark green. It is soluble in sulphuric and muriatic acids. The solutions are green. When dissolved in nitric acid, it is converted into the peroxide. Protoxide of uranium is tasteless, and, when anhydrous, is not altered by exposure to the air. Per- uranium, or uranic acid, is obtained by dissolving protoxide in nitric acid, and precipitating by tic ammonia. A beautiful yellow powder tained, which is a combination of peroxide nium and ammonia. Such is its tendency to bine with other bodies, that it cannot be in a separate state. If we attempt to drive ammonia and water, with which it is united oxygen at the same time, and is converted into toxide. The same change takes place when heat pernitrate of uranium. Nothing is known pecting the combinations which this metal is ble of forming with chlorine, bromine, or or with azote, carbon, boron, silicon, and rus. A sulphuret of uranium has been which has a black colour, and, when rubbed tallic lustre. Its capacity for forming the other metals remains, in consequence scarcity of the metal, uninvestigated. The of uranium are used in painting upon porcelain yielding a fine orange colour in the enamel and a black one in that in which the porcelain is baked.

URANUS. According to the cosmogony of the Greeks, Gæa (Earth) proceeded from (the infinite void of space). The earth produced Uranus (in remote antiquity, the personification the sphere of light, the heavenly vault), and became the mother of the Titans, the youngest whom was called *Kronos* (Time). All the productions of nature proceeded from the union of the Titans and Titanides. This was expressed in the plastic language of the ancient poets. Time (*Kronos*) put an end to the productive power of Uranus, and emasculated him with his sickle.

Uranus is also a name given by the ancient astronomers to the planet which we now call *Herschel*.

URBANISTS. See *Franciscans*.

UREA. See *Urine*.

URI; a Swiss canton, bounded north by Schwyz, east by Glarus and Grisons, south by Tessin, and west by Berne and Unterwalden; square miles 508; population, 14,000. The inhabitants are Germans by descent and language; of the Catholic religion; the government democratic. The canton is divided into two districts, Uri and Urseren. The chief town is Altorf. The country is extremely rugged, composed of barren and bleak mountains and deep valleys. Here are the elevated summits of St Gothard, which are covered with perpetual snow. The canton is traversed from north to south by the Reuss, and contains a number of lakes and mountain streams. Of the valleys, that of Urseren, the largest are those of the Reuss and of Urseren, the latter of which admits of a small extent of tillage. The pasturage is the principal source of subsistence, and cattle, cheese, wool, leather, and timber are articles of export. Not far from Altorf is the village of Burgelen, the birth-place of William Tell. Uri concluded, in 1308, a league for ten years with Schweitz and Unterwalden, which, in 1315, was changed into the perpetual league. The whole canton consists of mountains and valleys, and is surrounded by mountains always covered with snow. To the south is mount St Gothard, 9944 feet high. Little grain is raised; orchard fruits succeed well. The chief occupation of the people is raising cattle (it has 10,000 head of cattle) and making cheese. The road over the St Gothard yields them much profit; formerly above 15,000 people passed over

nually, from Switzerland to Italy. The road over the Simplon is now generally preferred. Uri furnishes 602 men to the army of the confederacy. Its quota of money is 3012 Swiss francs.

URIC ACID. See *Urine*.

URIM AND THUMMIM (*light and perfection*); a kind of ornament belonging to the habit of the Jewish high-priest, by means of which he gave oracular answers to the people. What they were, and the mode in which the divine will was communicated to the high-priest by means of them, is disputed among the critics.

URINE is an excrementitious fluid, designed for ejecting from the system substances which, by their accumulation within the body, would prove fatal to health and life. It is secreted by the kidneys, whose sole office it appears to be to separate from the blood the superfluous matters that are not required for nutrition, or which have already formed part of the body, and been removed by absorption. The substances, which, in particular pass off by this way, are nitrogen and various saline and earthy compounds. In its natural state, it is transparent, of a yellow colour, a peculiar smell, and saline taste. Its quantity, and, in some measure, its quality, depend on the seasons and the peculiar constitution of the individual, and are likewise modified by disease. It is observed, that perspiration carries off more or less of the fluid which would else have passed off by urine; so that the profusion of the former is attended with the diminution of the latter. The specific gravity of the most concentrated urine is 1·030. It gives a red tint to litmus paper—a circumstance which indicates the presence of a free acid, or of a supersalt. Though at first quite transparent, an insoluble matter is deposited on standing; so that urine voided at night is found to have a light cloud floating in it by the following morning. This substance consists in part of mucus, and partly superurate of ammonia, which is much more soluble in warm than in cold water. Urine is prone to spontaneous decomposition. When kept for two or three days, it acquires a strong smell; and as the putrefaction proceeds, the disagreeable odour increases, until at length it becomes exceedingly offensive. As soon as these changes commence, the urine ceases to have an acid reaction, and the earthy phosphates are deposited. In a short time, a free alkali makes its appearance, and a large quantity of carbonate of ammonia is gradually generated. Similar changes may be produced in recent urine, by continued boiling. In both cases the phenomena are owing to the decomposition of *urea*. This principle is procured by evaporating fresh urine to the consistence of a sirup, and then gradually adding to it pure concentrated nitric acid, till the whole becomes a dark-coloured crystallized mass, which is to be repeatedly washed with ice-cold water, and then dried by pressure between folds of bibulous paper. To the nitrate of urea thus procured, a pretty strong solution of carbonate of potash or soda is added, until the acid is neutralized; and the solution is afterwards concentrated by evaporation, and set aside, in order that the nitre may separate in crystals. The residual liquor, on evaporation and resolution in alcohol, deposits transparent and colourless crystals of urea. It leaves a sensation of coldness on the tongue, like nitre, and its smell is faint and peculiar, but not urinous; specific gravity 1·35; it fuses at 248° Fahr., and, at a rather higher temperature, is resolved into carbonate of ammonia and cyanic acid: water dissolves, at 60o, more than its own weight of urea, and boiling water takes up an unlimited quantity. The numerous researches made concerning urine have given the following as its component parts: 1. water; 2. urea; 3. phosphoric acid; 4, 5, 6, 7. phosphates of lime, magnesia, soda, and ammonia; 8, 9, 10, 11. lithic, rosacic, benzoic, and carbonic acid; 12. carbonate of lime; 13, 14. muriates of soda and ammonia; 15. gelatin; 16. albumen; 17. resin; 18. sulphur. According to Berzelius, healthy urine is composed of water 933, urea, 30·10, sulphate of potash, 3·71, sulphate of soda 3·16, phosphate of soda 2·94, muriate of soda 4·45, phosphate of ammonia 1·65, muriate of ammonia 1·50, free acetic acid, with lactate of ammonia, animal matter soluble in alcohol, and urea, 17·14, earthy phosphates with with a trace of fluate of lime 1·0, uric acid 1, mucus 0·32, silex 0·3, in 1000·0. The *uric acid* is a constant ingredient in urine: when pure, it has the following properties: it is sometimes in the state of a white impalpable powder, sometimes in small four-sided prisms, having considerable lustre. It is very tasteless, very white, light, and insoluble both in water and alcohol. In concentrated sulphuric acid, it speedily assumes the form of a jelly, and with the aid of a little heat, a complete solution is obtained. In nitric acid, even though dilute, it dissolves with effervescence; and when the solution is evaporated to dryness, it assumes a fine pink colour, which becomes much deeper when water is added, so as to have a near resemblance to carmine. In this state it stains wood, the skin, &c., of a beautiful red colour. The watery solution of this matter loses its red colour in a few hours and it cannot afterwards be restored. Uric acid combines with the different bases, and forms a genus of salts called *urates*. The only ones of importance are the urates of ammonia, potash and soda. Urate of ammonia is soluble, to a considerable extent, in boiling, but more sparingly in cold water. The urates of soda and potash, if neutral, are of very feeble solubility; but an excess of either alkali takes up a large quantity of the acid. When uric acid is heated in a retort, carbonate and hydrocyanate of ammonia are generated, and a volatile acid sublimes, called *pyro-uric acid*, which is believed to be identical with cyanate acid.

Such is a general view of the composition of human urine in its healthy state. But this fluid is subject to a great variety of morbid conditions, which arise from the deficiency or excess of certain principles which it ought to contain, or from the presence of others wholly foreign to its composition. Of those substances which, though naturally wanting, are sometimes contained in the urine, the most remarkable is sugar, which is secreted by the kidneys, in diabetes. Diabetic urine has a sweet taste, and yields a syrup by evaporation, is almost always of a pale straw colour, and in general, has a greater specific gravity than ordinary urine. The sugar when properly purified, appears identical, both in properties and composition, with vegetable sugar, approaching nearer to the sugar of grapes than that of the sugar cane. The acidifying process which is constantly going forward in the kidneys, as evinced by the formation of sulphuric, phosphoric and uric acids, sometimes proceeds to a morbid extent, in consequence of which, two acids, the oxalic and nitric, are generated; neither of which exists in healthy urine. The former, by uniting with lime, gives rise to one of the worst kinds of urinary concretions; and the latter appears to lead to the formation of purpurate of ammonia, by reacting on uric

acid. In severe cases of jaundice, the bile passes from the blood into the kidneys, and communicates a yellow colour to the urine. Though albumen is contained in a very minute quantity in healthy urine, in some diseases it is present in large proportion. It is characteristic of certain kinds of dropsy. In certain states of the system, urea is generated in an unusually small proportion. This occurs especially in diabetes mellitus, and in acute and chronic inflammations of the liver. An abundant secretion of uric acid is by no means uncommon. In some instances, this acid makes its appearance in a free state; but happily it generally occurs in combination with an alkali, especially with soda or ammonia. The undue secretion of these salts, if temporary, occasions scarcely any inconvenience, and arises from such slight causes, that it frequently takes place without being noticed. This affection is generally produced by errors in diet, whether as to quantity or quality, and by all causes which interrupt the digestive process in any of its stages, or render it imperfect. Doctor Prout specifies unfermented, heavy bread, and hard-boiled puddings or dumplings, as, in particular, disposing to the formation of urates. These sediments have commonly a yellowish tint, which is communicated by the colouring matter of the urine; or, when they are deposited in fevers, forming the lateritous sediment, they are red, in consequence of the colouring matter of the urine being then more abundant. As long as uric acid remains in combination with a base, it never yields a crystalline deposit; but when this acid is in excess and in a free state, its very sparing solubility causes it to separate in minute crystals, even within the bladder, giving rise to two of the most distressing complaints to which mankind are subject—to *gravel* when the crystals are detached from one another, and, when agglutinated by animal matter into concrete masses, to the *stone*. These diseases may arise either from uric acid being directly secreted by the kidneys, or from the formation of some other acid, by which the urate of ammonia is decomposed. The tendency of urine to contain free acid occurs most frequently in dyspeptic persons of a gouty habit, and is familiarly known by the name of the uric or lithic acid diathesis. In these individuals, the disposition to undue acidity of the urine is superadded to that state of the system which leads to an unusual supply of the urates. A deficiency of this acid in urine, however, is no less injurious than its excess. As phosphate of lime in its neutral state, is insoluble in water, this salt cannot be dissolved in urine except by being in the form of a superphosphate. Hence it happens that healthy urine yields a precipitate, when it is neutralized by an alkali; and if, by the indiscriminate employment of alkaline medicines, or from any other cause, the urine, while yet in the bladder, is rendered neutral, the earthy phosphates are necessarily deposited, and an opportunity afforded for the formation of a stone.

URN; a species of vase of a roundish form, but largest in the middle, destined, among the ancients, to receive and enclose the ashes of the dead; which destination, its name, in fact, sufficiently indicates, the Latin word *urna*, or *urnula*, being most probably a derivative of the verb *urere* (to burn). The Romans often made use of Grecian vases for this purpose, as is evident from those found in the tombs in the vicinity of Naples, which contain both bones and ashes. (See *Vase*.) Urns are commonly met with in almost all collections of antiquities; and Montfaucon, in particular, has drawn and engraved a number of them. The substances employed in construction of these vessels are numerous. Among them are gold, bronze, glass, terra-cotta, marble, porphyry. They were made of all shapes and sizes; some had smooth surfaces; others were engraved *basso rilievo*. Many have been discovered bearing inscriptions; others with the name only of the person to whose remains they were devoted. Several have no other character than the two letters D. M. (*Dis Manibus* (To the Shadowy Deities). These, again, present nothing more than the name of the artist by whom they were wrought, written on the handle or at the bottom. Little vases have occasionally been found in ancient tombs, designated *lachrymal urns*. See *Lachrymatory*.

URSA MAJOR AND URSA MINOR; the Great and Little Bear. See *Constellations*.

URSULA, ST; a virgin martyr; according to the legend, a daughter of a prince in Britain. She suffered death at Cologne, some say in 384, others in 451, together with 11,000 virgins who accompanied her. According to another reading, the number of her companions was only eleven. The number is said to have been increased to 11,000 by a mistake in reading the name of one of her attendants (called Undecimia) according to the legend, and according to a manuscript which belonged to the Sorbonne, *Undecemana* for a number. The Roman martyrology mentions the saint and her virgin companions, without specifying their number. St Ursula was the patroness of the Sorbonne. See *Ursulines*, and *Cologne*.

URSULINES, OR NUNS OF ST URSULA; a sisterhood founded by St Angela, at Brescia, in 1537, at first without being bound to the rules of the monastic life, but devoting themselves more to the practice of Christian charity and the education of children. Paul III. confirmed them in 1544, under the name of *society of St Ursula*. In 1572, Gregory XIII. made the society a religious order, subject to the rule of St Augustine, at the solicitation of St Charles Borromeo. They added to their religious vows a fourth, to occupy themselves gratuitously in the education of children of their own sex. The order is under the superintendence of the bishops. In the eighteenth century, it had 300 convents. Many governments which abolished convents in general, protected the Ursulines on account of their useful labours, particularly in the practice of Christian charity towards the sick. The *Dictionnaire de Théologie*, published in 1819, says that 300 convents of these sisters existed at that time in France. Their dress is black, with a white belt, and a rope for the purpose of self-scourging. Their congregations, however, did not at first accept the monastic rule; and in France and Italy there were societies, the members of which only took the vow of chastity, and gave instruction to their sisters. Their dress was that commonly worn about 200 years ago by widows. There are a number of these sisterhoods in the United States of America.

URUS. See *Ox*.

USAGE, in law. See *Common Law*, and *Prescription*.

USANCE, in bills of exchange. See *Bill of Exchange*.

USBECKS; a Turkish tribe, now ruling in Bokhara, and, for three centuries, the terror of Persia and Central Asia. They occupy the modern Bactriana (or Usbeckkistan) and Turcomania. The word *Usbeck* in the Turkish word for *self*, and *beck* signifies *lord*, so that *Usbeck* signifies master of one's self. Shaibeni

Shaibani Khan, became, in 1498, the founder of the power of the Usbecks on the Oxus (Jihon or Amu). He deprived the descendants of Timour of the last shadow of their power. After a long series of wars with the Persians, Bucharians, Turcomans and Chorasmians, after bloody civil contentions and changes of dynasties, Mahmed Rahim Khan at last obtained absolute powers, in 1802 (see *Turkestan*), over Khiwa and the neighbouring countries. He organized the present empire, established a divan, coined gold and silver, &c. With all the other qualities of a despot, he united cunning and uncommon understanding. The Usbecks are more honest than the other tribes under the khan. Justice is one of their chief traits. They hate lying and avarice and every thing groveling. War and pillage they consider the only honourable employments. They still continue their struggles with the Persians and Turcomans, invade the territories of their neighbours, and carry away slaves. There are said to be at present about 3000 Russian and 30,000 Persian slaves among them. The Usbecks now generally live in towns, possess the highest offices, and own many small castles, which they lease to the Turcomans and Sartes. They are divided into four chief tribes. The number of their warriors may amount to 30,000. The khan has, in the whole, 3,000,000 of subjects. Khiwa, the residence of Mahmed Rahim, is inferior in size to Newurgens, an ancient city, which flourished during the times of the Arabians, but is now depopulated. The arts, sciences, music and poetry were cultivated there. Until the fourteenth century, it was the point of meeting of all the caravans on the Jihon. Perhaps the influence of the Russians may introduce some civilization among these rude tribes.

USEDOM; a Prussian island in the Baltic, separated from the coast of Pomerania partly by the river Peene, and partly by the Frische Haff, about thirty miles in length, of a very irregular form, and in no part above three miles from the sea. It is intersected by several ranges of downs and sand hills, and has large woods, but not much land fit for agriculture. The inhabitants are chiefly employed in navigation and fishing. Population, from 11,000 to 12,000; square miles, 150; chief towns, Swinemunde and Usedom; lon. 13° 11′ to 13° 58′ E.; lat. 54° 15′ to 54° 45′ N.

USHER, James; archbishop of Armagh, in Ireland, born at Dublin, in 1580. After the death of his father, who was one of the six clerks in chancery, he gave up the paternal estate to his younger brother, and devoted himself to the church; entered Trinity college, and studied the writings of the fathers and the schoolmen, whence he compiled a systematic body of extracts; and, in 1601, took holy orders, and was appointed afternoon preacher at Christ-church, Dublin. Soon after, he visited England, to purchase books for Trinity college library, and became acquainted with many learned men. His talents, and the favour of his sovereign, James I., successively procured him the professorship of divinity at Trinity college; in 1607, the office of chancellor of St Patrick's; the bishopric of Meath, in 1620; the post of privy counsellor, in 1623; and the following year, the primacy of Ireland. In this station he displayed the same zeal against the Catholics for which he had been distinguished in the early part of his career, and wrote several controversial works on the theological points of interest at the time. His notions of church government verging towards Presbyterianism, his enemies took advantage of this to destroy his credit with James I.; but his undeviating support of the royal supremacy saved him from suffering by their machinations, and he enjoyed, to the last, the esteem of king James. He endeavoured to prevent Charles I. from sacrificing Lord Strafford, whom Usher attended in prison and at his execution. He adhered to the king's interest during the civil war, and witnessed the execution of his master. The scene had such an effect on him, that he fainted; and he commemorated the event by an anniversary celebration of funeral rites. After that event, he experienced civility and flattering promises from Cromwell; but the latter were not fulfilled. He died in 1656, and the protector ordered that he should be interred in Westminster abbey. Archbishop Usher carried on an extensive correspondence with the learned in various parts of Europe, and collected, at considerable expense, valuable books and manuscripts. Among the latter were the Samaritan Pentateuch and a Syriac version of the Old Testament. Such was the general esteem excited by his character and literary reputation, that, on his quitting Ireland, in consequence of the rebellion, he was offered a professorship at Leyden; and cardinal Richelieu invited him to settle in France, promising him his patronage, with perfect freedom as to religion. But he thought proper to decline both these proposals. His principal works are the Annals of the Old and New Testament (folio), a treatise of the highest authority in chronology and sacred history; *Britannicarum Ecclesiarum Antiquitates* (folio); and a Body of Divinity (folio), compiled surreptitiously from his sermons and notes. —See Aikin's *Lives of Selden and Usher* (1812).

USHER (*huissier*); an officer who has the care of the door of a court, hall, chamber, or the like.—The *gentleman usher of the black rod* is the chief gentleman usher in Britain. During the sessions of parliament, he attends the house of peers. His badge is a black rod, with a lion, in gold, at the top. This rod has the authority of a mace; and to the custody of this officer all peers subjected to question for any crime are first committed.

USQUEBAUGH. See *Whiskey*.

USUFRUCT (*usus fructus*); in the civil law, the temporary use or enjoyment of any lands or tenements, or the right of receiving the fruits and profits of an inheritance, or other thing, without a power of alienating the thing or changing the property thereof. The relations between the proprietor and the usufructuary are settled by the agreement made between them.

USURPER; in politics, one who unlawfully puts himself at the head of a government. See *Legitimacy*, and *De Facto*; also *Sovereignty*.

USURY, in a very general sense, means a compensation or reward for money lent. In this sense, it is equivalent to *interest*. But in the common business of life, it rarely has this signification, but is chiefly used in an odious sense, to express an exorbitant or illegal compensation for money lent, in contradistinction to the common compensation allowed by law, which is called *interest*. Thus a man is commonly called a *usurer*, who lets money for more than legal interest, and who is therefore deemed a hard, oppressive and avaricious creditor. It is singular to what a great extent the prejudice against the receipt of interest upon money lent has prevailed in all ages. That a man should receive a compensation for a thing which he lends to another for a use which is beneficial to the latter, and inconvenient to himself, seems to stand upon the first

principles of justice. If A lets his horse to B for a journey, for B's pleasure or profit, no one doubts the propriety of A's asking and receiving a compensation for the hire of the horse. Why, then, should not A be equally entitled to a compensation, if he lends money to B for the pleasure or profit of the latter? If the compensation asked be a reasonable recompense only, for the inconvenience to which A is put, or for the hazard which he runs of not receiving back the thing lent, there is no difference in the principle, whether the loan be of the horse or of the money. If it be exorbitant or illegal, the impropriety and injustice equally apply to each case. And yet it has been rare, either in the policy of nations or the opinions of moralists, that the transactions have been viewed in an equally favourable light. One ground of the common prejudice probably has been, that money, being the common medium of trade and commerce, is more generally in demand, and more universally useful to all persons, than any other commodity; and therefore the whole community are eager to borrow upon as cheap terms as possible, and the lenders are as naturally desirous to lend upon as high terms as possible; thus begetting a mutual jealousy, and a strong tendency to hard bargains. In times when money is scarce, the necessity, as well as the difficulty, of borrowing, is greatly increased, and an inflamed spirit of discontent is generated against those who possess the means of relief, and will not afford it, but upon the terms of an exorbitant compensation. They thus become odious, first as individuals, and next, when they become numerous, as a class. In this way, money-lenders are deemed to have a peculiar interest hostile to that of the public at large; and even if the laws do not prohibit the charge of high interest, they are stigmatized as extortioners and usurers. Besides, the poor, the extravagant and the dissolute, generally live beyond their means, and therefore have the strongest desire, as well as the strongest necessity, for borrowing. In proportion as their wants rise, they are more ready to contract for high interest; and as they are unable to pay when the proper time for payment arrives, they are compelled to submit to further exactions; and the creditors, as they perceive an increasing hazard of losing the principal, are disposed to indemnify themselves against the risk by additional premiums. From these combined operations, always going on, in such cases, with accelerated force, there is almost a certainty of ultimate ruin to such borrowers. The creditors are thus compelled to more vigilance, and to more effort to obtain or secure payment, until, at last, the borrowers seem to be the victims of misfortunes which they are unable to resist, and the creditors to be the instruments of harsh and vindictive oppression. Thus public sympathy becomes enlisted on the side of the sufferers, without adverting to the rights or the indulgences of the creditors, simply because the latter can bear the loss without as much suffering.

But a more extensive ground of prejudice has been derived from religious sources. Those who are enemies to the allowance of interest in general, often make no distinction between that and usury, and hold each to be equally reprehensible. Christians, in an especial manner, have drawn arguments from the prohibition of usury by the law of Moses, among the Jews; and the school divines, partly on this account, and partly on the authority of Aristotle, who has fancifully said that money is naturally barren, and to make it breed money is preposterous, have not hesitated to pronounce it contrary to the divine law, both natural and revealed. The Mosaic law, too, has proscribed the taking of any, or at least, interest for the loan of money, as a usury. It is not surprising, under such circumstances, that men, in the dark ages, should have looked with horror upon the taking of interest, and that the military and feudal lords of those days, who were always needy, and always borrowing, full of pride of birth and rank, and full of disdain for the humbler avocations of life, and especially of those connected with the accumulation of money, should have looked with contempt upon the usurer, have augmented the popular delusion. But even in enlightened times, the religious scruples to which we have alluded should still have prevailed, is a more illustration of the difficulty of correcting a wrong when it has once fastened itself on the community. Nothing can be clearer, than that the Mosaic precept was merely a political, and not a moral precept. It did not prohibit the Jews from taking of usury. It only prohibited them from taking it from their own brethren, the Jews. But the Mosaic law, in express words, permitted them to take it of a stranger. The Jews have, accordingly, been great money-lenders upon interest in all ages; and this has, probably, in Christian countries, the more augmented the prejudice against this unfortunate, but unfortunate people. Indeed, so deeply is this prejudice fixed, that a man of a sordid, avaricious character is, even now, proverbially called a *Jew*. There is, however, not the slightest foundation, either in natural or revealed religion, for any prohibition against the taking of interest upon money, any more than against the taking of profit for the use of any other thing loaned.

But the policy of most nations has not made the right or rate of interest to rest upon the basis of moral law, or the doctrines of religion. In fact, in all nations, in modern times, the legislature has regulated the subject, and prohibited, under severe penalties, all contracts and bargains, by which the excess of interest, beyond the rate prescribed by the law, is secured. In many countries, they have declared all such contracts utterly void, so that the principal loan cannot be recovered; thus giving the supposed want of conscience, on one side, a full justification of the grossest want of conscience on the other. In some countries, they have allowed the interest, if paid, to be recovered back; in other countries, they have refused this, and adopted an intermediate course, allowing a recovery of the principal, sometimes with a small interest, and sometimes with no interest. Among statesmen and political economists, it has been for a long time a vexed question, how far the regulation of interest upon money is founded in sound policy, or in convenience. That it should be regulated by the legislature to the extent of declaring, by a general rule, what interest shall be allowed when the parties have been silent, and what shall be allowed when there has been a wilful delay of payment beyond the stipulated period, would seem to be a proposition susceptible of little question or debate. For far better to have some certain rule in such cases to furnish a universal guide, than to leave the amount to be ascertained by a judicial decision in every case of difference between the parties, or where the parties have been silent, if such rule exist, it may fairly be presumed to be acquiesced in or adopted by them. The question, then, is whether the law ought, in cases unprovided for

the parties, to adopt some uniform measure of interest, but whether the parties should be prohibited from stipulating for any rate of interest which they may choose. In former ages, it was quite a common practice for legislatures to regulate the rate of buying and selling many commodities, so as to restrain the ratio of profits within certain limits. Such regulations would now be generally deemed unphilosophical and impolitic, as well as oppressive. All that the law would now attempt to accomplish, would be to prevent imposition, fraud and circumvention in such contracts. Why should not the same principles apply to bargains about money? Why should a man, dealing fairly and openly, be prevented by the laws from making as high a profit upon the sale or loan of money as upon the sale or loan of merchandise?

The general grounds upon which legislation upon the subject of the interest of money has been justified, as contradistinguished from other profitable contracts, are, the prevention of excessive interest; the prevention of prodigality; the protection of the poor and needy against extortion; the suppression of rash enterprise, and the security of the weak and credulous against imposition. Now, it will be found, upon a careful examination, that some of these grounds are quite unsatisfactory and delusive; and some of them are equally applicable to all other contracts and bargains as well as to loans of money. So far as the object of laws is to prevent oppression and imposition, and undue advantage of the strong over the weak and credulous, the principal should apply to all contracts, not by regulating the terms of every contract *a priori*, and settling what, under all the circumstances, should be just and reasonable, but by providing, by general principles of law, that unconscionable and oppressive contracts, where undue advantage is taken of the weakness, or credulity, or necessity, of the other party, shall be either wholly set aside, or reduced to moderation, upon a full trial of each particular cause, and an examination of all the facts, so as to make the decision just in itself, *ex æquo et bono*. There is nothing in the nature of contracts for loans of money which, in this respect, makes it either necessary or proper to distinguish them from others. Nor is it easy to see how prodigality would be encouraged by the facility of borrowing any more than of buying. Interest will always bear a steady proportion to the means of repayment, and the punctuality of the performance of the contract. If persons are prodigal and extravagant, they will not be less inclined to borrow because the laws have protected them against paying an undue interest; and if they do borrow under such circumstances, they must either give an extravagant interest, in order to indemnify the lender against the additional risk from its illegality, or else they will borrow upon the usual terms; and in neither case does the prohibition answer its purpose.

The interest of money must ordinarily be regulated in practice by the value of the use to the borrower as well as the lender, by the general demand for it, and by the hazard of repayment. If the demand be small, and the security be good, the interest will be low. If the demand be great, the interest will be high, although the security be good. And if the demand be great, and the security doubtful, it is obvious that the price will be proportionally enhanced, since it includes the risk of loss as well as the value of the use. Now, it is certain that these three ingredients admit of very various combinations, and that there are perpetual changes going on in relation to each. Nothing is more uncertain or variable than the demand for money, and the facility of obtaining it. It depends upon a thousand circumstances, political, commercial, and even local. No man can foresee them; and no legislation can suitably provide for them. The very elements upon which to found a rule admit of no arrangement and no certainty. Is it not, therefore, unwise, as well as unjust, to establish a general rule to govern all cases, when the rule itself cannot work the same way any two days in succession throughout the year?

On the other hand, there are positive mischiefs attendant upon all absolute regulations of this subject. In the first place, no laws can practically reduce the rate of interest below the lowest ordinary market rate at the time when the money is wanted. It will be borrowed, at all events, if there is a necessity; and in proportion as the demand grows more urgent, there will be a corresponding disposition to evade and break down the restriction. Thus a tendency is created to a habitual disobedience to the laws—a tendency which, in every view, moral as well as political, is deeply to be deprecated. In the next place, it operates greatly to the discouragement of trade and commerce. Nothing more favours the interests of commerce than a general liberty to buy and sell without restraint or obstruction. If the party can always obtain money, while he possesses good credit, without any restraint as to the interest he shall give for it, from the rise or fall of markets, he will naturally be induced to extend his business, and may extend it with comparative security and advantage. But, if he is obliged to calculate all possible chances of relieving his necessities beforehand, with the knowledge that, if money rises in the market, he must borrow upon disadvantageous terms, he will not embark at all in enterprises which go beyond his own present means; or he will take the risk, and, if the exigency arises, he must pay proportionally higher, because the law gives no validity to the contract. He must pay the lender for trusting to his honour and honesty, and not to the authority of the laws. In short, the moment it is admitted (what can hardly be disputed) that commerce cannot well subsist, to a great degree, in any country, without mutual and extensive credits, it is obvious that every measure that facilitates and gives security to such credits must be beneficial.

Another evil attendant upon restrictive laws is, that, in any scarcity or extraordinary emergency, they unavoidably enhance the market price of money. They make the pressure heavier, and compel the parties to heavier sacrifices. Many men will not, in such times, lend their money at all upon common interest; and yet they have great scruples about letting it upon any contract for usury, lest they should lose both principal and interest. Others, if they do lend without regard to the laws, demand a higher and perhaps extravagant compensation for the hazard which they run. And conscientious borrowers, rather than incur the imputation of being violators of the laws, make other sacrifices of their property, which sometimes are ruinous, and generally are deeply injurious to their estates. If, under such circumstances, they were free to make their own bargains, they could borrow at lower rates, and could give legal security. In short, the prohibitory system, in many cases, aggravates the very evils which it is intended to mitigate.

It makes the prodigal more extravagant, the rash more undistinguishing, the poor more servile and dependent, the rich more irresolute or avaricious, the weak a more easy prey to the crafty, the busy and enterprising more timid or more speculative, and thus introduces into social life many perturbations which cannot be calculated, and many immoral practices which silently impair, or openly sap, the foundations of virtue.

UTAWAS, OR OUTAWAS; a river which forms the boundary between Upper and Lower Canada, and flows south-east into the St Lawrence, just above Montreal. It is sometimes called *Montreal* river. Its course is considerably interrupted by falls and rapids; yet the fur traders contrive to pass these without damage in their loaded canoes. Its navigation will doubtless be greatly improved by canals.

UTERINE (from *uterus*, womb) is used to denote the relation of children who have the same mother, but different fathers.

UTERUS (the *womb*); the organ in which the embryo is received from the ovary, to which it becomes adherent, so as to receive the materials of its growth, and in which it is retained for a longer or shorter time in various species until its expulsion in the process of parturition. A proper uterus belongs only to the mammalia; oviparous generation under various modifications is found in the other classes; and the female organ is therefore reduced to a mere canal (oviduct) for the transmission of the ova. In the human female, the uterus is a spongy receptacle, resembling a compressed pear, situated in the cavity of the pelvis, above the vagina, and between the urinary bladder and rectum. Its form resembles that of an oblong pear flattened, with the depressed sides placed towards the ossa pubis and sacrum; but in the impregnated state, it becomes more oval, according to the degree of its distention. For the convenience of description, and for some practical purposes, the uterus is distinguished into three parts—the upper part, called the *fundus;* the lower, the *cervix;* the space between them, the *body*. The uterus is about three inches in length, about two in breadth at the fundus, and one at the cervix. Its thickness is different at the fundus and cervix, being at the former usually rather less than half an inch, and at the latter somewhat more; and this thickness is preserved throughout pregnancy, chiefly by the enlargement of the veins and lymphatics, there being a smaller change in the size of the arteries. But there is so great a variety in size and dimensions of the uterus in different women, independent of the states of virginity, marriage or pregnancy, as to prevent any very accurate mensuration. The internal surface of the uterus is corrugated in a beautiful manner, but the rugæ, or wrinkles, which are longitudinal, lessen as they advance into the uterus, the fundus of which is smooth. In the intervals between the rugæ are small orifices, like those in the vagina, which discharge a mucus, serving, besides other purposes, that of closing the os uteri very curiously and perfectly during pregnancy. The substance of the uterus, which is very firm, is composed of arteries, veins, lymphatics, nerves, and muscular fibres, curiously interwoven and connected together by cellular membrane. The use of the womb is for menstruation, conception, nutrition of the fœtus, and parturition. It is liable to many diseases, the principal of which are retroversion and falling down, hydatids, dropsy of the uterus, moles, polypes, ulceration, cancer, &c. See *Labour*.

UTICA; in antiquity, a celebrated city, established very early by the Phœnicians, on the western coast of Africa. It was independent at an early age, yet in alliance with that city. It was celebrated for the suicide of the younger Cato, who is called, on that account, *Uticensis*, after the destruction of Carthage, it became the capital of the province. According to Strabo, it was situated on the same gulf with Carthage. Augustus granted the title of Roman citizens to its inhabitants. On its site are found old walls, a circus, aqueduct, cisterns, and vestiges of other edifices which announce a large and magnificent city. The name of the modern town is Booshatter. The port, by the accumulation of mud brought down by the river Bagada, is now about seven miles from the sea.

UTICA. The city of Utica, in the state of New York, stands on the south side of the river Mohawk, in lat. 43° 6′ N., and lon. 74° 13′ W. It is situated in the north-eastern part of the valley which is watered by the river Mohawk, the Ouskany and the Sadaqueda or Saquoit (*saw-qua*) creeks. These streams furnish canal basins and water for many useful branches of manufactures and machinery. The Erie canal passes through the city, running parallel to the river. Utica is nearly the geographical centre of the state of New York. In 1794, the town contained nineteen families; in 1840, the population from the census was 12,782. Its present population is estimated at above 15,000. The city charter was granted by the legislature of the state, February 1832. The charter is remarkable for being the first ever granted in the state in which the licensing of shops for retailing ardent spirit is expressly prohibited. The manufacturing district, or the busy valley of the Sadaghqueda, includes a territory ten miles square, having Utica in the north-west corner, and the river Mohawk for its northern boundary. Here, on the stream from which the valley takes its name, are a number of cotton factories. Connected with these factories are various mills, grain-mills, paper-mills, &c. This small town has a population of more than 30,000, including six or seven villages, supporting one college, chartered academies, six select seminaries of education, and upwards of one hundred common schools, with a proportionate number of churches, religious congregations and charitable societies. The climate is considered salubrious.

UTILITARIANS; a name given particularly to the school of Jeremy Bentham, the advocates of "the greatest happiness principle," who test the value of all institutions and pursuits by the principle of utility, that is, the promotion of the greatest happiness of the greatest number. The estimate to be formed of this doctrine must obviously depend upon the idea which is attached to happiness. If by this be understood physical enjoyment only, the principle is certainly low and narrow; for though the physical comforts of a people are intimately connected with their moral and intellectual well-being, and their progress in religion and virtue, in the sciences and the arts, will depend greatly on the fact of the mass of the people having a full supply of nutritive food, or being pinched by the want of necessaries of life; yet we must reflect that a man's true welfare consists in the highest improvement of his nature, the greatest good is often found not in physical gratification, nor in any form of sen-

is usually called pleasure, but in the hard trials of adversity. This subject requires a much fuller consideration than we can give to it here. We would only remark that, at a time when the word "utility" has become so general a favourite, it should not be forgotten that utility has reference only to means, and necessarily supposes an object of a higher character to which they are to be applied. However far we may carry the idea of utility, we must stop somewhere, and admit that there is something beyond, of which utility cannot be predicated. The idea of utility has even encroached upon the province of morality, as if our age could not love and do good for its own sake. We are told that we should be virtuous. In what way is virtue useful? our age replies. The answer is, Because it makes men happy. But every one knows that virtue does not make us happy in the lower sense of the word, in which it is almost synonymous with "comfortable." It is, then, mental and moral happiness, serenity of mind, for which virtue is useful. But a thorough utilitarian might ask, For what is this state of mind—namely, the happiness of a good conscience—useful; and, if told, Because it gives the assurance of the favour of God, might go on to inquire, For what is it useful to please God? The reader sees how pitiful is the application of utility to the highest objects of existence. Utility, then, cannot be considered as the ultimate principle of morality. It is equally defective when considered as the main-spring of the highest intellectual activity. Had not men of an elevated caste delighted in the pursuit of truth for its own sake, and pressed on through labour and difficulty, unconcerned as to the practical application of their discoveries, the world would never have witnessed those noble examples of intellectual effort which raise our ideas of human nature; and many of the inventions which have proved of the highest *utility* would never have been made. The disposition to pursue truth for its own sake may, indeed, be abused, 1. By being directed to worthless objects; as, for instance, a man may spend as much time in investigating the question, whether buttons were used by the Greeks and Romans, or what was the material of the riding-whip which Louis XIV. held when he ordered the parliament to register his edicts, as Bessel did in ascertaining the thickness of the ring of Saturn. But those truths which attract a noble mind are such as serve to unfold the nature of God and of his works; which reveal the constitution of man, as exhibited in history, and analyzed by philosophy; which determine the laws that maintain the life and activity of organized beings, and preserve the order of the material universe. 2. The love of abstract truth may be too exclusive, as we believe to be often the case among men of science in Germany, who sometimes entertain a contempt for the practical application of knowledge. We would remark, however, by the way, that the rashness with which the philosophers of Germany sometimes speculate, is not to be attributed to their views respecting scientific truth, but to the rapid generalization to which retired students are prone. The conclusion to which the above observations naturally lead is, that truth, goodness, honour, liberty, are to be loved and followed for their own sake, or, what amounts to the same thing, for the sake of pleasing God. The noblest course is the most truly useful.

UTOPIA; a name made by Sir Thomas More, from οὐτοπος (no place), and applied by him to an imaginary island, which he represents as discovered by a supposed companion of Amerigo Vespucci, who describes its condition to More, at Antwerp, in 1514. The author describes, in this work, many imaginary perfections in laws, politics, &c., in contradistinction to the defects of those which then existed. The views are often far in advance of his time; and the vices and absurdities of Europe are keenly satirized. The *Utopia* was written in 1516, in Latin. An accurate edition was first printed by Erasmus's printer, Froben, at Basle, in 1518, after an incorrect one had been published in Paris. The following specimen of Utopian etymologies may amuse some readers:—

Achoriam, Adamum, } of no country.
Amydor (a river), Amaurot (a city) } The invisible city is on the river Waterton.

The Austrian general Schrebelin, towards the end of the seventeenth century, drew up a moral-satirical map, under the title, *Tabula Utopiæ oder Schlaraffenland.*

UTRAQUISTS. See *Calixtines.*

UTRECHT; a province in Holland, with a population amounting to nearly 200,000. Its capital is the city of the same name

UTRECHT (in Latin, *Ultrajectum, Trajectum Inferius, Trajectum Ultricensium,* and *Antonia Civitas*); a city of Holland capital of the above province; eighteen miles south-south-east of Amsterdam; lon. 5° 7′ E; lat. 52° 6′ N.; population 45,000; houses, 10,000. It has thirty-six bridges over canals. It is situated on a branch of the Rhine, called Old Rhine, on a slight elevation, having a dry soil, and an atmosphere dry and healthy. Its form is nearly square; it is surrounded by an earthen mound and moat, and, exclusive of its suburbs, is about three miles in circuit. The approaches to it are exceedingly beautiful, particularly that from Amsterdam, which consists of a broad avenue, bordered with rows of trees. The streets are of tolerable width, and intersected by canals, the level of which is about twenty feet below that of the pavement. The aspect of the city is antique; the houses are mostly of brick, built in the Gothic style. It contains an ancient, splendid cathedral, also seven Dutch Reformed churches, one French Reformed, one English, one Lutheran, one Arminian, one Mennonist, and three Catholic; a town-house, a university, hospitals, and other charitable establishments. The cathedral, now partly in ruins, is a remarkable edifice; the tower, still entire, is said to have a height of 464 feet; and from its top, in a clear day, may be seen no less than fifty-one towns, great and small. The mall, situated outside of the walls, is a beautiful public walk. The trade is considerable, having the advantage of an inland navigation; the manufactures are on a small scale. The university, though less famous than that of Leyden, is of considerable note. It was founded in 1630, and has five faculties, nineteen professors, a library, botanic garden, anatomical theatre, cabinet of natural history, and an observatory. Utrecht is famous as the place where, in 1579, was concluded the union of the Seven Provinces; and also the well-known treaty between the French and allies, in 1713.

The *Peace of Utrecht* is important in the history of the European balance of power, because it placed England at the head of the European states, and put a check to the ambition of France. The death of Charles II., king of Spain, the last of the house of Hapsburg in that country, November 1, 1700,

occasioned the Spanish war of succession, which called all Europe to arms, and lasted till 1710. The question was, whether the crowns of Spain, the Netherlands, Naples and Sicily, Milan, and the vast Spanish possessions in America, should be united with Austria, already so powerful, or with France, which was less formidable. The emperor Leopold I. claimed the whole of these dominions for his second son, Charles (subsequently the emperor Charles VI). Louis XIV. claimed the crown for his second nephew, Philip of Anjou (subsequently king Philip V.), on the ground of the testament of Charles II. England, the German empire, and the states-general, took part in the war on the side of the former, while Bavaria and Cologne sided with France. William III., king of England and stadtholder of Holland, had been the founder of the league against France; and Anne, his successor, adopted his political views. After several bloody campaigns, Louis XIV. was inclined to yield; but the death of the emperor Joseph I. (successor of Leopold I.), in 1711, changed the face of affairs; and, at the same time, the tories rose to favour with the queen. They were for peace, and displaced the whigs and the war party, at the head of which was Marlborough. As Charles of Austria, brother of Joseph I., had come into possession of Austria, Hungary, Bohemia, and the dignity of German emperor, the addition of the Spanish crown would have given him a degree of power fatal to the balance of Europe. The English court, therefore, showed a willingness to enter into negotiations for peace, which had already been several times commenced in vain. The disgrace of Marlborough, caused, as is said, by French intrigue, or, as others say, by the pride of the queen, offended by the duchess of Marlborough, was favourable to the negotiations. Count Tallard, who lived as a prisoner of war in England, made the first proposals to Bolingbroke, who had risen to power after the fall of the whigs; and, in October, 1711, the preliminaries were made public. England declaring that she was willing to conclude a separate peace, the emperor was obliged to consent to a congress; and Utrecht was chosen as the place of meeting. The most distinguished of the ambassadors assembled there were the marshal d'Uxelles and the abbé Polignac on the part of France, the bishop of Bristol for England, and count Sinzendorf for the Roman emperor. France offered to acknowledge the dynasty then occupying the British throne; to demolish the fortifications of Dunkirk; to cede the islands of St Christopher, Newfoundland, &c.; to give up Hudson's bay, with the reservation of the cod fishery; to cede to the states-general Ypres, Knocke, &c.; and to conclude a treaty of commerce with them;—in return for which she required Douay, Bouchain, &c. She also agreed to renounce all claims upon the Italian countries belonging to the Spanish monarchy; in return for which the house of Hapsburg was to give up all claims to the Spanish throne; on the Rhine, the frontiers were to remain the same as they had been before the war; the electors of Bavaria and Cologne were to be restored to all the rights which they had enjoyed before the war; in return for which she was to acknowledge Prussia as a kingdom; the crowns of France and Spain were never to be united in one person, &c. The emperor demanded that France should restore every thing which she had received by the peaces of Münster, Nimeguen and Ryswick, as well as all the conquered places in Spain, Italy and the Netherlands, and that the whole of Spanish possessions should devolve upon the house of Hapsburg. England demanded the acknowledgment of the Protestant succession; the removal of the Pretender from France; the cession of the islands of St Christopher, &c.; the conclusion of a treaty of commerce, and a proper indemnification for the allies. The French diplomatists saw the opportunity to interrupt the negotiations, and to bring about a separate peace with England, in which case they hoped to obtain more moderate conditions from the others. The queen of England, in fact, concluded an armistice, by which the operations of her allies were impeded; and the emperor was at last obliged to give up Spain, and to enter into a disadvantageous treaty of evacuation. July 19, France and England agreed on the chief points. The states-general, Portugal, Prussia, Savoy (who received Sicily), &c., joined in the negotiations, and thus France effected, April 11, 1713, many separate treaties at Utrecht. England obtained from France every thing mentioned above, from which Gibraltar and Minorca, with the trade in negroes to the Spanish West Indies, and laid the foundation of her naval power, which has since become so gigantic. In this respect, also, the treaty of commerce and navigation, signed on the same day, is remarkable, the principles of which Napoleon wished to carry into effect against England one hundred years later. The seventeenth article provided that it should be lawful for all the subjects of Great Britain to sail to ports at war with France, and for those of France to sail to ports at war with Great Britain, and not only to go from the hostile port to a neutral one, but also from a neutral port to a hostile one. This privilege of passage was to extend to all persons on board of the vessels not soldiers; and, by article eighteen, this liberty was extended to all goods on board of the vessel, even if they should belong to the enemy, contraband of war excepted. The commercial liberty of neutrals was acknowledged, and the principle that "free ships make free goods."—See *Le Traité d'Utrecht réclamé par la France*, &c. (Leipsic, 1814).—England felt, on occasion of this treaty, what influence she could have on the continental powers: as her secession forced her allies to make similar treaties. By her secession, she obtained advantageous conditions: the formidable Dunkirk was incapacitated from doing her harm; she obtained Hudson's bay, and in consequence in the West Indies, the possession of Gibraltar, and, through this, the command of the Mediterranean. Peace was not concluded at Utrecht with the emperor and the empire: the negotiations were not brought to the desired close: 1714, at Rastadt and Baden. Spain and Austria were not reconciled to each other until the peace of Vienna, April 30, 1725. See *Louis XIV.*, *Eugene*, and *Marlborough*.

UT, RE, MI, &c. *Ut*, in music, is the first of the syllables by which, to this day, the tones of the diatonic scale are designated in France and Italy. Guido d'Arezzo, a Benedictine monk, and at a later period, abbot at Avellana, a native of Arezzo, was distinguished in the eleventh century for his method of instruction in singing, and the many improvements which he introduced into it. Until his time, the want of a proper designation of the tones of the octave made it necessary to practise, with much labour, the *canto fermo*, which was the only method of singing then in use; and the difficulty was increased as the proportion of

semitones to the various tetrachords could not well be determined; and hence a false intonation was almost always the consequence. In dividing the compass of the tones then in use, he employed, instead of the Greek tetrachords (a series of from four to four tones), the hexachords (a series of six tones), of which the first began with C, the second with F, the third with G, which hexachords contained the whole compass (called, by the Greeks a *diagram*) of the diatonic tones then in use. Each of his hexachords contained six diatonic tones, which he named from the initial syllables of the hemistichs of a hymn to St John the Baptist, probably in order to exercise his pupils in the distinct pronunciation of the vowels. The syllables which he used were the italicized ones of the following lines:—

Ut queant laxis *R*esonare fibris
*M*ira gestorum *F*amuli tuorum,
*S*olve polluti *L*abii reatum,
Sancte Johannes.

Thus originated the mode of designating the six diatonic tones, C, D, E, F, G, A, by the syllables *ut, re, mi, fa, sol, la*. After Guido's time, the syllable *si* (the initial letters of Sancte Johannes, in the last line of the above strophe) was added for the sound B of our scale, in order to fill the scale up to the octave; and, as the increasing extent of the compass of the tones required, the number of hexachords, or ther heptachords was augmented. But as, according to the fundamental rule of Guido's solemnization, the syllables *mi, fa*, must always fall upon the semitones, as this is established by the first hexachord in respect to the semitone E (*mi*), F (*fa*), and subsequent hexachords are to be so arranged that *mi, fa*, shall always be given to a semitone; and this change of the commencement of a new hexachord is called *mutation*. To the mutation it is owing that every syllable not only determines one tone, but that the tones are sometimes designated by one sometimes by another syllable, according to the situation of the semitones (*mi fa*), as *mi* must always be preceded by *re*. We must further observe that the seventh syllable, *si*, in general, only designates the seventh tone, so that it is taken for B as well as B flat, but it is not reckoned in the hexachord. If we therefore put several such hexachords one under the other, according to the rule of mutation, thus,—

C	D	E	F	G	A	H*	or,	B♭	c	d	e	f	g	a	&c.,
-	-	-	-	-	-	-			-	-	-	-	-	-	
-	-	-	-	-	-	-			-	-	-	-	-	-	
ut,	re,	mi,	fa,	sol,	la,	-			-	-	-	-	-	-	
			-	-	-	-			-	-	-	-	-	-	
			-	-	-	-			-	-	-	-	-	-	
			ut,	re,	mi,	-			fa,	sol,	la,	-	-	-	
						-			-	-	-	-	-	-	
						-			-	-	-	-	-	-	
				ut,	re,	mi,				fa,	sol,	la,	-	-	
												-	-	-	
												-	-	-	
												ut,	re,	mi,	fa,	sol,	la,	&c.,

* The English B.

the tone C receives the appellation *ut, sol, fa*, the tone D the syllables *re, la, sol*, &c.; hence the Italians designate the six tones of the hexachord (named, in English and German, from these letters of the alphabet) in the following way:—

German appellation,	.	c	d	e
Italian,	. — .	sol, fa, ut,	la, sol, re,	la, mi,
German,	— .	f	g	a
Italian,	. — .	fa, ut,	sol, re, ut,	la, mi, re,

The German H (the English B), the lower semitone of C, the Italians call B *mi*, and the German B (the H lowered by ♭) they call B *fa*. The tones elevated by ♯ they designate by the additional word *diesis*; for example, C♯ is called *sol, fa, ut, diesis*; D♯ is called *la, sol, re, diesis*, &c. Tones lowered by ♭ they designate by *bemolle*; for example, D♭ is called *la, sol, re, bemolle*; E♭ is called *la, mi, bemolle*, &c. In singing, the Italians, moreover, use, instead of the syllable *ut*, the syllable *do*; hence not *ut, re, mi*, &c., but *do, re, mi*, &c. The French, likewise, still use Guido's names of tones, but not in the same way with the Italians; because, with the former, each syllable signifies the tone of the natural scale only; hence *ut* signifies only C, *re* only D, &c. With them, also, H is not called B *mi*, but only *si*; and our B♭ not B *fa*, but *si bémolle*, as they also call the flat tones *bémolle*, and the sharp ones *dièse*; for example, D♭, E♭, A♭, &c., *re bémolle, mi bémolle, la bémolle*; and C♯, D♯, F♯, &c., *ut dièse, re dièse, fa dièse*, &c. Guido is said, moreover, to have introduced the notes or point upon five lines, one above the other, in order to designate by them the heights which had previously been indicated by Latin letters. He also enriched music by the invention of the C and F clefs, and increased the diagramma of the Greeks, consisting of fifteen chords, to twenty-one (two octaves and a sixth—

$$\mathrm{F\,A\,B\,C\,D\,E\,F\,G\,a}\,\mathrm{b}\left|\begin{matrix}\mathrm{c}\\\mathrm{a}\end{matrix}\right.\mathrm{d\,e\,f\,g}\left|\begin{matrix}\mathrm{a\,b}\\\mathrm{a\,b}\end{matrix}\right.\left|\begin{matrix}\mathrm{c\,d}\\\mathrm{c\,d}\end{matrix}\right.)$$

which system, since that time, after the Greek *gramma*, has also been called *scala*, or *main harmonique* (harmonic hand). The latter name arose from the circumstance that Guido had, in order to assist the student, drawn a left hand, on the fingers of which were marked by letters, the tones of the harpsichord, according to the rules of the changes which it was necessary to adopt before the addition of the seventh tone (*si*, or H), in order to rise or fall beyond the six tones used according to the ancient way in the *solfeggio*. (q. v.) He further determined the extent, the proportion and the intervals, as well of the octaves among each other as of the fifths and fourths. He is likewise said to have invented the polyplectrum, or spinnet. These inventions and discoveries, which have had the greatest influence upon the development of harmony, have been, however, in part denied to him, and are said by some to have been made at an earlier period, by others at a later. The establishment of the musical scale, however, is undeniably his, and has been of the greatest importance, as affording the means of learning that well within a few weeks which formerly could be acquired only by the zealous application of years. Of his life we only know that he had to suffer much from enemies, envious of his fame, and therefore was obliged to leave his convent for some time, and to retire to his native city. He was much favoured by popes Benedict VIII. and John XIX. or XX.: and the decree of this latter pope silenced at last the enemies of this great and learned inventor. On his return from Rome, he settled in the convent of the abbot of Pomposa, in the duchy of Ferrara, at the request of the abbot himself. He wrote here several musical treatises, particularly his compendium, entitled *Micrologus*. Gerbert, abbot of St Blasius, in the Schwartzwald, has collected in his *Scriptores ecclesiastici de Musica sacra*, every thing that he could obtain of Guido's works, which, however, at present, are valuable only as antiquities.

The time of his death cannot be given with certainty.

UTTOXETER; a town in Staffordshire, England, situated on a gentle eminence, close to the western bank of the river Dove, over which is an ancient stone bridge of six arches, connecting the counties of Stafford and Derby. It consists of several spacious streets, with a good market place in the centre, and the houses are in general well built. The extensive meadow and pasture lands in the neighbourhood are extremely fertile. The vicinity of Uttoxeter abounds with iron forges, and the trade has been greatly increased of late years, in consequence of the facility of communication, by means of inland navigation. Population of town and parish in 1841, 4735.

UXBRIDGE; a town in Middlesex, fifteen miles west by north from London. It is situated on the high road to Oxford, occupying a gentle declivity on the banks of the river Colne. The Grand Junction Canal passes through the town, and has warehouses and wharfs on its bank for the convenience of trade. The town consists principally of one street, about a mile in length, near the centre of which is a large and commodious market house, erected in 1789. The greater part of the town is in the hamlet of Hillingdon. It contains a subscription library and reading room. Manufactories for implements of husbandry and Windsor and cane chairs, are carried on to a considerable extent. On the river are many large corn-mills, affording a great supply of flour to the metropolis. Population in 1841, 3219.

UZ, JOHN PETER, a German poet of note, was born in 1720, in Anspach. He studied law, received various legal appointments, and died in Anspach, in 1796. Ch. F. Wrisse published his poetical works at Vienna, 1804, in two volumes. He is distinguished, as a lyric poet, for his erotic strains, and for his hymns, of which several are sung in the German Protestant churches. His epistolary style is easy.

V

V; the twenty-second letter of the English alphabet, a labial, formed by the junction of the upper teeth with the lower lip, and a gentle expiration. *V* differs from *f* principally in the circumstance that the breath is emitted more gently in pronouncing it. (See *P*, and *B*.) It is, like *f*, a semi-vowel. The English *v* corresponds in sound nearly to the German *w*, and therefore belongs to the class which the Germans call *Blaselaute*. The Germans have the character *v*, but it generally has the same sound with *f*, as in *Vater* (pronounced *fater*). Sometimes it corresponds to the German *w*, as in *Pulver*. The Romans had two different characters for the small letters *u* and *v*, but the capital *V* was common to both; hence many other nations, who received their alphabet from the Romans, continue to confound these letters. V, as a numeral, denotes 5; when a dash was added at the top, thus V̄, it signified 500. V. R. with the Romans stood for *uti rogas*. (See *Suffrage*.) V. D. D. stood for *voto dedicatur*; V. G. *verbi gratia*; V. L. *videlicit*. On French coins, it signified the mint of Troyes. In music, V is used for the abbreviation of the word *violin*; and when written double, implies both first and second violin. In ancient music it had several other meanings. V. S. are the initials for the Latin *verte subito*, or the Italian *volte subito* (turn over quickly).

VA (*Italian*); go on; as *Va crescendo* (Go on increasing).

VACCINATION; inoculation with the cow-pox. This is a poison, derived from certain specific sores on the teats and udders of cows, and capable of being communicated by accidental contact, where the cuticle has been removed, or by means of inoculation to the human subject. That subjects who have taken the vaccine disease accidentally, were thereby secured from the small pox, was popularly known in several of the dairy counties of England. But it was reserved for Jenner to show, that the cow-pox could be propagated by inoculation, and that the inoculated disease possessed the same prophylactic power as the original casual. Several years before Jenner wrote on the subject some eminent physicians had heard of the fact, and mentioned it casually in their writings; but Dr. Jenner was the first who composed a treatise with the express view of bringing the remedy into general application. This was in 1798; and the treatise was entitled an Inquiry into the Causes and Effects of the Variolæ Vaccinæ, a Disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cow-pox. The value of the discovery was at first a subject of warm controversy; but its great importance is now generally acknowledged. The cow-pox is not a merely local affection, but produces a general though extremely mild, disturbance of the constitution, which is ordinarily so trivial as not to excite any alarm in the very youngest subjects. It seems probable, at present, that it is not an infallible security against the small-pox, although the cases of failures is very small, when due allowance has been made for mistakes and misrepresentations. A small, inflamed spot, distinguishable about the third day, shows that the inoculation has succeeded. This increases in size, becomes hard, and rises above the level of the skin. A small quantity of fluid can be discerned in the centre on the sixth day, and the pustule increases until the tenth day. The fluid will communicate the disease by inoculation. On the eighth day, when the pustule is fully formed, the constitutional effects begin to appear. They manifest themselves by slight pain in the head, headache, shivering, loss of appetite, &c. These subside spontaneously in one or two days. During the general indisposition, the pustule becomes surrounded with a broad, circular, inflamed margin, called the *areola*. Afterwards the fluid dries

and a dark-brown scab forms, which remains for about a fortnight, and, on disappearing, leaves a depression. The spot continues distinguishable through life, either by the circumstance of the depression, or of its colour being somewhat lighter than that of the neighbouring parts.

VACUNA; among the ancient Romans, the goddess of leisure and repose. It is said that she was worshipped even by the Sabines. The peasants sacrificed to her when the season of field labour was finished.

VACUUM, in physics; a space devoid of all matter. Whether there be any such thing in nature as an absolute vacuum, or whether the universe be completely full, is a question that has given rise to disputes among philosophers in all ages. The ancients distinguished a *vacuum coacervatum* and a *vacuum interspersum*, or *disseminatum*. By the former they understood a place destitute of matter, such as would exist if God were to annihilate all the air and other bodies within the walls of a chamber. By the latter they designated the space supposed to be naturally interspersed in and among bodies, in the pores of the same body, and in the interstices between different bodies.

VADEMECUM; a word compounded of three Latin words, signifying *Go with me*. The title was first given to an ascetic work—*Vademecum piorum Christianorum* (Cologne, 1790). It is now sometimes given to manuals, and to works of entertainment. It is also used to denote a favourite author, whom a person constantly carries with him.

VAILLANT, Le. See *Levaillant*.

VALAIS (in German, *Wallis*), one of the twenty-two cantons of the Helvetic confederacy, borders on the Pays de Vaud, Berne, Uri, and Tessin, and the Sardinian territories. (See *Switzerland*.) It was formerly more populous than it is at present. It consists of sixteen small valleys and a large one, which extends from east to west, and is traversed by the Rhone, and bordered on the north and on the south by the loftiest summits of Switzerland. (See *Alps*.) Over the Bernard and Simplon lead two roads to Italy. In the northern chain, which separates Valais from Berne, are the most celebrated of the Bernese Alps, the Finsteraarhorn, Jungfrau, Shreckhorn, &c. The climate and productions are very various: the mountains are almost perpetually covered with snow and ice, while the valleys enjoy a warm climate and a fruitful soil, produce corn, wine and fruits, and furnish good pasturage. The breeding of cattle is the chief occupation of the inhabitants, who are also supported in part by the travel, particularly over the Simplon. There are here mineral springs; and iron, copper, lead, marble and coal are found in the mountains. The inhabitants are Catholics: those of Upper Valais speak German, and those of Lower Valais, French. They are accused of indolence and want of cleanliness: the goitre is common among them. In the middle ages, the country belonged to the kingdom of Burgundy, and, in 1032, was annexed to the German empire. Upper Valais afterwards rendered itself independent, conquered (1475) Lower Valais, which had been ceded to Savoy, and entered into a league with Berne, and, in 1529, with the Swiss confederacy. In 1810, it was annexed to France, under the title of the department of the Simplon, and, in 1815, was constituted the twenty-first canton of the confederacy.

VALCKENAER, Louis Caspar, a celebrated Dutch philologist and critic, born at Leuwarden, in Friesland, studied ancient literature, philosophy and theology at Franeker, where, in 1741, he was appointed professor of the Greek language, d afterwards held the same post at Leyden, till his death, in 1785. He was distinguished for his profound and extensive learning; and his commentaries on several Greek authors are highly esteemed, particularly those on Theocritus, the Phœnissæ (1755), and the Hippolytus (1768) of Euripides, and on Callimachus (1799). His *Opera Philologica* were published at Leipsic in 1808 (2 vols.). His *Diatribe in Euripidis perditorum Dramatum Reliquias* was republished at Leipsic in 1824.

VALCKENAER, Jan or John, son of the preceding, after completing his studies at Leyden, was appointed professor of law at Franeker. His literary reputation, and, particularly, his zealous attachment to the anti-Orange party, procured him, in 1787, the chair of jurisprudence at Leyden; but the return of the stadtholder obliged him to quit Holland the same year. Valckenaer then went to France, and, in 1793, was one of the deputies, to obtain from the convention the aid of French arms for the Dutch patriots. In 1795, he returned to Holland, and was appointed professor of public law, and, in 1796, was sent ambassador to Spain, and, at a later period, was employed on several important missions to other countries. When Louis Bonaparte, in 1810, made the last effort to prevent the union of Holland with France, Valckenaer was sent to Napoleon on the subject; after which he retired to private life, devoting himself, till his death, in 1821, to study. Among his works are his treatise *De Peculio quasi castrensi veteribus Jurisconsultis incognito*, and some legal opinions on political affairs.

VAL D'ARNO; the valley of the Arno, which runs by Florence. See *Arno*.

VAL DI DEMONA. See *Demona*.

VALDIVIA; a city and strong fortress of Chile, on the river of its name, three leagues from the sea. It was founded in the year 1551, by the conqueror Pedro de Valdivia, who gave it his name, and obtained immense sums of gold from its vicinity. In 1590, it was taken and plundered by the Araucanians, the native inhabitants of the country. It was again rebuilt and fortified by the Spaniards. The harbour is situated in a beautiful bay formed by the river, and is the safest, the strongest from its natural position, and the most capacious, of any of the ports in the South sea. The town contains a college, built by the Jesuits, several convents, a parochial church, and a public hospital. It is one hundred and eight-three miles south of Conception.

VALENCIA; a city of Spain, capital of the province of the same name, on the Guadilaviar, two miles from the sea; one hundred and seventy miles south-east of Madrid; lon. 23′ W.; lat. 39° 29′ N.; population, about 80,000 in the city, and 20,000 in the villages and environs. It is situated in a fertile tract of country, and has a mild and pleasant climate. It contains a cathedral, seventy-four churches, forty convents, sixteen hospitals, two public libraries, an academy of painting, a college, a custom-house, and a university. The *Alameda* is a delightful walk, bordered with orange, pomegranate and palm trees, and the air is perfumed with the mulberry, lemon and orange trees of the environs. The streets are narrow, winding, and crossed by a multiplicity of lanes. Many of the buildings are without chimneys. The university was founded in 1470, and has fifty-eight professors and

1500 students; but the course of study is antiquated. The inhabitants excel in the arts more than in literature. The principal manufacture is that of silk. The maritime trade is carried on by lighters, which load and unload vessels at the village of Grao, near the mouth of the river. It is an ancient town, supposed to be the *Valentia Edetanorum* of the Romans, and was the capital of the kingdom of Valencia, which continued from 713 to 1238. It is now an archbishop's see.

The province of Valencia (255,000 inhabitants) lies between the Mediterranean sea, Murcia, Cuenca, Arragon and Catalonia. It is the Eden of Spain, and enjoys the finest climate in Europe. The face of the country is diversified with hills, valleys and small plains, well watered by numerous streams. The Alicant wine, olives, and other fruits, corn, flax and hemp, with bees, silkworms, and rich mineral productions, are among its riches. Manufactures are also flourishing, and, in the city of Valencia, upwards of 22,000 workmen are engaged in the manufacture of silk stuffs and stockings.

VALENCIENNES; a city of France, situated on the Scheldt, which runs through the town in several places, and here becomes navigable; lon. 3° 36′ E.; lat. 50° 21′ N.; population, 16,918. The form of the town is circular; the streets narrow and crooked; the houses generally old and ill built, many of them of wood; the chief manufactures, lace of great fineness, cambric, gauze and linen stuffs. The public square is handsome. It is supposed to have derived its name from the emperor Valentinian I. who, pleased with the temperature of the climate, and charming situation of the place, laid the foundation of a town, about the year 367, endowing it with many privileges. It was taken by the allies, in 1793, after a severe siege, but was given up to the French in 1794.

VALENTINE, St, is called by some ecclesiastical writers bishop, but, according to others, was only a presbyter. He suffered martyrdom in the reign of the emperor Claudius II. having been beheaded at Rome, and was early canonized. He was so eminently distinguished for his love and charity, that the custom of choosing Valentines, or special loving friends, on his day (Feb. 14), is supposed by some to have originated from thence: others deduce it from the birds choosing their mates on this day; but it is more likely to be a corruption of a practice during the Roman *Lupercalia*, when the names of young women were put into a box, and drawn out by the young men.

VALENTINIAN; the name of three Roman emperors.

Valentinian I. son of Gratian, a distinguished general, was born in Pannonia, and ascended the throne A. D. 364. He divided the government of the empire with his brother Valens, to whom he intrusted the eastern provinces. Brave, but ignorant, rude, and addicted to the grossest debaucheries, Valentinian was unable to arrest the decline of the empire. He died in 375. See *Rome, History of.*

Valentinian II. son of the preceding, administered the government after the death of his elder brother Gratian (383), under the regency of his mother, Justina, and was killed by one of his officers, Arbogastes, a Gaul, in 392.

Valentinian III. son of Constantius and Placidia, a daughter of Theodosius the Great, was proclaimed emperor (423), in the sixth year of his age, on the death of his uncle Honorius. (See *Western Empire.*) During his reign, Spain was overrun by the Suevi and the Visigoths (see *Goths*), Africa by the Vandals, Britain by the Anglo-Saxons, Gaul by the Franks, and Italy by the Huns under Attila. Feeble and voluptuous, he perished by a conspiracy in 455. See *Vandals.*

VALENTINIANS. See *Gnostics.*

VALENTINOIS, Duchess of. See *Diane of Poitiers.*

VALERIA. See *Coriolanus.*

VALERIAN (*valeriana*). These plants are mostly herbaceous, with simple, opposite, pinnatifid leaves and small flowers, usually disposed in a corymb or panicle. They are distinguished from most dicotyledonous plants by having three stamens, a number almost exclusively belonging to the other great division of vegetables. The species are numerous in the northern and temperate parts of Europe. The root of the officinal valerian has an acrid and somewhat bitter taste, and a strong, disagreeable odour. It has been employed in medicine, principally in epilepsy and hysterical affections, but sometimes as a vermifuge, and intermittent fevers. Cats are excessively fond of this plant, so much so that it is difficult to preserve it in a garden; and rat-catchers employ the roots to draw the rats together, as they do oil of anise. Other species have the same properties in a greater or less degree.

VALERIAN, Publius Licinius, Roman emperor from A. D. 253 to 260, was born in 190. He was descended of a noble family and had distinguished himself, in several campaigns, for his military skill, and in general bore the character of great magnanimity and virtue. The emperor Decius having determined to revive the censorship, for the purpose of checking the decline of the empire, Valerian was unanimously named for this post by the senate. But the corruption of Roman manners was too great to be cured by the appointment of a censor. Being declared emperor by the legions at the age of sixty-three years, he associated his son Gallienus with himself in the government. But the position of the Roman empire was such, that the whole period of their united reign was little else than a scene of internal confusion and foreign war. In the year 225, a new Persian empire had been founded in Asia by Artaxerxes; and his successor, Sapor, endeavoured to recover the Persian provinces which had been conquered by the Romans. Valerian marched against him at the head of his army, but was defeated and made prisoner near Edessa (260). If the accounts of historians are not exaggerated, Sapor treated him in a most unworthy manner. The unhappy old man was daily exposed to the insults of the people, and Sapor mounted on horseback by placing his foot on the neck of the captive. When Valerian died of grief, his skin was stuffed, and preserved by Sapor as a trophy of victory. The truth of this story is, however, doubted by Gibbon (ch. x.).

VALERIUS; the name of many Romans. The most distinguished of this name was the chief instigator of the conspiracy against the last king, Tarquinius Superbus, and was famed for his love of liberty of his country and of justice, which procured him the surname of *Publicola*, or *Poplicola* (friend of the people). He and Brutus were the first consuls of the new republic. He retained the office after the death of Brutus, for some time exercising it alone with the greatest impartiality, and passed several ordinances of great benefit to the people and highly conducive to civil freedom. He re-

consul three times successively in a period of tranquillity, and also distinguished himself as a general by his courage and conduct. Amongst others, he subdued and triumphed over the Sabines. Soon after, he died so poor that his remains were interred at the public expense. A monument was erected to his memory in the forum. The Roman women wore mourning for him a year, as they had done for Brutus.

VALERIUS MAXIMUS; a Roman historian, who lived in the reign of the emperor Tiberius. He served in Asia under Sextus Pompeius, and, returning to Rome, appears to have taken no part in public affairs, but devoted his leisure to the composition of his *Dicta et Facta Memorabilia*, a collection of anecdotes and observations. On the revival of literature, it was one of the earliest books which issued from the press after the invention of printing. Among the best modern editions are those of Torrenius (Leyden, 1726, 4to.), of Kapp (Leipsic, 1782, 8vo.), and of Helfrecht (Hoff, 1799, 8vo.).

VALERIUS FLACCUS, Caius. See *Flaccus, Caius Valerius*.

VALETTA. See *Malta*.

VALHALLA. See *Northern Mythology*.

VALIDE; Sultana Valide. See *Harem*.

VALKYRIAS. See *Northern Mythology*.

VALLA, Laurence, a celebrated philologist, was born at Rome in 1406 or 1415. At Pavia he was made professor of rhetoric; but, the plague having dispersed the members of the university, he lectured at Milan, Genoa and Florence. At length he became known to Alphonso, king of Arragon, whom he followed in his wars and travels from 1435 till 1442, when that prince made himself master of the kingdom of Naples. In 1443, on the return of pope Eugenius to Rome, he settled in that city. A work on the pretended donation of Constantine to the holy see, reflecting on the characters of some of the popes, having excited the displeasure of Eugenius, Valla returned to Naples, and opened a school of eloquence, to which many scholars resorted. He narrowly escaped suffering in consequence of the freedom with which he attacked notions sanctioned by antiquity; and it was to the influence of Alphonso that he owed his preservation from the vengeance of the inquisition. At length he was invited to Rome by Nicholas V. and there commenced giving lectures on rhetoric in 1450. He engaged in a literary dispute with George Trapezuntius, on the comparative merits of Cicero and Quintilian, and carried on a controversy with Poggio, which was conducted with much illiberality and virulence by both parties. He died in 1457 or 1465. Among the revivers of literature, Valla has always held a high rank, which he merited by unwearied application and an enlarged course of study, including history, criticism, dialectics, moral philosophy and divinity. Of his numerous writings, his treatise *De Elegantia Latini Sermonis* still maintains its reputation. His original works were published together at Basle in 1543.

VALLADOLID, or MECHOACAN; a city of Mexico, and capital of a state of the same name (see *Mechoacan*); one hundred and eight miles west of Mexico; lon. 102° 11′ W.; lat. 20° 5′ N.; population, 18,000. It is situated on a river near the west side of a lake, which abounds with fish. It is the see of a bishop, and contains a cathedral, a college, an hospital, and several convents. The elevation of the town above the sea is 6396 feet.

VALLADOLID, State of. See *Mechoacan*.

VALLADOLID, a city of Spain, in Leon, capital of a province of the same name, on the Pisuerga, at the junction of the Esgueva, which flows through the town; 84 miles north-west of Madrid; lon. 4° 57′ W.; lat. 41° 42′ N. It is situated in the midst of an extensive plain, and contains a cathedral, sixteen parish churches, forty-six convents, three hospitals, and a university, with 1250 students; population, 30,000. The manufactures consist of silks, coarse woolens, and earthen ware. It is a bishop's see, and was formerly more important than at present. The streets are dirty, many of the houses in decay, and half-finished edifices are the chief indications of its ancient splendour. Philip II. was a native of Valladolid, and made it the occasional residence of his court.

VALLE, Pietro Della, a celebrated traveller of the seventeenth century, born at Rome, in 1586, of a noble family, has left us accounts of his travels, which, though not free from credulity, and a love of the marvellous, are highly interesting. Valle received a good education, and had already become distinguished for his acquisitions, when an unhappy passion, and some other difficulties, induced him to quit Rome and go to Naples. Here he came to the resolution of making a pilgrimage to Palestine, and, going to Venice, embarked there for the East in 1614. He visited Turkey, Egypt, Arabia, Persia and India, passing upwards of eleven years in these countries, and studying the languages and manners of the inhabitants. At Bagdad he married a beautiful Georgian, Sitti Maani, of whom, however, he was soon deprived by death. This calamity hastened his return; and, in 1626, he arrived in Rome, with a numerous retinue of Eastern followers, and soon after married a servant of his first wife, also a Georgian. Here he lived, devoted to the arts and to scientific pursuits, and wrote an account of his travels. This work, consisting of fifty-four letters, shows the various acquirements of the author to advantage. He died at Rome in 1652.

VALLIERE, Louisa Frances de la Baume le Blanc, duchess de la, mistress of Louis XIV. descended from the ancient noble family De la Baume, was lady of honour to the wife of the duke of Orleans. For two years, she cherished a secret passion for Louis, who finally noticed her. In the height of her power, which she used only to do good, her conduct never belied her gentle disposition. The king raised the estate of Vaujour and the barony of St Christophe to a duchy and a peerage in favour of her and her children. Superseded in the affections of Louis by Mad. de Montespan, Mlle. de Vallière retired into the Carmelite convent in the suburb St Jacques, where she assumed the name of sister Louisa de la Misèricorde, and died in 1710. She is considered the author of *Réflexions sur la Misèricorde de Dieu*. Mad. de Genlis has written a historical romance founded on the events of her life, and Lebrun executed a penitent Magdalen, of which the face is from her portrait.

VALLISNERIA; a very extraordinary plant, a submersed aquatic of the natural order *hydrocharideæ*. It is found in Italy and France, and grows in large quantities in the still waters of most of the principal rivers from the Delaware to the Mississippi, near their banks. It presents partly submerged fields of narrow, linear three-nerved, grass-like, olive-green leaves, of a thin and semitransparent

substance, as is usual in all herbage growing under water. From the bosom of some of these arise staminiferous flowers, contained in an ovate, two-parted spathe. The enclosed spadix is covered with very minute flowers, each consisting of a three-parted calyx with two stamens. These, when mature (from the depth at which they are submerged, and the shortness of the peduncle of the spathe), have no means of attaining the surface of the water but by breaking their connexion with the parent. As soon as it arises to the surface, the calyx instantly springs open, and the anthers burst; by which impulse, and the accidents of the element on which they are launched, they, in fact, migrate accidentally to the vicinity of the fertile flower, furnished with a long spiral peduncle, by which it is enabled to attain the surface of the water even at a variable depth. The spathe of the latter is bifid and one-flowered, the calyx three-parted and superior, the corolla of three petals, the stigma ligulate and bifid, the capsule valveless, one-celled, and the seeds numerous, attached to its sides.

VALMY. See *Kellermann*.

VALOIS, House of. See *France*.

VALOMBROSA; an abbey on the Apennines, belonging to the diocese of Fiesole, in the Florentine territory, where John Gualbert, the saint, founded an order of monks in 1038, subject to the rule of St Benedict, and called the *order of Valombrosa*, from the place of its origin, or the *gray monks*, in reference to the former habit of the members. The original purpose of the institution was solitude and undisturbed devotion; but the life of the hermit was soon exchanged for a monastic constitution, and only a few hermitages were retained in the neighbourhood of the monasteries. The original monastery, which Gualbert, from its situation in a thick forest of firs on the verge of the mountain, called *Valombrosa*, became rich by donations; and, in 1637, the society erected magnificent edifices. This order, however, which has always been simply of a devotional character, and was the first which admitted lay brethren, has never become widely extended, nor attained any great importance. Upon its union with the Silvestrines, 1662, a black dress was adopted. Valombrosa remained undisturbed during all the storms of the revolution, and was a resort of the priests during the French dominion in Italy. It is also of interest in the history of art. A monk of Valombrosa, father Henry Hugford, practised the art of painting on stone, known by the name of *scagliola*, during his residence at the beautiful hermitage *Il Paradisino*, near Valombrosa. The art was subsequently much improved in Florence. This monastery still exists, and is often visited by devotees and travellers, who wish to enjoy the lovely prospect which it affords.

VALPARAISO; the port of Santiago, the capital of Chile, on a bay of the Pacific ocean, 55 miles south of Santiago, and 225 north of Conception; lon. 71° 45′ W.; lat. 33° 2′ S.; population, 10,000. Its situation is inconvenient for purposes of building, as it stands at the foot of a mountain, and so near to its cliffs that many houses are erected in the breaches and on the acclivities. It contains a parish church and two convents, and is inhabited chiefly by whites, mestizoes and mulattoes, who are engaged in the trade carried on with Peru and Europe. It has an excellent harbour, every where free from rocks and shoals, except to the north-east, where there is a sunken rock within a cable's length of the shore.

VALTELINE; lordship of Austrian Italy, at the foot of the Alps, now forming the greater part of the province of Sondria. It is bounded north by the Grisons, and was subject to these till 17[illegible]. Square miles, 1270; population, 81,000. The country, called by the Germans *Veltlin*, or Velt[illegible], and by the inhabitants *Valle Tellina*, is a valley enclosed between two chains of lofty mountains, about fifty miles in length, and from eight to twenty in breadth. It is fruitful, and throughout its whole extent, watered by the Adda. The whole country is divided into three districts, called Sopra, Mezzo and Sotto, or Upper, Middle and Lower. Tirano is the capital of the first, Sondrio of the second, and Morbegno of the last.

VALUE. The exchangeable value of commodities depends, at any given period, partly on the comparative facility of their production, and partly on the relation of the supply and demand. If two or more commodities respectively required the same outlay of capital and labour to bring them to market, and if the supply of each were adjusted exactly according to the effectual demand; that is, were they all in sufficient abundance, and no more, to supply the wants of those able and willing to pay the outlay upon them, and the ordinary rate of profit at the time; they would each bring the same price, or be exchanged for the same quantity of any other commodity. But if any single commodity should happen to require less or more capital or labour for its production, while the quantity required to produce the others continued stationary, its value, as compared with them, would, in the first case, fall, and in the second, rise; and, supposing the cost of its production not to vary, its value might be increased by a falling off in the supply, or by an increase of demand, and conversely. But it is of importance to bear in mind, that the variations of price arising from any disproportion in the supply and demand of such commodities as may be freely produced in indefinite quantities, are temporary only; while those that are occasioned by changes in the cost of their production are permanent, or last as much so as the cause in which they originate. A general mourning occasions a transient rise in the price of black cloth; but, supposing that the fashion of wearing black were to continue, its price would not permanently vary; for those who previously manufactured blue and brown cloths would henceforth manufacture only black ones, and the supply being in this way increased to the same extent as the demand, the price would settle at its old level. When the price of a freely produced commodity rises or falls, such variation is evidently be occasioned either by something affecting the commodity, or by something affecting the value of money. But when, instead of being confined to one, the generality of commodities rise or fall, the fair presumption is, that the change is not in them, but in the money with which they are compared. Exclusive, however, of the commodities now alluded to, there is a considerable class, whose producers or holders enjoy either an absolute or a partial monopoly of the supply. When such is the case, prices depend entirely or principally on the proportion between the supply and demand, and are not liable to be influenced, or only in a secondary degree, by changes in the cost of production. Antique statues and gems; the pictures of the old masters; wines of a peculiar flavour, produced in small quantities, in particular situations; and many other articles, exist under what may be called a

lute monopolies. their supply cannot be increased, and their price must, therefore, depend entirely on the competition of those who may wish to buy them, without being, in the slightest degree, influenced by the cost of their production. Monopolies are sometimes established by law; as when the power to supply the market with a particular article is made over to one individual, or society of individuals, without any limitation of the price at which it may be sold; which, of course, enables those possessed of the monopoly to exact the highest price for it that the competition of the buyers will afford, though such price may exceed the cost of production in any conceivable degree. The rights conveyed by patents sometimes establish a valuable monopoly; for they enable the inventors of improved methods of production to maintain, during the continuance of the patent, the price of the article at a level which may be much higher than is required to afford them the ordinary rate of profit. This advantage, however, by stimulating invention, and exciting to new discoveries, of which it is the natural and appropriate reward, instead of being injurious, is beneficial to the public. (See *Patents*.) There are also partial monopolies, depending upon situation, connexion, fashion, &c. These, and other inappreciable circumstances, sometimes occasion a difference of thirty per cent. or more, in the price of the same article, in shops not very distant from each other. The effects on prices produced by the opening of new markets, or new sources of supply, and the effect of war in obstructing the ordinary channels of commercial intercourse, and occasioning extreme fluctuations in the supply and price of commodities, are well known. When a tax is laid on a commodity, its price necessarily rises in a corresponding proportion; for otherwise the producers would not obtain the ordinary rate of profit, and would, of course, withdraw from the business. Speculation has also a great influence on prices. It very rarely happens that either the actual supply of any species of produce in extensive demand, or the intensity of that demand, can be exactly measured. Every transaction in which an individual buys produce in order to sell it again, is, in fact, a speculation. The buyer anticipates that the demand for the article he has purchased will be such, at some future period, either more or less distant, that he will be able to dispose of it with a profit; and the success of the speculation depends, it is evident, on the skill with which he has estimated the circumstances that must determine the future price of the commodity. It follows, therefore, that in all highly commercial countries, where merchants are possessed of large capitals, and where they are left to be guided in the use of them by their own discretion and foresight, the prices of commodities will frequently be very much influenced, not merely by the actual occurrence of changes in the accustomed relation of the supply and demand, but by the anticipation of such changes. It is the business of the merchant to acquaint himself with every circumstance affecting the particular description of commodities in which he deals. He endeavours to obtain, by means of an extensive correspondence, the earliest and most authentic information with respect to every thing that may affect their supply or demand, or the cost of their production; and if he learned that the supply of an article has failed, or that, owing to changes of fashion, or to the opening of new channels of commerce, the demand for it has been increased, he would most likely be disposed to become a buyer, in anticipation of profiting by the rise of price, which, under the circumstances of the case, could hardly fail of taking place; or, if he were a holder of the article, he would refuse to part with it, unless for a higher price than he would previously have accepted. If the intelligence received by the merchant had been of a contrary description; if, for example, he had learned that the article was now produced with greater facility, or that there was a falling off in the demand for it, caused by a change of fashion, or by the shutting up of some of the markets to which it had previously been admitted, he would have acted differently: in this case, he would have anticipated a fall of prices, and would either have declined purchasing the article, except at a reduced rate, or have endeavoured to get rid of it, supposing him to be a holder, by offering it at a lower price. In consequence of these operations, the prices of commodities, in different places and periods, are brought comparatively near to equality. All abrupt transitions from scarcity to abundance, and from abundance to scarcity, are avoided; an excess in one case is made to balance a deficiency in another, and the supply is distributed with a degree of steadiness and regularity that could hardly have been deemed attainable. The risk to which merchants are exposed, when they either sell off any commodity at a reduced price, in anticipation of a fall, or buy at an advanced price, in anticipation of a future rise, is a consequence principally of the extreme difficulty of ascertaining with accuracy the grounds on which an abundant or a deficient supply, or an increasing or decreasing demand, may be expected. Rules can here be of no service; every thing depends upon the talent, tact and knowledge of the party. Priority, but, above all, accuracy of intelligence, is, in such cases, of the utmost consequence. Without well authenticated data to go upon, every step taken may only lead to error. The instances, indeed, in which speculations, apparently contrived with the greatest judgment, have ended in bankruptcy and ruin, from a deficiency in this essential requisite, are so very numerous that every one must be acquainted with them. When a few leading merchants purchase in anticipation of an advance, or sell in anticipation of a fall, the speculation is often pushed beyond all reasonable limits, by the operations of those who are influenced by imitation only, and who have never, perhaps, reflected for a moment on the grounds on which a variation of price is anticipated. In speculation, as in most other things, one individual derives confidence from another. One purchases or sells, not because he has any really accurate information as to the state of the demand and supply, but because some one else has done so before him. The original impulse is thus rapidly extended; and even those who are satisfied that a speculation, in anticipation of a rise of prices, is unsafe, and that there will be a recoil, not unfrequently adventure, in the expectation that they shall be able to withdraw before the recoil has begun. It may, we believe, speaking generally, be laid down as a sound practical rule, to avoid having any thing to do with a speculation in which many have already engaged. The competition of the speculators seldom fails speedily to render an adventure that might have been originally safe, extremely hazardous. If a commodity happen to be at an unusually reduced price in any particular market, it will rise the moment that different buyers appear

in the field; and supposing, on the other hand, that it is bringing an unusually high price, it will fall, perhaps, far below the cost of production, as soon as supplies begin to be poured in by different merchants. Whatever, therefore, may be the success of those who originate a speculation, those who enter into it at an advanced period are almost sure to lose To have been preceded by others ought not, in such matters, to inspire confidence: on the contrary, it ought, unless there be something special in the case, to induce every considerate person to decline interfering with it. The maintenance of the freedom of intercourse between different countries, and the more general diffusion of sound instruction, seem to be the only means by which those miscalculations, that are often productive of great national as well as private loss, can be either obviated or mitigated. It is superfluous, perhaps, to observe that the precious metals are liable to all the variations of value already alluded to. Not only, therefore, are prices, as was already remarked, affected by variations in the cost and supply of commodities, but also by changes in the cost and supply of gold and silver, whether arising from the exhaustion of old, or the discovery of new mines, improvements in the art of mining, changes of fashion, &c. Hence it is, that tables of the prices of commodities, extending for a considerable period, communicate far less solid information than is generally supposed, and, unless the necessary allowances be made, may lead to the most unfounded conclusions. The real value of any commodity depends on the quantity of labour required for its production; but supposing that we were to set about inferring this real value, or the ultimate sacrifice required to obtain the commodity, from its price, it might happen (had the quantity of labour required for its production declined, but in a less degree than the quantity required to produce gold and silver), that its value would appear to rise when it had really diminished. When, however, the rate of wages, as well as the price of commodities, is given upon authentic data, a table of prices is valuable, inasmuch as it shows the extent of the command of the necessaries and conveniences of life, enjoyed by the bulk of the community, during the period through which it extends. Those desirous of detailed information as to the prices of commodities in Great Britain, in distant times, may consult the elaborate tables in the third volume of Sir F. M. Eden's work *On the Poor;* and the fourth volume of Macpherson's *Annals of Commerce.* Arbuthnot's *Tables of Ancient Coins, Weights, Measures, Prices, &c.*, are well known; but the statements are not much to be depended upon. The *Traité de Métrologie* of M. Paucton (4to., Paris, 1780) is the best work on this curious and difficult subject.

VAMPIRE. The vampire bat (*vespertilio spectrum*) is reddish-brown, and about the size of a magpie. It inhabits South America. It has been accused of destroying men and animals by sucking their blood. "But the truth," says Cuvier, in his *Regne Animal*, "appears to be, that it inflicts only small wounds, which may probably become inflammatory and gangrenous from the influence of the climate." It is not altogether improbable that these animals gave origin to the fable of the harpies; at least, some ancient authors make mention of these bats. Adelung believes the word *vampire* to be of Servian origin. The belief in blood-sucking spectres, also called *vampires*, is very old. The modern Greeks, according to Tournefort's *R. d'un Voyage du Levant* (1st vol., p. 53), ca. monsters *broucolacas;* but even the ancient G had their *ἐμπουσαι*; and the *lamiæ* and the Romans originated from the same superst. In 1732, great commotions were caused in Hu and particularly in Servia, by the general be human vampires, so that investigations were tuted by the government. The common believed that the bodies of persons who died sentence of excommunication for sorcery or crimes, did not decay, but devoured their flesh, and, during the night, left their grave sucked the blood of persons with whom they been connected, so as to kill them.

VAN; a Dutch preposition. See Van.

VAN DER VELDE, Adrian, William-Charles. See *Velde.*

VAN DIEMEN'S LAND. See *Diemen's Land.*

VAN EYCK. See *Eyck.*

VAN SPEYK, John Charles Joseph, b. 1802 or 1803, in Amsterdam, lost his parents, was educated in an orphan asylum, and learned mechanic's trade, which he soon quitted for the navy. He distinguished himself in the E at Palembang, and was made a lieutenant. In 1831, he was in command of a gun-boat at the of Antwerp. Being driven by the wind to city, he was attacked by the Belgians, not standing an armistice then existed. Upon the ing on deck and insulting the Dutch flag, in his repeated warning that he should blow he went below, and was shortly after by one of the crew, in the attitude of pray told the man that the crew must take care selves, and, after a brief space, fired the the powder magazine, containing about 150 of powder, and blew up the vessel. Four crew, consisting of thirty-one, were saved; rest, with the Belgians, about forty or perished. The king of the Netherlands that there should be always a vessel in the navy bearing the name of *Van Speyk.*

VAN SWIETEN. See *Swieten, Van.*

VANADIUM; the name of a newly-dis metal. It was first found in a lead mine pan, in Mexico, in the year 1801, by Del announced it as a new metal, under the *thronium*: but the same mineral having wards been examined by Collet Descot serted that erythronium was merely impu mium. Del Rio himself adopted the op French chemist, and considered the subchromate of lead. In the year 1830, discovered this substance in a Swedish markable for its ductility, obtained from mine of Jaberg, not far from Jönköping. He named it *Vanadium*, from Vanadia, a vian deity. The finery cinder of the Jaberg contains more vanadium than the and it exists in it in the condition of To obtain the metal, the following adopted:—The finery cinder is powdered with nitre, and carbonate of soda, in tions of one part of cinder, one of nitre parts of carbonate: this mixture is stron for an hour. The soluble portion of the mass is dissolved by boiling water: the filtered, and the excess of alkali nitric acid, and afterwards precipitated ate of barytes, or acetate of lead. The is vanadate of barytes or lead, containing

phosphate of barytes or lead, silex, zircon and alumine. While it is still moist, it is to be decomposed by concentrated sulphuric acid: the solution immediately becomes of a deep-red colour; and, after having digested the mixture for half an hour, alcohol is added to it, and it is again digested. Ether is then formed, and the vanadic acid is reduced to the state of salifiable oxide, the solution of which is blue; and, when it begins to assume a sirupy consistence, it is mixed, in a platina crucible, with a little fluoric acid, to get rid of the silex; the evaporation is continued over the naked fire, and the sulphuric acid is at last expelled at a red heat. The residue is impure vanadic acid. It is fused with nitre, added in small portions at a time. The vanadic acid combines with the potash, and expels the nitric acid; and nitre is added, until it is found, that, on cooling a small portion of the mass, it ceases to be red. The mass is afterwards dissolved in water, and, after filtration, the residue is slightly washed. A piece of sal-ammoniac, larger than can be dissolved by it, is to be put into the filtered liquid. As this salt dissolves, a white pulverulent precipitate is formed, which is vanadate of ammonia, insoluble in a saturated solution of sal-ammoniac. The vanadate of ammonia ought to be washed, first with a solution of sal-ammoniac, and afterwards, to remove the sal-ammoniac, with alcohol of 0·86. It is to be again dissolved in boiling water, mixed with a little ammonia, filtered, and left to crystallize. It is from this salt that vanadic acid and oxide are afterwards obtained, by heating it gently in open vessels to procure the former, and in close vessels to prepare the latter. In order to obtain the metal, pieces of vanadic acid, which have been previously fused, are to be mixed with pieces of potassium, of equal bulk, in a porcelain crucible; the cover is to be well fastened on, and the crucible is to be heated with a spirit lamp. The reduction occurs almost instantaneously, with a kind of detonation. The crucible, when cold, is to be put into water, to dissolve the potash, and the reduced vanadium is to be collected on a filter: it is obtained in the state of a black powder, which shines in the sun, and takes a grayish metallic lustre under the burnisher; but this is not the true aspect of the metal. Vanadium is white; and, when its surface is polished, it resembles silver considerably, or molybdenum, which, of all metals, it is most like. It is not ductile, and is easily reduced to a powder of an iron-gray colour. It is a good conductor of electricity. The powder of vanadium takes fire at a heat below redness, burns without energy, and leaves a black unfused oxide. Vanadium dissolves readily in nitric acid, and in aqua regia; the solution has a fine blue colour. The sulphuric, muriatic and fluoric acids do not attack it at all, even when they are concentrated and boiling. It is not oxidized by the alkaline hydrates, and it may be heated with them to redness without undergoing any alteration, if the air be excluded.

The compounds of vanadium and oxygen are three in number:—1. *Suboxide of vanadium.* It is obtained by reducing vanadic, by hydrogen gas, at a red heat, or by fusing vanadic acid in a cavity in charcoal. It has not hitherto been combined with other bodies, or with acids or bases. When heated in the air, it takes fire, and burns, leaving an unfused black residue. It is composed of 89·538 parts of metal, and 10·862 of oxygen.—2. *Oxide of vanadium.* It is obtained in a state of purity by mixing 9·5 parts of suboxide with 11·5 parts of vanadic acid, and heating the mixture to whiteness in an atmosphere of carbonic acid gas. It is not fusible at the temperature at which glass softens. It is insoluble in water; but if it remains long in it, the water gradually becomes green in consequence of increased oxidation. It dissolves slowly, but completely, in the acids: the solution is blue, and the oxide acts as a base; but it combines with bases, and forms salts, which may be called *vanadites.* It is composed of 81·056 vanadium, and 18·944 oxygen.—3. *Vanadic acid* is obtained by exposing vanadate of ammonia to a heat near redness, in an open platina crucible, and stirring it occasionally. The vanadate decomposes, becomes at first black, and afterwards, in proportion as it absorbs atmospheric oxygen, of a red-brown colour, which, by cooling, becomes gradually pale, and finishes by turning to a rust colour. It is tasteless and inodorous: it reddens the colour of moistened litmus paper. As soon as it is red hot, it fuses. In this state, it sustains a white heat without losing oxygen, if kept from contact with combustible bodies. When fused, it crystallizes on cooling, and then exhibits a phenomenon which merits observation. It solidifies at a heat which is invisible in day-light; but the moment that solidification commences, a luminous circle extends from the periphery to the centre, where, owing to latent heat, becoming free, the mass remains red hot as long as the crystallization continues. The acid contracts much on solidifying, and is readily detached from the crucible: it is then of a yellowish-red colour, and formed entirely of a mass of interlaced crystals. It is not a conductor of electricity. It is slightly soluble in water, to which it imparts a bright yellow colour. One thousand parts of boiling water scarcely dissolve one part of acid. The acid is deposited, on evaporation, in the form of red concentric rings. It is easily reduced to the state of an oxide, especially under the influence of an acid. Fused on charcoal by the blow-pipe, it leaves a coherent mass, of the colour of plumbago, which is the suboxide: with the phosphate of ammonia and soda, it gives a fine green colour to glass, which appears brown while it is hot: with borax, it also gives a green glass. In this reaction, vanadium resembles chromium; but the green colour, produced by the former, may be changed to yellow by the oxidating flame, which does not happen with chromium. With carbonate of soda, it is not reduced to the metallic state. It is composed of 74·044 vanadium and 25·955 oxygen. The affinity of vanadium for sulphur is but weak at moderately high temperatures; nevertheless, there are several modes of obtaining sulphurets of vanadium. Hitherto, only two have been formed. The sulphuret consists of 68·02 vanadium and 31·97 sulphur. The supersulphuret is composed of 58·647 vanadium and 41·353 sulphur. When vanadium is heated to redness in an atmosphere of vapourized phosphorus, they do not combine; but when phosphate of vanadium is heated to whiteness in a charcoal crucible, it is reduced, and gives a porous, gray, unfused mass, which may be compressed, and has then the colour and lustre of plumbago.

Alloys of vanadium. In experiments upon vanadium, the surface of platina crucibles is often alloyed with vanadium, which does not alter either the colour or the metallic lustre of the platina; but when it is afterwards heated to redness, the alloyed parts are covered with a layer of fused vanadic acid, which preserves them from further oxidation.

Salts of vanadium. The salts which contain

oxide of vanadium as a base, are, with few exceptions, of a superb azure-blue colour, when in solution. In the solid state, and when combined with water, they are either of a deep or light-blue colour, and sometimes greenish. Without water, they are generally brown, and sometimes also green. Both the brown and green salts give blue solutions. Their taste is astringent, and rather sweetish, like those of iron. The greater number of them are soluble in water. The caustic alkalies occasion a precipitate, which is at first of a grayish-white colour, and which afterwards becomes of a liver-brown: an excess of alkali dissolves the precipitate, producing a solution of a brown colour. Ammonia, added in excess, gives a brown precipitate, and the liquid becomes colourless. The carbonates occasion grayish-white precipitates: sulphureted hydrogen does not render them turbid; but the hydrosulphurets occasion a black precipitate, and, when added in excess, they redissolve it, occasioning a fine purple colour: ferro-cyanite of potash occasions a lemon-yellow precipitate, which becomes green in the air. Infusion of galls gives a precipitate of so deep a blue colour that it appears black.

VANBRUGH, Sir John, a dramatist and architect, descended from a Flemish family, was born in England, about 1672, and entered into the army. But early in life he became a writer for the stage. In 1697, his comedy, the Relapse, was represented; and, in the following year, he produced the Provoked Wife, and Æsop, afterwards altered by Garrick. When Betterton and Congreve obtained a patent for erecting a theatre in the Haymarket, which was opened in 1707, they were joined by Vanbrugh, who wrote for this house his comedy the Confederacy, the most witty as well as the most licentious of his productions, which long kept possession of the stage. The Provoked Husband, or the Journey to London, which he left imperfect at his death, was completed by Colley Cibber. As an architect, Vanbrugh was selected to build the monument to the duke of Marlborough, Blenheim-house; and that structure, as well as castle Howard, affords proof of skill and genius. He obtained, in 1704, the office of Clarencieux king-at-arms: and, in 1714, he received the honour of knighthood. He was also appointed comptroller of the board of works and surveyor of Greenwich hospital. His death occurred March 26, 1726.

VANCOUVER, George; a modern circumnavigator and captain in the British navy. He served as a midshipman under captain Cook; and a voyage of discovery, to ascertain the existence of any navigable communication between the North Pacific and North Atlantic oceans being determined on, he was appointed to command it. Of this voyage captain Vancouver compiled an account, under the title of Voyage of Discovery to the North Pacific Ocean, and round the World, in the Year 1790—5 (3 vols., 4to.), which was nearly ready for the press when the author died, in 1798.

VANDALS; according to some, a Sclavonic tribe, there being a remnant of an ancient race in Hungary, in the county of Eisenburg, still bearing this name, and consisting of 40,000 souls, who speak a very ancient Sclavonic dialect. According to others, the Vandals are considered to be a Germanic tribe, one of those whose migration caused the fall of the Roman empire. Their original country was probably in the north of Germany, between the Elbe and Vistula: the early Roman writers mention them very indistinctly. After the third century of the Christian era, they carried wars, in connexion with the Burgundians, against Romans on the Rhine. Under the emperor Aurelian (272), they settled in the western part of Dacia, or Transylvania, and in part of the present Hungary. When they were driven from their regions by the Goths, Constantine the Great permitted them to settle in Pannonia, on condition that they would assist the Romans in their wars. This great mistake of the emperors, when the Roman troops had degenerated, to admit foreigners into their legions, and even to grant them the highest honours. The weakness of the Roman empire became more known to the barbarians; and, in consequence, the latter were more disposed to undertake frequent incursions into the Roman territory. That there were men of talent among the Vandals is evident from the instance of Stilicho. In the year 406, the Vandals quitted Pannonia, proceeded, together with the Alans and Suevi, into Gaul, where they committed great devastations; thence they invaded Spain, passing over the Pyrenees, divided with the Suevi the possession of Galicia and Old Castile, and established their empire, to which the Alans, who had previously settled in Lusitania, but could not withstand the attacks of the Visigoths, submitted (418). Jealousy often gave rise to wars between the Vandals and the Suevi: the former, however, retained power until they were compelled by the Romans to leave Galicia, and take refuge in Betica, the south of the present kingdom of Grenada. The Romans made war against them even here, but were defeated (423); and the Vandals were now emboldened to undertake new enterprises, for which they found opportunities. Their king, at that time, was Genseric (Geiserich), a brave enterprising man, one of the greatest men of his age, who, however, as he was the cause of devastating wars, and acquitted the Catholic church to join the Arians, has not been justly represented by historians. Northern Africa was, at that time, subject to the Romans. The governor of this province, Boniface, who thought himself wronged by the emperor Valentinian III. invited the Vandals to Africa, promising to divide the province with them. Genseric embarked with all his people (427), in the port of Andalusia, and went over to Africa. In the mean time, Boniface, having become reconciled to the emperor, would not perform his promise, and attempted to drive away the Vandals by force of arms. But he was conquered. Genseric now possessed himself of all that part of Africa which belonged to the Western empire, and thereby became a powerful empire, to which he soon added the islands of Sicily, Sardinia, Corsica, Majorca and Minorca. His corsairs were masters of the sea in the Mediterranean, and spread terror on the coasts of Italy. The empress Eudoxia, widow of Valentinian III. who had been compelled by Valentinian to the murderer of her husband and usurper of the imperial throne, to marry him, was suspected to have invited the Vandals into Italy from desire of revenge; but the conduct of Genseric disproves this supposition; for he took away her and her daughters prisoners. Genseric made an invasion in 455, actuated by love of plunder, at the head of a powerful fleet. In Rome preparation had been made for defence: and when the emperor Maximus was killed in the first commotion. The Vandals plundered Rome fourteen days, and took possession of all the

and works of art which had been left by the Goths. (q. v.) A number of monuments and statues were shipped by them for Africa, together with several thousand of the most distinguished prisoners. On the passage, a ship laden with the finest works of art was lost. Pope Leo met king Genseric at the head of a solemn procession, but could only prevail on him to spare the city from slaughter and conflagration. The savage fury with which the Vandals despoiled the most beautiful works of art, and destroyed the greater part, has given origin to the name of *Vandalism*. Disputes among the descendants of Genseric, in regard to the succession, caused the fall of the Vandal empire. Gelimer, a bold and ambitious general, dethroned the rightful king, Hilderic, a good prince, and had him murdered. Hilderic had been on friendly terms with the emperor Justinian. The latter declared war against Gelimer, under pretence of revenging Hilderic's death, but, in fact, for the purpose of subduing Africa. Justinian's great general, Belisarius, arrived in Africa with only 15,000 men (534), but was victorious over Gelimer in two battles, and forced him to surrender. Gelimer was carried to Constantinople in triumph; and with him the kingdom of the Vandals in Africa was destroyed, after having lasted 106 years.

VANDAMME, Dominique, count of Unebourg, born at Cassel, in 1771, was the son of an apothecary. Having entered the service at the beginning of the revolution, he owed a most rapid advancement to an almost unexampled courage. He was at once placed at the head of a light troop, which received the name of the chasseurs of Mont-Cassel, and, in 1792, was with the army of the north, in the quality of general of brigade. In the three succeeding campaigns, he distinguished himself greatly. In 1799, he was appointed general of division, and received the command of the left wing of the army of the Danube. He afterwards passed into Holland, under the orders of general Brune, and contributed much to the happy results of that short campaign. He peculiarly distinguished himself at the passage of the Rhine, and in various memorable days of the campaign of 1800; received several marks of distinction from the first consul, and was named grand officer of the legion of honour. He obtained the decoration of the grand cross of Würtemberg, and commanded the Würtemberg troops in the campaign of 1809, against Austria, distinguishing himself on many occasions. Misunderstandings with Jerome Bonaparte prevented his having any command in the expedition against Russia, in 1812, and he was disgraced, and received an order to retire to Cassel. In February, 1813, however, he was called to the command of a corps of troops. On the 29th of August, he passed the great chain of the mountains of Bohemia, and marched upon Culm, where he found 10,000 Russians, commanded by general Ostermann, lost his artillery, and 6000 of his troops, and was himself taken prisoner. (See *Culm*.) He was marched to Moscow and Wiatka, within twenty leagues of Siberia, and was treated with ungenerous severity. In 1814, he finally placed his foot again on the French territory. In Paris, he received personal insults from various quarters, and, from the minister of war, an order to quit Paris within twenty-four hours, and to retire to Cassel. On the first news of Napoleon's landing, general Vandamme offered his services to the king. They were not accepted, and, after Louis had left Paris, presented himself before the emperor, who made him a peer of France, and commandant of the second devision. He afterwards commanded the third *corps d'armée* under general Grouchy, and obtained signal success at the attack of Wavres, after the battle of Fleurus. His troops were in the actual pursuit of the enemy, when he learnt the defeat of Napoleon at Waterloo. In danger of being crushed by superior numbers, he made good his retreat in perfect order, with his corps almost untouched. General Vandamme occupied Mont-rouge, Meudon, Vanvres and Issy, and a party of the generals made him the offer of the command of the army, which he declined. He afterwards retired behind the Loire. There he mounted the white cockade, and exhorted his troops to submission. The ordonnance of the 17th of January, 1816, having obliged him to quit France, he retired to Ghent, but afterwards resided on his estate at Cassel. He died in 1830.

VANDERWERF. See *Werf*.

VANDYCK, Anthony, the most celebrated of all portrait painters, was born at Antwerp, in 1598 or 1599. His father was a painter on glass, and his mother was skilled in embroidering landscapes and figures. Henry van Palen was his first instructor. This artist had studied long in Italy, and united good drawing with lively colouring, so that Vandyck acquired from the beginning a good manner, and soon excelled his fellow pupils. Rubens now received him into his school, and intrusted to his execution several large pictures from his own sketches. A battle of the Amazons, and the cartoons for the tapestry containing the history of Decius Mus, obtained him the full confidence and esteem of his master; and he soon became his assistant rather than his scholar. His own inclination, and the jealousy of Rubens, determined him to devote himself exclusively to portrait painting. It has been said that Rubens, from mere jealousy, wished to remove his rival scholar, and advised him to go to Italy; but it is well known that he gave this advice to his most promising pupils in general. He first painted three more pictures, an Ecce Homo, a Christ on the Mount of Olives, and the wife of Rubens, for his instructor; for which Rubens gave him a fine white horse, and sent him to Italy with letters of recommendation. A few miles from Brussels, in the village of Savelthem, the young artist became enamoured of a peasant's daughter, so that he remained there a long time, and executed two altar-pieces for the village church. In one of them the object of his love was represented as a Madonna, and in the other, he himself appeared as St Martin on the horse of Rubens. His residence there becoming known, Rubens used every inducement, by means of the Cav. Nanni, an accomplished Italian, to rekindle the flame of ambition in the bosom of the young man. He succeeded. Vandyck tore himself away, and, accompanied by Nanni, hastened to Italy. He first directed his course to Venice, made Titian and Paul Veronese his models, and acquired their splendour and richness of colouring. His money was spent, and he removed to Genoa, where he painted several portraits, and gained a large sum. He now undertook a journey to Rome, where he was patronised by the cardinal Guido Bentivoglio, whose portrait he painted with the most complete success. This, and the portraits of Sir J. Shirley and his lady, residing there, excited so much admiration, that the envy of the other artists compelled him to return to Genoa, where he executed many portraits as well

as historical pictures, and always adopted the brilliant style of Titian. He visited Florence, Turin and Sicily, where he resided for some time. But the plague finally drove him out of Sicily; and he finished the celebrated altar-piece for Palermo in Genoa. After his reputation was thus spread throughout Italy, he returned to his own country. Here he painted many historical pictures and altar-pieces. Of the latter, the most renowned are the St Augustine at Antwerp, and the Crucifixion at Courtray. Rubens is said to have offered him his eldest daughter in marriage; but Vandyck refused her, because his earlier love for her mother (Helena, the second wife of Rubens) was not yet wholly extinguished. He soon after accepted the invitation of the prince of Orange, Frederic of Nassau, to visit his court at the Hague. He painted portraits of this prince, his wife and children, with so much success, that all the principal personages of the court were eager to obtain his services. He then visited London and Paris, but soon returned to Antwerp. A Crucifixion and a Birth of Christ, which he painted for Dendermonde, are among his finest works. Charles I. having seen one of his portraits, immediately ordered him to be invited to return to England. This invitation the painter would have declined but for the urgency of his friend Sir K. Digby. On his arrival, he was introduced by him to the king, who put upon his neck a gold chain, with his own miniature, richly set with diamonds, and bestowed upon him the honour of knighthood, a considerable annuity, and a summer and winter residence. Vandyck rewarded this generosity by unceasing diligence: he enriched England with his masterpieces, and executed, besides a multitude of portraits, several mythological and historical paintings. His love of splendour was displayed in the magnificence of his house. His table was frequented by the princes and ladies of the first rank, and his entertainments excelled all others in splendour and luxury. He had also a harem of beautiful women, who supplied him with figures for his historical paintings. In this way he consumed his property, his strength and his health. His lucrative occupation, however, might have repaired the loss of the first, if he had not engaged in the pursuit of the philosopher's stone. The duke of Buckingham endeavoured to restore him again to activity, by uniting him in marriage with the beautiful Maria Ruthven, daughter of the Scotch lord Gowrie. Vandyck visited his native city with her, and went thence to Paris, where he hoped to be employed to paint the gallery of the Louvre; but, as the work had been already committed to Poussin, he soon returned to England. Though infirm and exhausted, he proposed to the king to paint the walls of the banqueting house with the history and procession of the order of the garter, promising to make the cartoons. Before the work was completed, he was surprised by death, in the forty-second year of his age (1641). He was buried in St Paul's church. Cowley composed his epitaph. The principal galleries contain some of his pictures. Though Vandyck shone in historical composition, his strength lay in portrait; and no painter ever exceeded him in the knowledge of the *chiaro oscuro*. His choice of nature, when he painted portraits, was always the most agreeable: he gave an inexpressible grace to his heads, and his expression was inimitable. The extremities of his figures are designed in great perfection. His draperies are in a grand style, broad and simple in the folds, easy in the disposition, and the colouring lovely. In [illegible] particulars, Vandyck has been acknowledged [illegible] superior to Rubens: his touch is more delicate, his ideas are more graceful; and his expression more true. During the first six or seven years after his arrival in London, his performances were counted most excellent; but some of his later works are painted in such a manner as shows the uncommon rapidity of his pencil, though touched with wonderful spirit: others are comparatively weak, and partake too much of the lead color; yet his penciling is always masterly, and even inimitable. Vandyck sometimes amused himself with engraving, and etched several plates, consisting mostly of portraits, in a spirited style.

VANE, Sir Henry, the younger, a conspicuous character in the time of Charles I. and the commonwealth, was the son of Sir Henry Vane of Hadlow in Kent, and Raby castle in Durham, secretary of state, and treasurer of the household to Charles I. until dismissed for taking part against the earl of Strafford. The subject of this article was born about 1612, and was educated at Westminster school, whence he was removed to Magdalen college, Oxford. He then proceeded to Geneva, from which he returned, much indisposed towards the English liturgy and church government. About this time (1635), several persons, who were uneasy at home on account of their religious opinions, emigrated to New England; among whom was Vane. Notwithstanding his youth, he was elected governor of Massachusetts; but, becoming involved in religious disputes, he soon after returned to England, and, with his father's concurrence, married a lady of good fortune, and was appointed a joint treasurer of the navy. He was chosen to represent Hull in the next parliament, yet still kept on such terms with the royal party as to obtain knighthood. The spirit of the times, however, soon led him to take part against the court. He was instrumental in procuring the condemnation of lord Strafford, and he also carried up to the lords the articles of impeachment against archbishop Laud. He likewise acted as one of the parliamentary commissioners at the treaty of Uxbridge, in 1645; and at the negotiations in the isle of Wight, in 1648, was an opposer of the terms of peace. He had, however, no immediate concern in the king's trial or death, but was one of the council of state appointed the supreme power after that event. In 1651, he was appointed a commissioner to be sent into Scotland, in order to introduce the English government there. He continued a strenuous adversary to Cromwell during the whole progress of that leader to sovereignty; on which account the latter found means to imprison him in Carisbrook castle. He even sought to intimidate him by questioning him as to the Raby estate, notwithstanding which, Vane continued inflexible during the whole of the protectorate. After the restoration of the long parliament, he was nominated one of the committee of safety, when he strenuously exerted himself to establish a republican government, until the restoration put an end to all further contest. On this event he had considered himself in no danger; but he was, notwithstanding, arrested and committed to the Tower, as a person whom it was dangerous to allow to be at large. The convention parliament petitioned in favour of him and Lambert, and the king promised that his life should be spared. Charles II. violated his word, and Sir Henry was brought to trial for high treason. Although [illegible]

cused only for transactions that occurred after the king's death, he was found guilty, notwithstanding a defence of great vigour and ability, in which he pleaded that, if complying with the existing government was a crime, all the nation had been equally criminal. He further observed, that he had, in every change, adhered to the commons as the root of all lawful authority. His trial took place in June, 1662; and on the 14th of the same month, he was beheaded on Tower hill, when he behaved with great composure and resolution. He began to address the people at the scaffold in justification of his conduct, but was interrupted by drums and trumpets. Sir Henry Vane mingled much fanatical speculation with an extraordinary degree of acuteness and general good sense. His enemies scarcely charged him with mercenary views, and his friends regarded him as a mistaken lover of his country. Mackintosh declared him to be one of the most profound minds, not inferior perhaps to Bacon. Sagacious and acute as a statesman, and possessed of almost all the knowledge of his age, he fell a victim to a miserable sophism, and to royal perfidy. The beautiful sonnet addressed to him by his fellow sufferer Milton, is familiar to all. His theological writings display an astonishing power, but are in a high degree mystical, and often unintelligible. Among them are the Retired Man's Meditations (1655); the Face of the Times (1662); and his Meditations on Life, Government, Friendship, Enemies, Death (1662). It must not be forgotten that his history has been written by his enemies.

VANE, OR WEATHERCOCK; a plate placed on a spindle at the top of a spire, showing, by the way in which it turns, the direction of the wind. In ships, a piece of bunting serves the same purpose.—*Dogvane;* a small, light vane, formed of thin slips of cork, stuck round with feathers, and strung upon a piece of twine. It is usually fastened to the top of a half-pike, and placed on the weather side of the quarter deck, in order to show the helmsman the direction of the wind, particularly in a dark night, or when the wind is weak.

VANGUARD; that part of the army which precedes the main body on the march, as a security against surprise. The strength of the vanguard is in proportion to the strength of the main body; and in a large army, it may be composed of different sorts of troops. The distance of the vanguard from the main body depends partly on the vicinity of the enemy, and partly on the nature of the country. This rule is always to be observed:—The vanguard must remove all little obstructions to the march of the main body, and keep in check the forces of the enemy till the main body is in readiness to meet them. Hence it is the chief duty of the vanguard to discover the enemy in season, and detect them under every concealment. As great activity, both bodily and mental, is requisite for service in the vanguard, it is customary to choose for this purpose the most active troops in the army, and to give them an experienced leader. This captain must know how to conduct skirmishes, and to direct all his movements conformably to the object of the advancing army. The vanguard are often employed in improving the roads, where they are impassable, in procuring provisions, in spreading reports, &c.; and it is always their duty to collect authentic information.

VANINI, LUCILIO, or, as he afterwards styled himself, *Julius Cæsar*, a learned Italian of the school of Pomponatius, was born at Taurisano, in the kingdom of Naples, in 1585, and early devoted himself with ardour to letters, studying philosophy, theology, law and astrology at Rome and Padua. He took orders, and began to preach, but soon abandoned his clerical duties for study. He may be considered in some sort as a *polyhistor;* at least he made pretensions to that character. Having travelled in Germany, Bohemia and the Netherlands, he resided some time at Geneva and Lyons, where he occupied himself with instruction, but was finally obliged to flee to England, and in that country was thrown into prison. Wherever he had appeared, he had become obnoxious to suspicions, on account of his peculiar religious views. Returning to Lyons, after his release from prison, he published his *Amphitheatrum Æternæ Providentiæ* (1615), which appears to have been directed against Cardan and others of his way of thinking, but which drew upon Vanini himself the suspicion of atheistical notions, and compelled him to quit Lyons. Retiring to Paris, he here published his *De admirandis Naturæ, Reginæ, Deæque Mortalium Arcanis* (1616), in sixteen dialogues, which is more of a physical than a theological treatise. Although published with the permission of the theological faculty of Sorbonne, it subjected Vanini anew to the charge of atheism. In 1617, he went to Toulouse, where he was accused of atheism and sorcery, and condemned to the flames. He was drawn to the place of execution, and, after his tongue had been torn out, was strangled and burnt, at the age of thirty-four years. His death has given Vanini more celebrity than his writings would have procured him. His punishment was entirely undeserved, as there is no ground for the accusation brought against him; but he appears to have created enemies by his imprudent conduct, his vanity, and his satirical spirit. Voltaire and Bayle have defended him; and a German work, Vanini's Life and Fate, Spirit, Character and Opinions (Leipsic, 1800), contains an account of what has been written for and against him.

VANLOO; the name of a distinguished family of artists, which originated in Ecluse, in Flanders. Two members of this family have contributed most to its fame. They were the sons of Louis Vanloo, known as a fresco painter.

The eldest of the two, *John Baptist*, born at Aix, in 1684, a portrait and historical painter, lived in France, Italy and England. He died in 1745. His historical paintings are chiefly in Paris, Toulon, Turin, Rome and London.

The second, *Charles Andrew*, was born at Nizza, in 1705, painted landscapes and historical subjects, became, in 1735, a member of the academy of arts in Paris, and died in 1765. His pictures have mostly remained in France.

John Baptist had four sons, who all became skilful artists, though the two youngest, Claudius and Francis, died young; the eldest, Charles Andrew Philip, became painter to the court of Berlin, and Louis Michael to the king of Spain.

VANNUCCHI; the proper name of Andrea del Sarto. See *Sarto*.

VANUCCI. See *Perugino*.

VAPOUR. See *Evaporation*.

VAPOUR BATH. The vapour or steam bath may be regarded as a modification of the hot bath; but its effects are much less violent. The most usual mode of employing it is to expose the naked body in a room, into which the steam of hot water may be admitted. This room is generally heated

to a temperature considerably above that of the atmosphere, and the body is suffered to remain for some time in this heated air, the common effect of which is, to increase its temperature, and to accelerate the circulation of the blood. After some time, the steam is admitted, when the former symptoms are removed, and a profuse perspiration is produced. This is usually promoted by friction, and removal to a warm bed. The general effect of this process is to relax the body, remove obstructions of the skin, alleviate pain and spasmodic contractions, and promote sleep. In the vapour bath, the stimulant power of heat is modified and tempered by the moisture diffused through the air; and, as the elastic vapour, like air, is a less powerful conductor of heat than a watery fluid, the effect of vapour in raising the temperature of the body is much less than that of the hot bath. Its heating effect is also further diminished by the copious perspiration that ensues; so that, on all accounts, the vapour bath is safer, and, in most cases, more effectual, than the hot water bath. See *Bath*.

VAR. See *Departments*.

VARANGIANS, OR VARAGIANS (i. e. *hunters*, or *corsairs*); a Scandinavian race, who seem to have received this name in Russia, where they established several principalities. Some of them afterwards entered the service of the Byzantine emperors, and performed the duty of imperial guards at Constantinople. Here they were recruited, according to the Byzantine writers, by bands of their countrymen from Thule; i. e. by Saxons and Danes, who fled from England to escape the Norman yoke. They continued to speak the Saxon or Danish language till the overthrow of the empire. The peculiar weapon of these Varangian guards, to whom the keys of the palace and the capital were entrusted, was the two-edged battle-axe.

VARCHI, BENEDETTO, an eminent man of letters, born at Florence, in 1502, was educated at the university of Padua, where he made a great progress in the belles-lettres, but was designed for the law, which he studied during the life of his father, and was even admitted a notary. When the decease of his parents left him at liberty to pursue his own inclinations, he forsook the law, and devoted himself entirely to literature. He accordingly studied the Greek language and philosophy, until driven from Florence by his attachment to the Strozzi: he then returned to Padua, where he read public lectures on morals and literature. The grand duke of Tuscany, Cosmo I., invited him back to Florence, although he had opposed the Medici, and assigned to him the office of writing a history of the late revolution. Whilst thus employed, he was attacked, at night, by some persons who feared that his strictures might be unfavourable to them, and stabbed in several places. He, however, recovered, and had either the prudence or the lenity not to name the parties, although he knew them. He was carried off by an apoplexy, in 1565, at the age of sixty-three. Varchi was a man of indefatigable industry, and there is scarcely a branch of literature which he did not cultivate. His *Storia Fiorentina*, comprising only the period of eleven years, is very voluminous, and written in a diffuse, languid manner. It is also charged with adulation to the house of Medici. Varchi likewise wrote poems and a comedy, and, as a grammarian, obtained reputation by his dialogue entitled *L'Ercolano*, on the Tuscan language. His *Lezioni lette nella Academia Fiorentine* display a multifarious erudition.

VARENNES; a petty town in the north-east of France, 150 miles north-east of Paris, and sixteen north-west of Verdun. It has about 1300 inhabitants, with manufactures of leather and paper, but is chiefly remarkable as the place where Louis XVI. was stopped in his imprudent flight from Paris, in June, 1791. See *Louis XVI.*

VARIABLE QUANTITIES, in geometry and analytics, denote such as are either continually increasing or diminishing, in opposition to those which are constant, remaining always the same. Thus the abscisses and ordinates of an ellipse or other curve line, are variable quantities, because they vary or change their magnitudes together. Some quantities may be variable by themselves alone, while those connected with them are constant; as the abscisses of a parallelogram, whose ordinates may be considered as all equal, and therefore constant. The diameter of a circle, and the parameter of a conic section, are constant, while their abscisses are variable. Variable quantities are usually denoted by the last letters of the alphabet, *z*, *y*, *x*, while the constant ones are denoted by the first letters, *a*, *b*, *c*.

VARIATION, in music, is the different manner of singing or playing the same air, tune or song, either by subdividing the notes into several others of less value, or by adding graces, in such a manner, however, that the tune itself may still be discovered through all its embellishments. These repetitions or variations were formerly called *doubles*. Many variations for the piano, and those of Rode for the violin, are particularly excellent. Generally speaking, variations are more suited to instrumental than vocal music. The latter sort are chiefly intended for practice, or to show the splendid talents of the singer; e. g. those sung by madame Catalani. There are also variations in poetry, called *glosses*, used in Spanish and Portuguese poetry. See *Gloss*.

VARIATION OF CURVATURE, in geometry, is used for that inequality or change which happens in the curvature of all curves except the circle, and this variation, or inequality, constitutes the quality of the curvature of any line.

VARIATION OF THE MAGNETIC NEEDLE. See *Magnetism*.

VARIATIONS, CALCULUS OF; that branch of the differential calculus (see *Calculus*) in which the mathematician ascends from the theory of the *maximum* and *minimum* to the more important and difficult investigation of that curve, or those, among all possible curves, to which belong certain given qualities in the highest or lowest degree. For instance, the question is, to find the brachystochrone ones (i. e. those among all curves of equal length which a body, moved by given powers, passes through in the shortest time), the analytical answer to this and similar questions leads to the calculus of variations, which, therefore, appears as an extended theory of the *maximum* and *minimum*, not instead of confining itself to differentiation, only requires us to deduce from a derived equation already found the primitive one possessing the required quality. The method of variations, which owes it origin to John Bernoulli's proposing the above-mentioned problem of the brachystochrone in 1693, crowns the admirable fabric of modern geometry.—See Dicksen's *Analytische Darstellung der Variationsrechnung* (Berlin, 1826, 4to.).

VARIATIONS OF THE MOON; inequalities in the revolution of the moon, known only since the time of Tycho Brahe.

VARIETY, in natural history, a subdivision of a species, as a species is a subdivision of a genus. What one naturalist considers a variety, another sometimes considers a distinct species. Most of the various kinds of dogs are varieties which can be reduced to a few species. A variety cannot be preserved without much care: left to nature, it returns, in a succession of generations, to the species.

VARIORUM, CUM NOTIS. Certain editions of ancient and modern Latin and Greek authors, published mostly in Holland, in the seventeenth and eighteenth centuries, and containing the notes of many commentators, are termed *editiones cum notis variorum*. These editions do not stand in very high estimation with scholars, but are, nevertheless, sought for by collectors. The number is given differently by bibliographers, according as they enumerate more or fewer new editions of this kind published out of Holland.

VARIOUS READINGS (*lectiones variantes, lectiones variæ*) are differences in the text of a work, which sometimes originate from the ignorance or negligence of the early transcribers of manuscripts, sometimes from the changes which an author makes himself in the later editions of his works. To restore the true text of ancient works is the business of verbal criticism, and is often very important; e. g. in classic authors, the Bible, &c. Some editions contain all the various readings in notes.

VARNA: a town of European Turkey, in Bulgaria; 112 miles north-east of Adrianople, and 144 north of Constantinople; lon. 27° 59′ E.; lat. 43° 7′ N.; population, 16,000. It has an old castle, twelve mosques, two Greek churches, the most commodious port in Bulgaria, and a large trade with Constantinople. It is situated on a gulf or bay of the Black sea, to which it gives name, at the mouth of the river Varna. In 1444, Ladislaus, king of Hungary, was defeated and slain by Amurath I., sultan of the Turks, near this town. In 1783, Varna resisted the attacks of the Russians; but, October 11, 1828, it was taken possession of by the Russian forces. See *Russia*.

VARNISH. Lac varnishes, or lacquers, consist of different resins in a state of solution, of which the most common are mastich, sandarach, lac, benzoin, copal, amber, and asphaltum. The menstrua are either expressed or essential oils or alcohol. For a varnish of the first kind, the common painters' varnish is to be united, by gently boiling it, with some more mastich or colophony, and then diluted with a little more oil of turpentine. The latter addition promotes both the glossy appearance and drying of the varnish. Of this sort also is the amber varnish. To make this varnish, half a pound of amber is kept over a gentle fire, in a covered iron pot, in the lid of which there is a small hole, till it is observed to become soft, and to be melted together into one mass. As soon as this is perceived, the vessel is taken from the fire, and suffered to cool a little, when a pound of good painters' varnish is added to it, and the whole suffered to boil up again over the fire, keeping it continually stirring. After this, it is again removed from the fire, and, when it is become somewhat cool, a pound of oil of turpentine is to be gradually mixed with it. Should the varnish, when it is cool, happen to be yet too thick, it may be attenuated with more oil of turpentine. This varnish has always a dark-brown colour, because the amber is previously half-burned in the operation; but, if it be required of a bright colour, amber powder must be dissolved in transparent painters' varnish, in Papin's machine, by a gentle fire. As an instance of the second sort of lac varnishes with ethereal oils alone, may be adduced the varnish made with oil of turpentine. For making this, mastich alone is dissolved in oil of turpentine by a very gentle, digesting heat, in close glass vessels. This is the varnish used for the modern transparencies, employed as window-blinds, fire-screens, and for other purposes. These are commonly prints, coloured on both sides, and afterwards coated with this varnish on those parts that are intended to be transparent. Sometimes fine thin calico, or Irish linen, is used for this purpose; but it requires to be primed with a solution of isinglass before the colour is laid on. Copal may be dissolved in genuine Chio turpentine, by adding it in powder to the turpentine, previously melted, and stirring till the whole is fused. Oil of turpentine may then be added to dilute it sufficiently. A varnish of the consistence of thin turpentine is obtained by the digestion of one part of elastic gum, or caoutchouc, cut into small pieces, in thirty-two parts of naphtha. Previously to its being used, however, it must be passed through a linen cloth, in order that the undissolved parts may be left behind. The third sort of varnishes consists of the spirit varnishes. The most solid resins by themselves produce brittle varnishes; therefore something of a softer substance must always be mixed with them, whereby this brittleness is diminished. For this purpose, elemi, turpentine, or balsam of copaiva, are employed in proper proportions. For the solution of these bodies, the strongest alcohol ought to be used. In conformity to these rules, a fine-coloured varnish may be obtained by dissolving eight ounces of gum sandarach and two ounces of Venice turpentine in thirty-two ounces of alcohol by a gentle heat. Five ounces of shell-lac, and one of turpentine, dissolved in thirty-two ounces of alcohol, by a very gentle heat, give a harder varnish, but of a reddish cast. To these the solution of copal is undoubtedly preferable in many respects. This is effected by triturating an ounce of powdered gum copal, which has been well dried by a gentle heat, with a drachm of camphor, and, while these are mixing together, adding, by degrees, four ounces of the strongest alcohol, without any digestion. Between this and the gold varnish there is only this difference, that some substances that communicate a yellow tinge are to be added to the latter. Take two ounces of shell-lac, of annotto, and turmeric, of each one ounce, and thirty grains of fine dragon's blood, and make an extract with twenty ounces of alcohol, in a gentle heat. Oil varnishes are commonly mixed immediately with the colours; but lac or lacquer varnishes are laid on by themselves upon a burnished coloured ground. When they are intended to be laid upon naked wood, a ground should be first given them of strong size, either alone or with some earthy colour, mixed up with it by levigation. The gold lacquer is simply rubbed over brass, tin or silver, to give them a gold colour. Before a resin is dissolved in a fixed oil, it is necessary to render the oil drying. For this purpose, the oil is boiled with metallic oxides, in which operation, the mucilage of the oil combines with the metal, while the oil itself unites with the oxygen of the oxide. To accelerate the drying of this varnish, it is necessary to add oil of turpentine. The essential varnishes consist of a solution of resin in oil of turpentine. The varnish being applied, the essential oil flies off, and leaves

the resin. This is used only for paintings. When resins are dissolved in alcohol, the varnish dries very speedily, and is subject to crack; but this fault is corrected by adding a small quantity of turpentine to the mixture, which renders it brighter, and less brittle when dry. The coloured resins or gums, such as gamboge, dragon's blood, &c., are used to colour varnishes. To give lustre to the varnish after it is laid on, it is rubbed with pounded pumice-stone and water, which being dried with a cloth, the work is afterwards rubbed with an oiled rag and tripoli. The surface is, last of all, cleaned with soft linen cloths, cleared of all greasiness with powder of starch, and rubbed bright with the palm of the hand.

The following receipt for a good spirit varnish is given by Tingry:—Take strong alcohol, thirty-two parts; pure mastich, four; sandarach, three; clear Venice turpentine, three; coarsely ground glass, four. Reduce the mastich and the sandarach to fine powder; introduce them, with the glass and spirit, into a matrass, which is to be placed in hot water for one or two hours, taking care to stir up the materials from time to time with a glass spatula; then pour in the turpentine, and keep the vessel for half an hour longer in the water. Next day decant off the liquor, and filter it through cotton. It will be perfectly limpid. This varnish is usually applied to objects of the toilet, as work-boxes, card-cases, &c.

Essence varnish, by the same; Take mastich in powder, twelve parts: pure turpentine, one and a half; camphor in bits, one half; crystal glass, ground, five; rectified oil of turpentine, thirty-six. Put the mastich, camphor, glass and oil into a matrass, and dissolve as above prescribed. This varnish is applied to paintings.

Fat varnish. Take copal, sixteen parts; linseed or poppy oil, made drying with litharge, eight; oil of turpentine, sixteen. Melt the copal in a matrass, by exposing it to a moderate heat; pour then upon it the boiling hot oil; stir the mixture, and, when the temperature has fallen to about 200° Fahr., add the oil of turpentine heated. Strain the whole immediately through linen cloth, and keep the varnish in a widemouthed bottle. It becomes very clear in a little while, and is almost colourless when well made. Copal varnish is applied on coaches, also generally on polished iron, brass, copper and wood.

Varnish, among medallists, is the term used to signify those hues which antique medals have acquired by lying in the earth. The beauty which nature alone is able to impart to medals, and which art has never yet attained the power of counterfeiting, enhances their value. The colours acquired by certain metals, from having lain a long while in the ground, are various, and some of them exquisitely beautiful. The blue nearly rivals that of the turquoise: others have an inimitable vermilion colour; others, again, a polished, shining brown. But that most usually found is a delicate green, which hangs to the finest strokes without effacing them. No metal except brass is susceptible of this. The green rust which gathers on silver always spoils it, and must be removed with vinegar or lemon juice. Falsifiers of medals have a varnish which they use on their counterfeits, to give them the appearance of being antique; but there are means of discovering these deceptions. See *Numismatics*.

VARRO, Marcus Terentius, one of the most learned men and prolific writers of ancient Rome, born B. C. 116, served, in his youth, in the army, and, at a later period, obtained the dignity of tribune, with other public offices. Varro was the intimate friend of Cicero, and was banished by Antony, but returned to Rome under Augustus, and died there, at the age of eighty-nine years, with the reputation of being the most learned Roman, or at least the most learned critic, of his time. The number of his writings, chiefly on language, history and philosophy, is stated to have amounted to nine hundred, of which only two have come down to us—a treatise upon agriculture (*De Re Rustica*), in three books, which is contained in the collection *Scriptores Rei Rusticæ*, and fragments of a treatise in the Latin language (*De Lingua Latina*), which treats principally of etymology and analogy. Good editions of the latter have appeared at Deventer, in 1619 (2 vols.), and (by Sprengel) at Berlin, in 1826. The former has been translated into English by Owen (1800).

VARUS, Quintilius. See *Arminius*.

VASA, Gustavus. See *Gustavus I.*

VASARI, Giorgio, the first writer who gave a complete history of all modern artists, and who himself a practical artist, was born at Arezzo, in the grand duchy of Tuscany, in 1512, and studied under Luca Signorelli, Michael Angelo Buonarroti, and Andrea del Sarto. The cardinal Ippolito de' Medici, pope Clement VII. and the dukes Alessandro and Cosmo, successively engaged him in their service, after which he determined not to enter again into the service of any prince. He was, however, employed by the succeeding dukes, by the popes, and other eminent persons, as an architect and painter, in both of which characters, particularly in the former, he obtained great reputation, although as a painter he was only a skilful imitator of Michael Angelo. His principal paintings are a Lord's Supper, in the cathedral of Arezzo, and several works in the Palazzo Vecchio, in Florence, and in the Vatican in Rome. He has himself given us an account of his different works in Florence, Arezzo, Pisa, Venice, Bologna, Rome, &c. Ed. *Vite de' più eccellenti Pittori, Scultori ed Architetti* (first printed in 1550, and often republished) is of more interest to us. It is highly esteemed on account of the facts which it contains, and for the scattered remarks in regard to the progress of the arts. It, however, has fallen into many errors respecting the earlier masters—a circumstance owing to the imperfection of existing accounts; and he is also guilty of partiality towards the Tuscan artists. We have also some other productions from the pen of Vasari, who died in 1574.

VASCO DA GAMA. See *Gama*.

VASE (*vas*, Latin). The earliest vases and ur-

were made of clay, and were rude in form; but as luxury and refinement increased, they were executed with greater elegance, and made of more costly materials. The earth of which urns and vases were made was light and porous, and of a yellowish red colour. Before undergoing the action of fire, an instrument, containing a portion of black liquid pigment, was employed by the artist in drawing the outline of the figures and composition. They were then done over with a sort of varnish of a reddish tint, and baked. In the annexed cuts fig. 1 represents a very ancient urn or vase, done after this manner, in the possession of J. P. Anderdon, Esq. Two others in the British Museum are represented in figs. 2 and 3. The height of the first is 6½ inches; that of the second 3½ inches. Fig. 4 represents another ancient vase, also in the British Museum. Its height is 12 inches.

The Grecian artists gave to every vase the shape best adapted to its use, and most agreeable to the eye. Sometimes they took the parallelopipedon; in other instances, a shape either circular or slightly curved, to prevent the eye from being intercepted by angles or corners. These shapes admitted, at the same time, of greater variety, notwithstanding which, its primitive character was always perceived. It was only in times subsequent to the decline of the arts that these simple contours were departed from, and the pyramidal or angular figure substituted. Very rich and precious substances were employed by those who could afford such profusion. Vases were frequently set up as prizes in the public games. A great number of these vessels have been preserved to the present day, and offer to artists models of the most beautiful forms. The annexed cut represents two perfume vases. Of all the works in this department of Grecian art which have come down to our times, there are none so richly meriting attention as the ancient vases in terra-cotta, so long and universally, but improperly, designated as *Etruscan*, from the circumstance of their original describers (Montfaucon, Dempster, Gori, Passeri, Caylus and D'Ancarville) having regarded them as monuments of Etruscan art. But the fact is, that the greater number of these vases are not found in Etruria. It is to the sepulchres of Nola, of Capua, of Santa Agatha, &c., as well as to different cities of Græcia Magna, that we are indebted for the largest and finest collections. The Athenian tombs have also furnished many; and Mr Hamilton is correct in designating them, as he has done in one of his prefaces, emphatically *Grecian*. The tombs or sepulchres in which these exquisite vases were commonly found, were situated near the walls of towns, ordinarily built of brick or rough stone, and of just sufficient size to admit the body, with some five or six vases standing round it, or hung on the walls by nails of bronze. The number, size and beauty of these vases varied, doubtless, according to the rank of the party inhumed. The paintings of these ancient Greek vases are extremely interesting, on account of the subjects represented, and of the beauty of the workmanship. The subjects most frequently to be found are sacrifices, processions and representations which bear relation to the mysteries of Bacchus or Ceres. There are, occasionally, but not so often, exhibitions of family feasts or of public games. Sometimes, also, the mythics of the heroic ages are introduced. They did not serve as receptacles of the ashes, but the most probable opinion is, that they were sacred vases which had been given to those who were initiated into the mysteries of Bacchus and Ceres, and were employed at the festivals of these divinities. Most of the subjects represented have reference to these mysteries. Some of these vessels may have been distributed on other solemn occasions. While the possessors were alive, it is probable that they were placed in the halls or vestibules of their houses, and, after their owners' death, they accompanied them to the tomb. In Lower Italy, the art of imitating them is carried to great perfection, as many an unfortunate purchaser has found. Large collections of these vases are contained in Naples (briefly but instructively described by Andrew di Gorio—*R. Museo Borbonico, Galleria dei Vasi*, Naples, 1825), in London and Paris, in Vienna, Petersburg, &c.—See the *Introduction à l'Etude des Vases Antiques*, by Dubois-Maisonneuve (Paris, 1817, folio), and the small treatise *Dei Vasi Grechi, delle lor Forma e Dipintura, e dei Nomi e Uso loro in Generale* (Palermo, 1823, 4to.). The celebrated W. Tischbein published, in 1791, at Naples, a splendid work containing drawings of such vases. See also Lanzi's *De' Vasi antichi dipinti volgarmente chiamati Etruschi* (Florence, 1806). For the Portland or Barberini vase, see the article *Portland Vase*.

VASSAL (*homo fidelis, vassus*, feoffee); a person who has bound himself to fidelity and service towards another, especially in war, for which he receives the promise of protection and the enjoyment of an estate, a rent, office, privilege (out of which, in the later period of the feudal system, a real *dominium utile* originated). The origin of the word is not certain. It is not probable that it is derived from the Gaelic *gwas:* it is more probable that it comes from the Arabico-Spanish of the tenth century, the expression *guazil* (servant) having been in common use in the Moorish dominions in Spain, which then possessed a higher civilization than the rest of Europe. The vassal of the king had again his vassals, and the more powerful of these again theirs; hence, in Italy, the degrees of *capitanei, valvasi, valvasini*. A vassal who was bound to serve his lord against every one else in war, was called *vassus ligius*. See *Feudal System*, and *Villenage*.

VATHEK BILLAH. See *Caliph*.

VATICAN; the most extensive palace of modern Rome, built upon the Vatican hill, from which it has received its name. Immense treasures are stored up in it. It is not a regular building, but contains twenty-two court-yards, and, as is generally said, 11,000 rooms. Several popes have laboured on this edifice, which was not completed until the time of Sixtus V. who died in 1590. Here are the celebrated collections of pictures, and the museums, in which all the periods of the arts have deposited many of their most perfect produc-

tions. Here are the *stanze* of Raphael; here are the Sistine and Pauline chapels, the *museo Chiaramonti*, and the *museo Pio-Clementino*, the *appartamento Borgia*, the *stanza dei Papiri* (collection of papyrus rolls); here is the rich Vatican library (described below); here are pictures of almost all the first masters of that glorious period of which Raphael is the chief ornament; and near it is the gigantic St Peter's. The Vatican is connected with the Belvedere and the castle of St Angelo. In the Vatican, the conclaves are held for the elections of popes. As the popes formerly resided here, the word *Vatican* was, and still is, not unfrequently used for the papal government, as the cabinet of St James or Berlin is used for the British or Prussian government.

Vatican Library. In the finest place that could be found for a library, this precious collection is deposited, which bears witness to the scientific spirit, or fondness for magnificence, of many successive popes. Lofty and spacious rooms, adorned with fresco paintings, antique vases, and two beautiful statues, contain the simple cases in which the manuscripts are preserved. The history of this collection, which has justly been called a *panoplia*, reaches back to the times of Constantine the Great, if we can believe the somewhat legendary account of Assemanni, in the catalogue of this library (*Bibl. Apost. Vat. Codd. Mss. Catalogus, etc.*; Rome, 1756). Nicholas V. increased the collection so much that he may be almost considered its second founder. Sixtus V. highly embellished the exterior of the edifice, and prepared the great saloon in which a large part of the library is now preserved. Leo X. devoted himself to Greek, Pius IV. to Oriental manuscripts; Pius V. united the archives, which are still inaccessible, with the library; and Paul V. and Urban VIII. enlarged the accommodations, the present of the library of Heidelberg having made greater space necessary. Clement VII. added the manuscripts of the library of Urbino; Alexander VIII. 1770, left by the queen Christina of Sweden; Benedict XIII. those of Ottoboni; not to mention other acquisitions and embellishments. The most recent is the library of count Cicognara. Yet this invaluable treasure of manuscripts and old printed works (the absence of modern works is to be regretted) is rendered less useful by want of order, and even of catalogues, which do not exist, or are denied to the student. The above mentioned catalogue of Assemanni embraces but a very small part of the collection, and is a rarity in the library itself, as most of the copies of it were burned in 1786. For the other parts of the library, there are only written catalogues; and these are badly drawn up: and the use of them is considered a favour. Moreover, the ancient and not very liberal rules of Clement XIII. and Innocent XIII. are still enforced, and are doubly oppressive on account of the many holidays. Many complaints of modern travellers, among whom are some of the most distinguished men of the age, show that the present superintendent, Maio, enforces the laws in all their rigour, though he has shown, if it were necessary, what treasures are contained in the library, by his *Scriptor. Veter. nova Collectio e Codd. Vaticanis edita* (Rome, 1825, 4to).

VATTEL, or WATTEL, Emer de, an eminent publicist, son of a clergyman of Neufchatel, was born in 1714. After completing his studies, he went to Berlin, and subsequently to Dresden, where he was appointed privy counsellor to the elector. He died at Neufchatel, in 1767, in the fifty-third year of his age. He owed his early literary reputation to his Defence of the Philosophy of Leibnitz against De Crousaz (1741), and *Pièces diverses de Mr. et d'Amusement* (Paris, 1746). His great work was published at Neufchatel, under the title of *Droits des Gens, ou Principes de la Loi naturelle* (1758). It was translated into English, (1760, 4to., and 1793, 8vo.).

VAUBAN, Sebastian le Prestre, seigneur de, marshal of France, and the greatest engineer which that country has produced, descended of an ancient and noble family of Nivernois, was born 1633, and early entered the army, where his uncommon talents and genius for fortification soon became known, and were signally displayed in various successive sieges. He rose to the highest military rank by his merit and services, and was made governor of the citadel of Lisle, in 1668, and commissioner-general of fortifications in 1678. He took Luxemburg in 1684, and was present, in 1688, at the siege and capture of Philipsburg, Manheim and Frankendal, under the dauphin. He was made marshal of France in 1703, and died at Paris 1707, aged seventy-four. As an engineer, he carried the art of fortifying, attacking and defending towns to a degree of perfection unknown before his time. He fortified above 300 ancient citadels, erected thirty-three new ones, and the principal management and direction of fifty-three sieges, and was present at 143 engagements. His works consist of a treatise entitled *La Dime Royale* (1704, 4to and 12mo.), and a vast collection of manuscripts, in twelve volumes, which he calls *Mes Oisivetés*, containing his ideas, reflections and projects for the advantage of France. The following works have also been published either under his name or from his ideas: *Manière de fortifier par M. de Vauban mise en Ordre par le Chevalier de Cambrai*, (1689 and 1692); *L'Ingénieur Français* by Herbert); *De l'Attaque et de la Défense des Places, suivant le Système de M. Vauban* (1736); *Sur la Fortification, par M. de Vauban* (1746).

VAUCANSON, Jacques, a French mechanician, born at Lyons, died at Paris in 1782. He acquired celebrity by his ingenious automata. These are a brazen duck, which performs all the motions of a living duck, swallows the food put before it, and passes it in a regular manner; a Provençal pipe and a flute-player. The last mentioned is a figure as large as life, seated upon a pedestal, which contains bellows, by means of which wind is directed to different parts of the machine in such a manner as to move the lips and fingers of the statue. Vaucanson exhibited this automaton at Paris in 1738, and explained the mechanism of it in a pamphlet—*Le Mécanisme du Flûteur Automate, par Vaucanson* (Paris, 1738). Vaucanson was afterwards appointed by cardinal Fleury inspector of the silk manufactures, and introduced some improvements in the throwing mills.

VAUCLUSE (*vallis clausa*); a small village 15 leagues east of Avignon, in France. This small place gives its name to a department. (See *Departments.*) Near Vaucluse, the river Sorgue runs between rocks, falls as it comes out of the mountain, and, after having formed several beautiful cascades, runs about ten miles through a romantic country and enters the Rhone near Avignon. Here Petrarch lived; and through him Vaucluse and the source of the Sorgue have become famous.

VAUD, Pays de. See *Pays de Vaud.*

VAUDEVILLE; a species of light French or-

consisting of several couplets (strophes) of a gay and sometimes satirical character. A *vaudeville* should have an easy and pleasing tune, and the chief idea of the whole should be repeated with proper variations at the end of each strophe. The little dramatic pieces interspersed with witty songs adapted to well-known popular tunes, &c., and which are performed at the *théâtre du Vaudeville*, opened in 1791, are called *comédies-vaudeville*, and conclude with a *vaudeville*, of which each performer sings one strophe, having reference to the part performed by him. Opinions are divided respecting the origin of the word. The Dictionary of the academy derives it from *Vau de Vire*, a valley in Normandy. In the little town of *Vau-de-Vire*, Olivier Basselin, a Norman poet of the fourteenth century, is said to have satirised the follies of the day in spirited songs. This *Vau de Vire*, published as early as 1576, and republished in 1821, by Louis Dubois (*Vaux de toutes les Villes*), is believed to have given rise to the name *vaudeville*. It has also been derived from *Vau-de-ville*, a song which runs through the whole town, from mouth to mouth.

VAUDOIS. See *Waldenses*.

VAULT. See *Architecture*.

VAULTING; one of the finest gymnastic exercises, which much strengthens the arms, abdominal muscles, dorsal muscles and lower extremities, and imparts more grace than any other gymnastic exercise.

VAUQUELIN, Nicholas Louis, an eminent French chemist, member of the institute and of numerous learned societies, was born in Normandy, in 1763. In 1780, he went to Paris to continue the study of chemistry and pharmacy, which he had begun at Rouen, and, three years after, was engaged by Fourcroy as his assistant in his chemical preparations. Vauquelin soon became the friend and rival of his master, with whom he continued to be connected for eight years. In 1793, he became a member of the academy of sciences, which, with other learned societies, was soon after abolished. At this time, he went to Melun, where he was attached to the military hospital, but was recalled to Paris the next year, and appointed inspector of the mines. His lectures on the art of assaying, delivered by order of the government at the mining academy in Claves, procured him the place of adjunct professor of chemistry at the polytechnic school. When the institute was founded, he was admitted a member; and he was also among the first to receive the cross of the legion of honour. Being appointed professor of chemistry to the college of France on the death of Darcet, he resigned his place of inspector of the mines, and assumed the superintendence of the newly-erected school of pharmacy. On the death of Brogniart, he was appointed, at the nomination of the institute and of the inspectors of studies, to the professorship of chemistry at the *Jardin des Plantes*. In 1811, he succeeded Fourcroy as professor of chemistry to the faculty of medicine, all the other candidates having voluntarily withdrawn their pretensions in his favour. In 1822, with Jussieu, Dubois, Lallement and others guilty of holding liberal opinions, he was dismissed from his place. His only separate publication is the *Manuel de l'Essayeur* (1812); but he is the author of many valuable papers in the *Annales de Chimie*, the *Journal des Mines*, the *Annales du Muséum*, &c. He died in 1829.

VAUQUELINITE. This mineral occurs in extremely minute crystals, which appear to have the form of the regular six-sided prism; fracture uneven; surfaces of the crystals a little curved; lustre adamantine, often faint; colour blackish-green, olive-green; streak siskin-green, often inclining to brown; faintly translucent to opaque; rather brittle; hardness inferior to calcareous spar; specific gravity 5·5. Besides occurring in crystals, it is found botryoidal, reniform and massive: composition generally impalpable; surface drusy or rough; fracture imperfect and flat conchoidal. Alone before the blow-pipe, it intumesces a little, and then froths and melts into a grayish globule, giving, at the same time, some globules of lead. According to Berzelius, it consists of

Oxide of lead,	69·67
Oxide of copper,	10·80
Chromic acid,	28·33

It occurs at Berezof, in Siberia, along with chromate of lead; and is also said to exist in Brazil.

VAUX, Nicholas, first lord Vaux, was the son of Sir William Vaux, and received the honour of knighthood for his gallantry at the battle of Stoke, in 1487. He ranked high in the favour of Henry VIII., who carried him with him into France, where he was present at the celebrated meeting between that king and the French monarch in the "field of cloth of gold," and was afterwards ennobled. His death took place in 1530.

His son, *Thomas, lord Vaux*, who inherited the talents and valour of his father, and succeeded him in the esteem of his prince, was born in 1510. He attended Henry on his French expedition, and was made governor of Jersey, with the collar of the order of the Bath. Like many of the young nobility of the age, he joined the cultivation of poetry to the study of martial exercises; and several of his poetic effusions are yet to be found in the Paradyse of Daintie Devyces, of which his Aged Lover's Renunciation of Love, and the Assault of Cupid, have been much admired. His death took place soon after the accession of Mary to the throne.

VAUXHALL GARDENS. This elegant place of summer resort is situated near the Thames, in the parish of Lambeth, about a mile and a half from Westminster bridge, and is denominated from the manor of Vauxhall. There is no certain account of the time when these premises were first opened for the entertainment of the public; but the Spring gardens at Vauxhall are mentioned in the Spectator as a place of great resort. It was formerly little more than a tea-garden, enlivened with instrumental music, but so much frequented, that the proprietor was encouraged to augment the attraction by the introduction of vocal music. These gardens are beautiful and extensive, and contain a variety of walks: when open for public amusement, they are illuminated with variegated lamps, and embellished with transparent devices. The different boxes and apartments are adorned with paintings, many of which are executed by Hogarth and Hayman. The latter has chosen his subjects from Shakspeare. In bad weather, the musical performance is in the rotunda, seventy feet in diameter. The roof is so contrived, that sounds never vibrate under it; and thus music is heard to great advantage.

VECTOR, or RADIUS VECTOR, in astronomy, is a line supposed to be drawn from any planet moving round a centre, or the focus of an ellipse, to that centre, or focus. It is so called, because it is that line by which the planet seems to be carried

round its centre, and with which it describes areas proportional to the times.

VEDAS. See *Indian Literature*.

VEDETTE; a sentinel on horseback. The word is derived from the Italian *vedetta* (from *vedere*, to see), and signifies, originally, a watch-tower. It is also used, sometimes, for sentinels on foot, forming the extreme point in the line of outposts. They are often placed in pairs, in such a way that the field of vision of one intersects that of the other.

VEERING. See *Ship*.

VEGA (Spanish for *valley*); the name of numerous places in countries where the Spanish language is spoken.

VEGA. Don Lope Felix de Vega Carpio, generally called Lope de Vega, is described under *Lope de Vega*. See also *Garcilaso*.

VEGA, George, baron de, an Austrian officer of artillery, born at Sagoritz, in Carniola, in 1754. He studied at the college of Laybach, where he made a rapid progress in mathematics. Being appointed an engineer in Carniola, and afterwards in Hungary, he became known as a man of talent in his profession, and was patronised by the emperor Joseph II. He served in several campaigns against the French, and, having distinguished himself on many occasions, especially in 1796, was made a major, and afterwards a lieutenant-colonel, knight of the order of Maria Theresa, and a baron of the empire. His death took place in September, 1802. He was a member of the academies of Göttingen, Erfurt, Berlin, and several others, and was considered as a distinguished mathematician. He published a Course of Mathematics for the Use of the Artillery of the Imperial Army (Vienna, 1786—1800, 4 vols., 4to.; 3d edit., 1802, folio); a Logarithmo-trigonometrical Manual (Leipsic, 1793, 4to.); a Complete Collection of grand Logarithmo-trigonometrical Tables (1794, folio); an Introduction to Chronology (Vienna, 1801, 8vo.); and a Natural System of Measures, Weights and Coins (1803, 4to.).

VEGETABLE CHEMISTRY. The principles of which vegetables are composed, if we pursue their analysis as far as our means have hitherto allowed, are chiefly carbon, hydrogen and oxygen. Nitrogen is a constituent principle of several, but it is only present in small quantity. Potash, soda, lime, magnesia, silex, alumine, sulphur, phosphorus, iron, manganese and muriatic acid occur occasionally in plants, though in small and very variable proportions. Every distinct compound which exists already formed in plants, and which is capable of separation without suffering decomposition, is called a *proximate*, or *immediate principle*, of vegetables. Thus sugar, starch and gum are proximate principles. Opium, though obtained from a plant, is not a proximate principle, but consists of several proximate principles, mixed more or less intimately together. The proximate principles of vegetables are sometimes distributed over the whole plant, while in others they are confined to a particular part. The methods by which they are procured are very variable. Thus gum exudes spontaneously, and the saccharine juice of the maple-tree is obtained by incisions made in the bark. In some cases, a particular principle is mixed with such a variety of others, that a distinct process is required for its separation. Of such processes consists the *proximate analysis* of vegetables. Sometimes a substance is separated by mechanical means, as in the preparation of starch. On other occasions, vantage is taken of the volatility of a compo or of its solubility in some particular menst Whatever method is employed, it should be of a nature as to occasion no change in the com tion of the body to be prepared. The ne of the proximate principles into their simples constitutes their *ultimate analysis*. By this the quantity of oxygen, carbon and hydrog sent in any compound is ascertained. The met which this is accomplished is, to convert the c of the carbon into carbonic acid, and the hyd into water, by means of some compound whic tains oxygen in so loose a state of combinatio to give it up to those elements as a red hea substance employed is the peroxide of mer which, if alone, may be heated to whiteness out parting with oxygen; whereas it yields readily to any combustible matter with whic ignited. It is easy, therefore, by weighing fore and after analysis, to discover the q quantity of oxygen which has entered int with the carbon and hydrogen of the sub submitted to examination. The constitue vegetable substances is not yet sufficiently to admit of their being classified in a m scientific order. The chief data hitherto towards forming a systematic arrangement rived from a remarkable agreement betwe composition and general properties of several table compounds. From the ultimate ana considerable variety of proximate princ three following conclusions are drawn: 1. table substance is always acid when it more than a sufficient quantity of oxygen t verting all its hydrogen into water; 2. it is resinous, oily or alcoholic, &c., when it c less than a sufficient quantity of oxygen for ing with the hydrogen; and 3. it is neith nor resinous, but in a state analogous to gum, starch, or the woody fibre, when the and hydrogen which it contains are in the proportion for forming water. These laws are not rigidly exact, nor do they include table products containing nitrogen. M has divided the proximate principles in classes. The first includes the vegetable the second, vegetable alkalies; the third substances which contain an excess of hy the fourth, those the oxygen and hydrogen are in proportion for forming water; and those bodies which, so far as is known, d long to either of the other divisions.

1. The *vegetable acids* are decomposed heat. They are, in general, less liable to neous decomposition than other vegetable stances. They are nearly all decomposed centrated hot nitric acid, by which they verted into carbonic acid and water. They least twenty-five in number, the most import which are the following: acetic acid, or w oxalic, tartaric, citric, malic, benzoic, gallic moroxylic, meconic and pectic acids.

2. Under the title of *vegetable alkalies* prehended those proximate principles wh possessed of alkaline properties. They a of carbon, hydrogen, oxygen and nitrogen are decomposed with facility by nitric acid heat; and ammonia is always one of the p of the destructive distillation. They occ in an insulated state in the plants which them, but are, apparently, in every case

with an acid, with which they form a salt more or less soluble in water. These alkalies are, for the most part, very insoluble in water, and of sparing solubility in cold alcohol; but they are all readily dissolved by that fluid at a boiling temperature, being deposited from the solution, commonly in the form of crystals, on cooling. Most of the salts are far more soluble in water than the alkalies themselves, and several of them are remarkable for their solubility. As the vegetable alkalies agree in several of their leading chemical properties, the mode of preparing one of them admits of being applied, with slight variation, to all. The general method is as follows: The substance containing the alkaline principle is digested, or, more commonly, macerated, in a large quantity of water, which dissolves the salt, the base of which is the vegetable alkali. On adding some more powerful salifiable base, such as potassa or ammonia, or boiling the solution for a few moments with lime or pure magnesia, the vegetable alkali is separated from its acid; and being, in that state, insoluble in water, may be collected on a filter, and washed. To purify it from certain oleaginous, resinous substances and colouring matters, it is mixed with a little animal charcoal and dissolved in boiling alcohol. This solution is filtered while hot, and evaporated to dryness, which affords the alkali in a state of perfect purity. Upwards of twenty of these bodies have already been investigated. The following are the names of those which are the most important: morphia, cinchonia, quinia, strychnia, brucia, veratria and sanguinaria.

3. *Oils* are characterized by a peculiar unctuous feel, by inflammability, and by insolubility in water. They are divided into fixed and volatile oils, the former of which are comparatively fixed in the fire, and therefore impart a permanent stain to paper; while the latter, owing to their volatility, produce a stain which disappears by gentle heat. See *Oils*, and *Essential Oils*.

4. *Resins* are the inspissated juices of plants, and commonly occur either pure or in combination with an essential oil. They are solid at common temperatures, brittle, inodorous and insipid. They are non-conductors of electricity, and, when rubbed, become negatively electric. They are generally of a yellow colour and semi-transparent. They are melted by the application of heat, and, by a still higher temperature, are decomposed. In close vessels, they yield empyreumatic oil, and a large quantity of carbureted hydrogen. In the open air, they burn with a yellow flame and much smoke, being resolved into carbonic acid and water. Resins are dissolved by alcohol, ether and the essential oils; and the alcoholic and ethereal solutions are precipitated by water, a fluid in which they are quite insoluble. Their best solvent is pure potash and soda; and they are soluble in the alkaline carbonates by the aid of heat. The product is, in each case, a soapy compound, which is decomposed by an acid. The most important are described under their respective names, in this work. *Alcohol* is the intoxicating ingredient of all spirituous and vinous liquors. It does not exist ready formed in plants, but is a product of the vinous fermentation. (See *Fermentation*.) *Ether* is a general term applied to several compounds produced from the action of acids on alcohol.

4. Those substances in which the oxygen and hydrogen are in the exact proportion for forming water, are *sugar*, *starch*, *gum* and *lignin*, all of which have been described, except the last. Lignin forms the fibrous structure of vegetable substances, and is the most abundant principle in plants. The different kinds of wood contain about 96 per cent. of lignin. It is prepared by digesting the sawings of any kind of wood successively in alcohol, water and dilute muriatic acid, until all the substances soluble in these menstrua are removed. It has neither taste nor odour, undergoes no change by keeping, and is insoluble in alcohol, water and the dilute acids. When the woody fibre is heated in close vessels, it yields a large quantity of impure acetic acid and charcoal. It consists of carbon 51·43, oxygen 42·73, and hydrogen 5·82.

5. *Substances not belonging to either of the preceding sections.* The most important of these are colouring matter, tannin, vegetable albumen, gluten, yeast, asparagin, caffein, cathartin, piperin, bitter principle, and extractive matter.

The Chemical Phenomena of Germination and Vegetation. Germination is the process by which a new plant originates from seed. A seed consists essentially of two parts—the *germ* of the future plant, endowed with a principle of vitality, and the cotyledons, or seed-lobes, both of which are enveloped in a common covering of cuticle. In the germ, two parts—the radicle and the plumule—may be distinguished, the former of which is destined to descend into the earth and constitute the root, the latter to rise into the air and form the stem of the plant. The office of the seed-lobes is to afford nourishment to the young plant, until its organization is so far advanced, that it may draw materials for its growth from extraneous sources. For this reason, seeds are composed of highly nutritious ingredients. The chief constituent of most of them is starch, in addition to which they frequently contain gluten, gum, vegetable albumen or curd, and sugar. The conditions necessary to germination are three-fold, viz. moisture, a certain temperature, and the presence of oxygen gas. The necessity of moisture to this process has been proved by extensive observation. A certain degree of warmth is not less essential. Germination cannot take place at 32° Fahr.; and a strong heat, such as that of boiling water, prevents it altogether, by depriving the germ of the vital principle. The most favourable temperature ranges from 60° to 80°, the precise degree varying with the nature of the plant—a circumstance that accounts for the difference in the season of the year at which different seeds begin to germinate. The presence of air is indispensable for the germination of seeds; but the influence of light, which is so favourable to all the subsequent stages of vegetation, is injurious to the process of germination. The operation of malting barley, in which the grain is made to germinate by exposure to warmth, air and humidity, affords the best means of studying the phenomena of germination. In preparing malt, the grain passes through four stages, called *steeping*, *couching*, *flooring* and *kiln-drying*. In the first, it is steeped in water for about two days, when it absorbs moisture, softens, and swells considerably. It is then removed to the couch frame, where it is laid in heaps, thirty inches in depth, from twenty-six to thirty hours. In this situation, the grain becomes warm, and acquires a disposition to germinate; but as the temperature, in such large heaps, would rise very unequally, and germination consequently be rapid in some portions and slow in others, the process of flooring is employed. This consists in laying the

grain in strata a few inches thick, on large, airy, but shaded floors, where it remains for about twelve or fourteen days, until germination has advanced to the extent desired by the maltster. During this interval, the grain is frequently turned, in order that the temperature of the whole mass may be uniform. As soon as saccharine matter is freely developed, germination must be arrested; since, otherwise, being taken up as nutriment for the young plant, it would speedily disappear. Accordingly, the grain is removed to the kiln, where it is exposed to a temperature gradually rising from 100° to 160°, or rather higher; the object being first to dry the grain completely, and then to provide against any recurrence of germination, by destroying the vitality of the plant. The difference between malted and unmalted barley is readily perceived by the taste; but it will be more correctly appreciated by inspecting the result of a comparative analysis of the two.

	In 100 of Barley.	In 100 of Malt.
Resin,	1	1
Gum,	4	15
Sugar,	5	15
Gluten,	3	1
Starch,	32	56
Hordein,	55	12

It hence appears, that, during germination, the hordein is converted into starch, gum and sugar; so that, from an insoluble material, which could not, in that state, be applied to the uses of the young plant, two soluble and highly nutritious principles result, which, by being dissolved in water, are readily absorbed by the radicle. In the *growth of plants*, a striking analogy to that of animals is noticeable. The root serves the purpose of a stomach, by imbibing nutritious juices from the soil, and thus supplying the plant with materials for its growth. The sap, or circulating fluid, composed of water, holding in solution saline, extractive, mucilaginous, saccharine, and other substances, rises upwards through the wood in a distinct system of tubes, called the common vessels, which correspond in their office to the lacteals and pulmonary arteries of animals, and are distributed in minute ramifications over the surface of the leaves. In its passage through this organ, which may be termed the lungs of plants, the sap is fully exposed to the agency of light and air, experiences a change, by which it is more fully adapted to the wants of the vegetable economy, and then descends through the inner layer of the bark in another system of tubes, called the proper vessels, yielding, in its course, all the juices and principles peculiar to the plant. Plants absorb carbonic acid from the air, under certain circumstances, and emit oxygen in return. When a healthy plant, the roots of which are supplied with proper nourishment, is exposed to the direct solar beams in a given quantity of atmospheric air, the carbonic acid, after a certain interval is removed, and an equal volume of oxygen is substituted for it. If a fresh portion of carbonic acid is supplied, the same result will ensue. But this change only takes place in the sunshine: in the dark, an opposite effect takes place; oxygen disappears, and carbonic acid is evolved. In the dark, therefore, vegetables deteriorate rather than purify the air, producing the same effect as the respiration of animals. Plants appear to derive a large proportion of their carbon from the carbonic acid of the atmosphere. Light is necessary to the colour of plants. The green colour of the leaves is not developed, except when they are in a situation to absorb carbonic acid and give out oxygen. With respect to the food of plants, the chief source from which plants derive the materials for their growth, is the soil. However various the composition of the soil, it consists essentially, of two parts, so far as its solid constituents are concerned. One is a certain quantity of earthy matters, such as siliceous earth, clay, lime, and sometimes magnesia; and the other arises from the remains of animal and vegetable substances which, when mixed with the former, constitute common mould. A mixture of this kind, moistened by rain, affords the proper nourishment of plants. The water, percolating through the mould, dissolves the soluble salts with which it comes in contact, together with the gaseous, extractive, and other matters, which are formed during the decomposition of the animal and vegetable remains. In this state it is readily absorbed by the roots, and conveyed as sap to the leaves, where it undergoes a process of assimilation. But, though this is the natural process by which plants obtain the greater part of their nourishment, and without which they do not arrive at perfect maturity, they may live, grow, and increase in weight, when wholly deprived of nutrition from this source. Thus it is well known that many plants grow when merely suspended in the air. Without water, plants speedily wither and die. It gives the soft parts that degree of succulence necessary for the performance of their functions; it affords two elements, oxygen and hydrogen, which, either as water, or under some other form, are contained in all vegetable products; and lastly, the roots absorb from the soil those substances only which are dissolved or suspended in water. So carefully, indeed, has nature provided against the chance of deficient moisture, that the leaves are endowed with a property both of absorbing aqueous vapour directly from the atmosphere, and of lowering their temperature during the night by radiation, so as to cause a deposition of dew on their surface, in consequence of which, during the driest seasons, and in the warmest climates, they frequently continue to convey this fluid to the plant, when it can no longer be obtained in sufficient quantity from the soil. But, necessary as this fluid to vegetable life, it cannot yield to them a principle which it does not possess. The saccharine matter which accumulates in plants under the circumstances above alluded to, may with certainty be attributed to the atmosphere, since we know that carbonic acid exists there, and that growing vegetables have the property of fixing carbon from that gas. When plants are incinerated their ashes are found to contain saline and earthy matters, the elements of which, if not the compounds themselves, are supposed to be derived from the soil. Such, at least, is the view deducible from accurate researches and from chemical principles. Some later experiments, however, would seem to lead to a different conclusion. Several kinds of grain, such as barley, wheat, rye and oats, with flowers of sulphur, were supplied with pure air, light, and distilled water; on incineration, the plants thus treated, they yielded a greater quantity of saline and earthy matters than were originally present in the seeds. These results may be accounted for in two ways. It may be supposed, in the first place, that the foreign matters were introduced accidentally from extraneous sources, as fine particles of dust floating in the atmosphere; or, secondly, it may be conceived, that the

derived from the sulphur, air and water, with which the plants were supplied. If the latter opinion be adopted, we must infer either that the vital principle, which certainly controls chemical affinity in a surprising manner, and directs this power in the production of new compounds from elementary bodies, may likewise convert one element into another; or that some of the substances supposed by chemists to be simple, such as oxygen and hydrogen, are compounds, not of two, but of a variety, of different principles. But as these conjectures are at variance with the facts and principles of chemistry, it would appear that some error must have been committed in the experiments. For an account of the spontaneous changes to which vegetables are liable, see the article on *Fermentation*; see also the article *Plants*.

VEGETABLES. See *Plants*.

VEGETATION. The wide extension of vegetable life furnishes one of the most striking examples of the productive power of nature. Every climate has its peculiar vegetation. The coldest countries are not entirely destitute of it, and it has been thought by naturalists that even perpetual snow is the abode of some species of vegetables. Saussure discovered in it a reddish dust, and the navigators in the arctic regions frequently observed in it a red colouring matter, supposed to belong to the order *algæ*. The absence of light does not altogether prevent vegetable existence. Caverns and mines produce certain plants, principally those of the cryptogamous class. Vast fields of marine plants spring from the depths of the ocean, especially towards and within the tropics. The vine-leaved fucus vegetates at the depth of two hundred feet. The surface of the Atlantic, in some parts, is covered with masses of floating fuci, which are supposed by botanists to grow at the bottom of the sea, and to be torn off when ripe by the motion of the waters. Extreme heat is not destructive of vegetation, provided it be accompanied by humidity. Plants grow not only on the borders, but even in the waters, of hot springs. The greatest obstacle to vegetation is the absence of moisture. Those sandy tracts where rain seldom or never falls, and where the soil is constantly shifted about by the winds, exhibit a complete sterility. The chemical nature of the soil influences the size and vigour of plants, rather than sets limits to their cultivation: common salt, however, dissolved and scattered over the earth, almost entirely prevents their growth. The scale of atmospherical heat is what ordinarily determines the character and progress of vegetation. In the torrid zone, therefore, it is only necessary to ascend mountains to a certain height, to find the trees, fruits and flowers of the temperate zone, and, still higher, those of the frigid zone. (See *Mountains*, and *Temperature*.) The vegetation which covers the sides of mountains, thus forms distinct zones or bands, each having its peculiar vegetable tribes. On the volcano of Teneriffe, for example, five of these zones have been distinguished: 1. the region of vines; 2. of laurels; 3. of pines; 4. of the alpine broom; and, 5. of grasses. In the equinoctial regions, where the seasons differ little in respect of heat, the geographical distribution of plants is regulated almost entirely by the mean temperature of the whole year; but, in the temperate zone, this distribution depends more upon the mean temperature of the summer season. Some plants only require a certain degree of heat for a short period, while for others a more moderate heat is sufficient, if of longer duration. Thus the birch does not put forth leaves under a temperature of 53° or 54°; but the pine requires a long rather than a warm summer. In Lapland, therefore, where the summer, though short, is warm, the birch rises nearer the line of perpetual congelation than the pine; but in the Alps and other high chains in low latitudes, where the summer is longer, but colder, the pine is seen after the birch has disappeared.

The frigid zone contains but few species of plants; yet of these the vegetation in summer is extremely rapid. The verdure of countries within the polar circle is confined chiefly to southern aspects, and the trees are of diminutive growth. Besides mosses and lichens, there exist ferns, creeping plants, and some shrubs yielding berries. In the high latitudes of the northern temperate zone are the pine and the fir, which show their adaptation to a cold climate, by retaining their verdure through the rigours of winter. Advancing southward, we meet successively the oak, the elm, the beech, the lime, and other forest trees. Several fruit-trees, amongst which are the apple, the pear, the cherry, and the plum, grow better in the northern half of this zone; while to its more southern parts especially belong the more delicate fruits, such as the olive, the lemon, the orange and the fig, and, amongst trees, the cedar, the cypress and the cork. The space comprised between the thirtieth and the fiftieth parallels of latitude may be considered as the country of the vine and the mulberry. Wheat extends as far north as the sixtieth degree; oats and barley a few degrees farther. In the southern part of this zone, maize and rice are more commonly cultivated. The vegetation of the torrid zone is characterized by a wealth, variety and magnificence no where to be found in the other regions of the globe. Under the beams of a tropical sun, the most juicy fruits and the most powerful aromatics arrive at perfection; the ground there yields the sugar-cane, the coffee-tree, the palm, the bread-tree, the pisang, the baobab, the date, the cocoa, the vanilla, the cinnamon, the nutmeg, the pepper, the camphor-tree, &c. The cow-tree of South America yields vegetable milk. There are also various sorts of dye-wood, and several species of corn, peculiar to hot climates; while the elevated tracts of these regions produce the plants of the temperate countries. The vegetable forms near the equator are in general more majestic, and their colouring more brilliant, than in higher latitudes. The largest trees are adorned with flowers, larger, more beautiful, and more odoriferous, than those of herbaceous plants in our zone.

The distribution of plants cannot be explained solely by the influence of climate, or by the distribution of temperature; for it frequently happens, that similar climates are found in different parts of the globe, without identity of production. The climate of the high mountains of the torrid zone is analogous to that of the temperate zone; yet Humboldt did not discover one indigenous rose-tree in all South America; and this shrub is entirely wanting in the southern hemisphere. The genus *erica* (heath) is peculiar to the old world, not one of the 137 species known being found in the new. On the other hand, the *cactus* (Indian fig) is confined to the new world. According to Humboldt, the species of plants at present known amount to 44,000. Of these, 6000 are cryptogamous. The remaining 38,000

phanerogamous plants are thus distributed: In Europe, 7000; temperate regions of Asia, 1500; tropical and insular regions of Asia, 4500; Africa, 3000; temperate regions of America, 4000; tropical regions of America, 13,000; Pacific islands, 5000. A remarkable circumstance in the distribution of plants is the extreme rarity of the social plants (that is, those which, like the heath, live together, and cover large tracts of land) between the tropics, where they are found only on the sea shore and upon elevated plains. Among the vegetable forms, there are some which become more common from the equator towards the poles, as the ferns, the heaths, and the rhododendrons; others, on the contrary, increase from the poles towards the equator, as the *rubiaceæ*, the *euphorbiæ*, and the leguminous plants; while others, such as the *cruciferæ*, the *umbelliferæ*, &c., are most abundant in the temperate zone, and diminish in number towards the poles and the equator. Such constant relations prevail in respect of vegetable forms, that when, upon any point of the globe, we know the number of species belonging to one of the great families, both the whole number of phanerogamous plants, and the number of species composing the other vegetable families, may be estimated with considerable accuracy. It has been a question much discussed among philosophers, in what way the various vegetable tribes were originally diffused over the surface of the earth; and three different hypotheses have been proposed. Linnæus supposed a single primitive centre of vegetation, whence all species of plants have been gradually dispersed over the globe by winds, rivers, currents, animals, &c. A second hypothesis is, that each species of plants originated in a primitive centre, of which there were several in different parts of the globe, each being the seat of a particular number of species. The third hypothesis is, that, wherever a suitable climate existed, there the vegetable tribes sprang up, and that plants of the same species were, from the first, spread over different regions.

VEGETIUS RENATUS, Flavius, the most celebrated of the Roman writers on the military art, flourished towards the end of the fourth century, in the reign of the emperor Valentinian II. He is supposed to have been an inhabitant of Constantinople, but nothing certain is known of his history. The work of Vegetius *De Re Militari* is to be found in various editions of the *Veteres de Re Militari Scriptores;* and it has been often printed separately. Among the best editions are those of Schwebel (Nuremberg, 1767, 4to.; and Strasburg, 1806, 8vo.).

Publius Vegetius, who, notwithstanding the difference of prænomen, has been confounded with the military tactician, was a writer on farriery. His work, entitled *Artis Veterinarii sive Mulomedicinæ*, lib. iv., was first printed at Basle in 1528; but the best edition is that of J. M. Gesner (Manheim, 1781, 8vo.) This treatise is likewise included in the *Scriptores Rei Rusticæ*.

VEHME. See *Fem*.

VEII, on the river Cremera, one of the twelve Etrurian cities, which were under the government of their own *lucumones*, early became involved in hostilities with the inhabitants of the neighbouring Rome, which was of a more recent origin. A post near Cremera, which the Fabii were employed to defend, was intended to check the attacks of the inhabitants of Veii. A war was the consequence, in which the Fabii were defeated; but the Romans were afterwards victorious, at the moment they intended to retreat. The siege of Veii sued (349—358 A. U. C., or 396 B. C.), and ten years, until Camillus, who had been appointed dictator, penetrated through a mine into the and slaughter and outrage were the punishment the long resistance of the people. (Livy v. 23.) Camillus carried even the statue of Juno protectress of Veii, to Rome, where a temple erected to her on the Aventine hill. Veii was completely laid waste, that, 400 years later, grazed on its ruins (Propertius, iv. 10, vv. 2 and in modern times, the very site of the city has been a subject of much dispute. account of the distance of Veii from Rome seems to agree best with the situation of Lupoli, along the Cassian road, in the wood of Ocano, the charming situation of which remains spectator of Athens. Cæsar established a Roman colony at Veii; but the Goths and Lombards stroyed it.

VEIN. See *Blood-Vessel*, and *Heart*.

VELASQUEZ, or DON DIEGO VELASQUEZ DE SILVA, an eminent Spanish historical portrait painter, was born at Seville in 15[illegible] studied under Herrera and Pacheco, and his efforts were employed on familiar and domestic subjects, until the sight of some of the pictures the Italian masters inspired him with loftier ideas. He was in particular charmed with the colouring of Caravaggio, whom he began to make his model, and his success in that style equalled his most sanguine expectation. Having spent five years with Pacheco, he repaired to Madrid, and obtained the patronage of the duke d'Olivarez, who introduced him to Philip IV., by whom he was appointed principal painter (1623). While in that situation Rubens arrived at Madrid, and recommended him to spend some time in Italy; which advice he followed, and acquired such an improvement in correctness, composition and colouring, as placed him at the head of his profession. On his return to Spain (1631), he was received with the most flattering distinction; and he was, some time after (1648), employed by the king to make the tour of Italy, and procure a collection of pictures and statues. After his return to Spain (1651), Velasquez painted the royal family in a picture, known by way of distinction, The Family, with which the king was so much pleased, that he raised him to the dignity of a noble (1658). His compositions are remarkable for their strong expression, freedom of pencil, and admirable tone of colouring. Among his best works are the Aguador, or Water-carrier, now in the palace of Madrid; the Brothers Joseph; Job; Moses taken from the Nile; Lot and his Daughters; the Expulsion of the Moors by Philip III.; with many portraits and pictures from common life. He died in 1660.

VELASQUEZ DE VELASCO, Louis José, marquis of Valdeflores, a Spanish historical writer, was born at Malaga in 1722, and, after completing his studies, was employed by Ferdinand VI. to collect materials in Spain illustrative of the natural history of the country. He left many materials in manuscript, and published *Origines de la Poesia Española* (Malaga, 1754), with some other works of value. He died in 1772.

VELD; a Dutch word, signifying the same as the German *Feld* (English *field*), and appearing in a number of geographical names.

VELDE, William van der, called the Old

of a distinguished family of painters, was born at Leyden in 1610. He was originally bred to the sea, but afterwards studied painting, and retained enough of his former profession to make it the source of his future fame. He became early distinguished for his excellence in marine subjects, which induced him to go to England with his son, both of whom entered into the service of Charles II. He is said to have repaid this service more gratefully than patriotically, by conducting the English fleet to burn Schelling. He was so much attached to his art, that, in order to be a near spectator of sea engagements, he hired a light vessel, in which he approached both friends and enemies, in order to sketch all the incidents of the action upon the spot; and in this manner he is said to have been a spectator of the engagement between the duke of York and Opdam, and of the memorable three days' engagement between Monk and De Ruyter. He chiefly painted in black and white, on a ground so prepared on canvass, as to give it the appearance of paper. He died at London in 1693. See Walpole's *Anecdotes*.

VELDE, WILLIAM VAN DER, called the *Younger*, was born at Amsterdam, in 1633, and was the son of the preceding. After being carefully instructed by his father, he was placed under Simon de Vlieger, a celebrated painter of sea pieces, who, however, was far surpassed by his pupil. His subjects were similar to those of his father, whom he surpassed; and, in fact, no age, since the revival of art, has produced his equal in his own peculiar line, of which Walpole calls him the Raphael. He was, equally with his father, a copyist of reality, and, by order of the duke of York, attended the engagement at Solebay in a small vessel; as also the junction of the English and French fleets at the Nore. The principal performances of this admirable artist are chiefly to be found in the royal collections and cabinets of England. He died April 6, 1707, in his seventy-fourth year. See Walpole's *Anecdotes*.

VELDE, ADRIAN VAN DER, a celebrated Dutch landscape painter of the seventeenth century, was born at Amsterdam, in 1639, and died in 1672. He is one of the best painters of landscapes. He is also known for having painted the figures and animals in the landscapes of other artists, e. g. of his teacher Moucheron, Van der Hayden, &c. He also painted some large historical pieces.

VELDE, FRANCIS CHARLES VAN DER, author of many historical novels, was born in Breslau, in 1779. He studied law, and held a judicial office in his native city, at the time of his death, in 1824. He has been called the German Walter Scott; but the historical element predominates much more in his novels than in Scott's. His complete works, with his biography, were published at Dresden in 1824, in 25 vols.

VELDECK, HENRY. See *Minnesingers*.

VELEDA, VELLEDA; a German prophetess in the country of the Bructeri, in the first century, much feared by the Romans, as she exercised a great influence over her countrymen. Her history is enveloped in darkness.

VELIKI (Russian for *great*) is prefixed to many geographical names, to distinguish certain places from others of the same name, which have the epithet *malo* (little).

VELINO. See *Terni*.

VELITES, in Roman antiquity; young, light foot-soldiers, who fought in front of the lines, and retreated, if necessary, between the members of the first line *(Hastati)* Napoleon introduced troops of this name into the regiments of infantry; and in the hussar regiments of Hungary there are also men called *velites*. The French sometimes call a skirmish a *velitation*.

VELLEIUS, PATERCULUS. See *Paterculus*.

VELLUM; a writing material, resembling fine parchment. It is made of calf-skin, extended and drawn to a proper thinness when green. Parchment is made of sheep-skins in like manner. See *Parchment*.

VELOCIPEDE (in German *Draisine*, because invented by a Mr Drais, in Manheim, in 1817) is a vehicle consisting of a piece of wood about five feet long and half a foot wide, resting on two wheels, one behind the other. On this an individual sits, as on horseback, so that his feet touch the ground, he propels the machine by pressing his feet slightly against the ground, and keeps his balance in the same way. The latter is the principal difficulty of beginners. In front of the saddle is a rest for the arms. The front wheel may be turned at pleasure, so as to enable the rider to give any direction to the machine. Knight, in England, improved it, and received a patent for it. On level ground a rider may perform five miles in an hour with ease.

VELOCITY. See *Mechanics*.

VELVERET; a species of cotton velvet. See *Velvet*.

VELVET; a rich kind of stuff, all silk, covered on the outside with a close, short, fine, soft shag, the other side being a very strong close tissue. The nap or shag, called also the *velveting*, of this stuff, is formed of part of the threads of the warp, which the workman puts on a long, narrow-channelled ruler or needle, which he afterwards cuts by drawing a sharp steel tool along the channel of the needle to the ends of the warp. Florence, Genoa, and some other cities of Italy, are most noted for the manufacture of velvet. There are cotton velvets manufactured in imitation of the silk ones in England. See *Silk*.

VENA CAVA. See *Heart*.

VENAISSIN, COMTAT DE (*county of Venaissin*); a country of France bounded north by the Drome, east by Lower Alps, south by Mouths-of-the-Rhone, and west by the Rhone, which separates it from Gard; about twelve leagues in length and seven in breadth. It takes its name from *Venasque*, the *Vendasca* or *Vendasca* of the ancients. The popes laid claim to the sovereignty of this country, from the time of count Raymond de St Giles. This country now belongs to France, and forms part of the department of Vaucluse.

VENALITY OF OFFICES, in France. See *Paulette*.

VENCESLAUS. See *Wenceslaus*.

VENDEE, a department in the western part of France, formed from the ancient Poitou (see *Department*), and deriving its name from the river Vendée, is bounded by the departments of the Lower Loire, of the Two Sévres and of the Lower Charente, and by the Atlantic ocean. In the beginning of the revolution of 1789, the inhabitants of this part of the country, who were attached to the royalist cause, maintained a war against the republican government, which had there been more concert among the Vendean leaders, or had foreign powers employed the opportunity judiciously, would have endangered the existence of the new republic. The scene of the war, familiarly called *Le Bocage* (the thicket), lay in three contiguous departments along the Loire, and was well calculated for maintaining a partizan warfare. It contains numerous

small-woods and thickets, and is much intersected by ditches and small canals. The Vendeans were a simple and ignorant race, attached to old usages, devotedly fond of the nobility of the province, and easily led by the clergy. The immediate occasion of the war was the resistance of the people to the operation of the conscription laws, in 1793. Cathelineau, a wagoner, at the head of 100 of his comrades, having overpowered a small body of republican troops, and taken possession of their arms, was encouraged to further enterprises; and similar risings took place at different points, but without any general co-operation. A wig-maker, Gastou, led the insurgents in the department of Vendée, and, having fallen soon after, was succeeded by Charette. Stofflet, a gamekeeper, led another band. The insurgents were at first armed only with scythes, clubs, and pikes: but they soon obtained arms, by surprising detachments of the republican forces. Their knowledge of the country, and their excited enthusiasm, gave them advantages over their enemies, who were chiefly raw troops, and not always zealous in the cause of the republic. As soon as an enterprise was accomplished, the Vendean peasants immediately dispersed to their homes, and assembled again at a minute's warning. The young De la Rochejaquelein gained several advantages at the head of one of the bands. The number of the insurgents was gradually increased by the accession of emigrants and royalists from other parts of the country, and they had become possessed of regular arms. The convention, therefore, found it necessary to send troops of the line against them. June 24, the Vendeans took Saumur, and now received encouragement, but no effectual aid from abroad. Between the 19th and 23d of September (1793), several actions took place, of which that at Chollet was the most sanguinary, all to the disadvantage of the republican forces. But disunion began to prevail among the Vendeans. Charette, at the head of his followers, separated from the other insurgents, who were now hard pressed by the republican forces, and, deceived by expectations of aid in Brittany, took the imprudent step of crossing to the right bank of the Loire. They were equally disappointed in their hopes of assistance from England, which had induced them to approach towards the coast near Avranches, and were finally compelled to attempt a retreat over the Loire, after several bloody engagements. They reached the river towards the end of December, but were unable to effect a passage; and the battle of Savenay (Dec. 24), after which the Vendean army was entirely dispersed, concluded the campaign. The war had all along been conducted with great cruelty, and the fate of the surviving Vendeans and their families was dreadful. They were dragged in crowds to Nantes, where the monster Carrier, to whom the severe orders of the convention appeared too mild, and the ordinary modes of execution too slow, caused them to be drowned in masses (*noyades*). The convention now looked upon the war as ended; but, in the spring of 1794, La Rochejaquelein (who soon, however, fell) and Stofflet assembled new bodies of insurgents in Vendée, and Charette was at the head of his forces on the coast. At the same time, the Chouans appeared on the right bank of the Loire, in the departments of Morbihan and Côtes du Nord. They pretended the same zeal for religion, royalty, and the nobility, but did not always make common cause with the Vendeans, with whom they must not be confounded. The events of this campaign were not so decisive as the the preceding; but the obstinacy of the insurgents convinced the convention that Vendée could be conquered by arms. After the fall of Robespierre, the insurgents were therefore invited, at the suggestion of Carnot (Dec. 1794), to return to their homes, with promises of pardon and oblivion of the past. In February, 1795, the deputies of the convention, and some of the Vendean leaders, among whom were Charette and Sapineau, agreed to the following conditions:—that a general amnesty should be granted, the Vendeans should acknowledge the authority of the republic, and should enjoy the unmolested exercise of their religion, freedom from military service, and indemnification for their losses; and Stofflet and the Chouans also acceded to these terms. But the peace was of short duration. The landing of some thousands of French emigrants at Quiberon, June 27, 1795, encouraged the Vendeans to resume their arms. Charette declared, in a manifesto issued on the occasion, that the republicans had broken the treaty, and mentioned the death of the son of Louis XVI., which occurred at about this time, as the ground of this accusation. But the expedition to Quiberon, from which so much was expected, was rendered entirely ineffective (Sept. 21) by the activity of General Hoche who continued the war in Vendée, with great mildness towards the inhabitants. He spared no efforts, however, to get possession of the persons of the leaders. Stofflet was taken Feb. 24, 1796, and shot at Angers. Charette, who was able to collect but few followers, wandered about some time, but was finally taken in March (23), and shot three days afterwards at Nantes. With the death of this leader, the three years' war of the Vendée terminated. The other leaders soon submitted unconditionally to the republic. Peace and order were gradually restored, and the government treated this part of the country with mildness, but not without mistrust. In the winter of 1799—1800, some symptoms of revolt appeared; but the troubles were quieted by prudent and vigorous measures. In 1814 and 1815 some risings took place in favour of the Bourbons, but nothing decisive occurred. See the memoirs of general Aubertin, and those of general Turreau, in the collection entitled *Mémoires des Marches de France*, and the *Guerres des Vendéens et des Chouans* (Paris, 1824—27, 6 vols.). The memoirs of madame de la Rochejaquelein contain vivid pictures of the events in Vendée.

VENDEMIAIRE. See *Calendar*.

VENDOME, THE FAMILY OF, is descended from the natural children of Henry IV. and the beautiful Gabrielle d'Estrée, who bore him two sons, Cæsar and Alexander Vendôme. One of their descendants was Louis, duke of Vendôme, the celebrated general of Louis XIV. He was born in 1654, and entered the military service, and received, in 1702, the command of the French army, in the war of the Spanish succession. After having distinguished himself in Italy, Tyrol and Belgium, the duke of Burgundy was placed over him; and the disagreement of the two commanders caused the defeat of the French at Oudenarde (July 11, 1708). Through the influence of madame de Maintenon, the two experienced generals were displaced if they dared to displease her, and Vendôme was now recalled; but when the affairs of Philip V., in Spain, began to wear a threatening aspect, the Spaniards requested Louis XIV. to send them Vendôme.

arrival changed the state of things. December 9, 1710, he defeated the Austrian general Stahremberg at Villaviciosa; and, having re-established Philip's throne, he died in 1712, and was buried in the Escurial. His brother Philip was grand prior of the order of the knights of Malta, in France. He was born in 1655, served in the Spanish war of succession, and died in 1724.

VENERABILE, with the Catholics; the consecrated host, which, during the religious service, is placed in a little box called *pyx*; at certain other times it is put on the altar for adoration, or is carried about in procession, or publicly borne by a priest to a dying person, in Catholic countries.

VENEREAL DISEASE. See *Syphilis*.

VENERONI, JOHN; a native of Verdun, whose proper name was Vigneron. Having engaged in the profession of an Italian master at Paris, he adopted the name by which he is usually designated, that he might pass for a native of Florence. He published an Italian Grammar and an Italian and French Dictionary, and some translations of Italian authors; also the *Dictionnaire Manuel, en quatre Langues, François, Italien, Allemand et Russe* (Moscow, 1771, 8vo.). The Grammar of Veneroni is now held in little estimation: his Italian Dictionary has been superseded by that of Alberti. From the dates of his publications, it appears that he lived in the latter part of the seventeenth and the beginning of the eighteenth centuries.

VENETIAN SCHOOL. See *Italian Art*, and *Paintings*.

VENEZUELA; a republic of South America, bounded north and east by the Caribbean sea and the Atlantic, south by Brazil, and west by New Grenada, or Colombia. Its history, previous to its late separation from Colombia, has been given in the article *Colombia* (see, also, *Paez*), with a more particular account of its geography. The most remarkable natural feature of this country is the great river Orinoco. The lakes are Maracaybo and Valencia. The northern part is mountainous. The chain of the Andes traverses the whole country, in the direction of its shores. In the southern parts, on the Orinoco and its branches, are immense plains. The climate in the plains, or *llanos* (see *Llanos*, and *Llaneros*), is hot, and, in some parts, unhealthy. The productions are sugar, coffee, indigo, cotton and tobacco. The plains on the Orinoco furnish extensive pastures, which feed numerous herds of cattle.

VENI, SANCTE SPIRITUS (*Come, Holy Spirit*); the name given to a mass, celebrated by Catholics, to invoke the assistance of the Holy Ghost. It was celebrated in France at the opening of the sessions of the two chambers, but was abolished in 1830, soon after the revolution of that year.

VENICE (in Italian, *Venezia*). When the Visigoths, the Huns (under Attila, 452) and the Lombards (568) poured into the Roman empire, and particularly into Upper Italy, which, even in the times of ancient Rome, was called *Venetia*, many of the poorer inhabitants took refuge on the islands in the lagoons of the Adriatic sea, particularly in the island of Rialto, which had already been somewhat built upon by the Paduans for commercial purposes. These emigrants established here a small democratic republic, under magistrates called *tribunes*. In 697 A. D., the islands elected their first *dux*, or doge, in the person of Paoluccì Anafesto. The doge had the executive, the people the legislative, the tribunes, or nobility, the judiciary power. The seat of government was afterwards in Malamacco, and, in 737, in Rialto, where, in a short period, a populous city arose out of the sea. This was the modern Venice, which soon became powerful by commerce and navigation, and ruled over the Adriatic sea. Commercial privileges in Rome and Constantinople promoted its prosperity, and the city was not long satisfied with the possession of the lagoon islands and the neighbouring coasts, but made conquests in Istria and Dalmatia. As early as the wars with the Saracens, in the ninth century, the Venetians had become skilled in maritime warfare, by their struggles with pirates; and for this reason the cities of Dalmatia put themselves under their protection, about the year 997. Venice gained exceedingly by the crusades, and became not only the richest, but also the most powerful city of Lombardy, in which the treasures of all the East were collected. But the aristocracy already strove to oppress the people, and the doge endeavoured to increase his power; hence repeated insurrections of the people. At length, after the assassination of the thirty-eighth doge, Vitali Michieli, in 1172, the constitution was so changed that the arbitrary power of the doge was limited, and the supreme authority was given to a numerous assembly of *nobili*, and strict laws were made to keep them within bounds. Under this limited aristocracy, the laws and government were improved. Manners became milder, and the arts began to flourish. The commercial power of the republic received its greatest extension under the doge Enrico Dandolo. This distinguished statesman and general, in the crusade undertaken by the Venetians, French and others, took Constantinople in 1202, at the head of a Venetian fleet, and acquired for the republic the possession of Candia and several Ionian islands, and others in the Archipelago. But after the restoration of the Byzantine empire, in 1261, the East India trade passed from Constantinople to Alexandria; and the Genoese, who had greatly assisted in the destruction of the Latin empire, possessed themselves of the commerce in the Byzantine empire, which had been in the hands of the Venetians. In 1297, the doge Gradenigo introduced hereditary aristocracy, since the ancient great college of nobles, who shared the government with the doge, and were elected annually, declared themselves a permanent body of hereditary aristocrats (consisting of the noble families, whose names are entered in the "golden book"). At the same time, the establishment of the fearful council of the Ten must be considered as one of the causes which finally brought on the ruin of Venice. In the mean time, the republic extended her possessions more and more widely on the continent, particularly after her rival, the republic of Genoa, had been obliged to yield, in 1381, after a struggle of 130 years for supremacy in Lombardy. Vicenza, Verona, Bassano, Feltre, Belluno and Padua, with their territories, came under the power of Venice in 1402, Friuli in 1421, Brescia, Bergamo and Crema in 1428, and the islands of Zante and Cefalonia, in 1483. At last, the wife of James, the last king of Cyprus, Catharine Cornaro, a Venetian lady, ceded that beautiful country to her native republic in 1486. The senate of Venice, at that time, reminds the student of the ancient Roman senate. Other states made it their model: they even solicited for Venetian counsellors and leaders. Towards the end of the fifteenth century, Venice was rich, powerful, honoured, comprising

the most civilized people on earth, and devoted to the arts and sciences. But her political wisdom degenerated into a petty prudence and cunning. A grand inquisitor was necessary for the preservation of the republic. Circumstances also happened, which no prudence could avert. The Portuguese discovered the way by sea to the East Indies in 1498, and Venice entirely lost the commerce of the Indies by the way of Alexandria: the Turks had become masters of Constantinople, and overpowered all which stood in their way; they conquered, by degrees, all the possessions of Venice in the Archipelago and in the Morea, and even Albania and Negropont. But the republic saved herself, by skilful negotiations, from the danger with which the league of Cambray threatened her in 1508. This war, however, had much impaired her power. The Turks tore Cyprus from Venice in 1571, and, after a struggle of twenty-four years, Candia also, in 1699; but some fortresses on this island held out till 1715. The possession of the Morea, which had been reconquered in 1699, was required to be given up by the peace of Passarowitz, in 1718; yet the republic succeeded in preserving Corfu and Dalmatia. From this time, Venice no longer took part in the great political events, and was satisfied with preserving her antiquated constitution and her territory, which yet contained three millions of inhabitants. Thus she succeeded, by treaties with the Barbary powers, in 1763, in securing the inviolability of her flag, and established her rights of sovereignty against Rome in 1767 and 1769. But in the French revolutionary war, she became, in 1797, a victim to the French power. She excited a general insurrection on the *terra firma*, at the moment when Bonaparte entered Stiria, and the French were attacked in the rear; but Austria concluded the preliminaries of peace at Leoben, and the republic was annihilated. It was now of no avail to change the aristocratic constitution into a democratic. Venice was destined to be sacrificed. The peace of Campo-Formio gave the whole territory east of the Adige, with Dalmatia and Catarro, to Austria; that west of the Adige to the Cisalpine republic (at a later period, the kingdom of Italy), to which, in 1805, the Austrian part of Venice and Dalmatia was added, yet without the islands in the Levant. Since 1814, Venice, with its territory, has formed a part of the Lombardo-Venetian kingdom, belonging to Austria. (See *Lombardy*, and *Lombardo-Venetian Kingdom*.) Istria, however, with some islands in the gulf of Quarnaro, was added to the *littorale* of the government of Trieste, and Dalmatia, with the islands belonging to it, to the government of Dalmatia. Into the most interesting part of the history of Venice—that of her domestic politics—our limits will not allow us to enter.

The chief works relating to the history of this republic, which is famous also in the annals of the fine arts, are Tentori's *Saggio sulla Storia di Venezia* (Venice, 1785—90, 12 vols.); La Beaume's *Hist. abrégée de la Rép. de Venise* (Paris, 1810, 2 vols.); Tentori's *Raccolta cronolog. ragionata di Documenti inediti, che formano la Storia diplomatica della Caduta della Rep. di Venezia* (Augusta, 1799, 2 vols., 4to.); Daru's *Hist. de la Républ. de Venise* (7 vols., Paris, 1819; 4th ed., 1827). In this work, the statutes of the Venetian political inquisition are printed for the first time. For an account of the constitution of Venice, see, also, Lacroix's *Review of the Constitutions, &c.* For a review of the Venetian historians, see Ranke's *Zur Kritik neuerer Geschichtschreiber* (Leipsic and Berlin, 1824); see, also, his *Fürsten* and *Völker von Süd-Europa* (Hamb., 1827), and his *Ueber die Verschwörung gegen Venedig im* 1618 (Berlin, 1831).

Venice (Italian, *Venezia*); capital of the government of Venice, in the Lombardo-Venetian kingdom, once the queen of the Adriatic, and yet one of the most remarkable cities of Europe. A city of this extent, built entirely on small islands, and having canals instead of streets, boats instead of cars, and black gondolas instead of coaches, is unique in its kind. It is situated in lon. 12° 21′ E. lat. 45° 26′ N., and is built according to some, on ninety, according to others, on seventy-two islands, separated from the continent by the lagoons (a wide and shallow arm of the sea), and connected with each other by 450 bridges, among which is the magnificent Rialto, consisting of a single arch, 152 feet long and 43 wide. The houses, among which are numerous palaces, many of them decaying, and magnificent churches, adorned with precious monuments of Mosaic work, and splendid pictures of the Venetian school (e. g. the church of St Maria della Salute and St Giovanni Paolo), are mostly built upon piers, and almost all of them stand with their front towards the canals, which form wide and free passages, whilst the real streets are hardly passable for three persons on foot abreast. There are forty-one public places, indeed, but only the place of St Mark, surrounded by arcades, and ornamented with two high columns, deserves the name. Here stands the church of St Mark, an ancient edifice in the Byzantine style, ornamented within with Oriental magnificence. Here, says the legend, rests the body of St Mark the Evangelist, which, according to tradition, was brought from Alexandria, in Egypt, under the doge Giustiniano. In front of the same are the antique horses, once the ornament of Constantinople, lately of Paris, and now again of Venice. The former palace of the doge, at present the seat of the Austrian government, is in the Gothic style. It contains the political prisons, or lead roofs (*piombi*), and the bridge of Sighs (the reader will remember Byron's verses, beginning, "I stood, in Venice, on the bridge of Sighs"); but the lion's mouth, with the inscription *Denunzie Secrete* (secret denunciations), has disappeared. Also the library, which has been described by its superintendent, the abbate Morelli, is in this palace. (See *Libraries*.) The place of St Mark is the only walk of the Venetians, the place of meeting of foreigners and adventurers. The arsenal, one of the greatest curiosities of the city, is on an island, surrounded by high walls and towers. It contains every thing necessary for fitting out a fleet—good docks, well provided magazines, manufactories of cordage and sails, cannon founderies and forges. The stranger is yet shown here the richly gilt galley, called *Bucentaur*, in which the doge, from the year 1311, was accustomed to get out into the sea annually on Ascension day, to throw a ring into the water, and thus to marry, as it were, the Adriatic, as a sign of the power of Venice over that sea. Besides the patriarchal church, and twenty-nine other Catholic churches, there are here churches of the United Greeks, Armenians and Protestants. In the ancient church De' Frati, a monument was erected, in 1827, in honour of the famous Canova (q. v.) Contributions were furnished, for this purpose, from many parts of Europe, and even from America. The Jews have seven synagogues.

Among the public institutions are the Conservatorio di Pietà, in which several hundred girls receive instruction in music, and in which, also, the celebrated artificial flowers of wax are made; the conservatory of music, with funds for the education of twenty-four pupils, which formerly produced excellent performers; the imperial and royal library, the academy of fine arts, the school of navigation, the Armenian college, which prints, at an Armenian convent in this place, the Armenian newspaper, which is much read in the Levant, &c. The number of houses is stated to be 15,000, and that of the inhabitants 150,000. The principal manufactures are of cloth, linen, silk, gold and silver cloths, masks, artificial flowers, gold wire, and other works in gold, soap, wax, theriac, and chemical preparations; also copper and brass ware, leather, catgut and wire strings. Considerable ship-building is carried on. In the manufacture of glass, Venice was formerly the teacher of Europe, but at present is surpassed by other countries: the telescopes, spectacles and beads made here, however, are justly esteemed. On the whole, though the manufactures have much declined, and the commerce still more, Venice yet remains one of the most important commercial places of the Adriatic sea. In 1817, 1050 vessels, under the Austrian flag, left this port, and 2653 entered it, besides 315 foreign vessels. The value of the merchandise imported was 34,000,000 lire. The port is spacious, but the entrance is difficult, on account of the shallowness of the channels and the constantly fluctuating sand. To Venice belong the islands of Giudecca, St Giorgio, St Helena, St Erasmo, Il Lido di Malamocco, Michele and Murano. These are mostly inhabited by artists, manufacturers and mechanics, and might be called the suburbs of the city. Here, also, excellent vegetables are raised. Formerly, Venice had neither fortifications nor garrison, and was strong merely by its situation: at present, there are fortifications on the side towards the mainland, and a strong garrison defends the city. Social life is at present almost extinct, and Venice appears like the corpse of the former city. It is enlivened only by the gayety of the carnival. The theatres are beautiful, but the arts do not flourish. J. Ch. Maier has written the most complete work on Venice. See Moschini's *Guida per la Città di Venezia*, &c. (Venice, 1815, 2 vols., with engravings); Martens's *Journey to Venice* (2 vols., Ulm, 1824, with maps and engravings); also *Venice and its Environs*, by Jäck (Weimar, 1823). The first and the two last works are in German.

VENICE, Gulf of. See *Adriatic Sea*.

VENOMOUS ANIMALS. The venomous serpents form about one-fifth or one-sixth of the whole class of snakes, and are distinguished especially by the two long poison fangs, which take the place of the first or exterior of the three rows of teeth, found in the upper jaw of the innocuous species. At the root of these fangs is situated a small sac, containing the venom, and opening into the fangs, through which it is ejected by the pressure caused by the action of biting. The extraction of the fangs, or the removal of the sac, destroys their power of inflicting an envenomed wound. (See *Serpents*, *Rattlesnake*, and *Cobra da Capello*.) The symptoms resulting from the bite of all venomous snakes are nearly the same. Pain in the bitten part, extending towards the heart, stupor, cold sweats, pallor, and lividity of countenance, and gangrene of the bitten part, are indications of such venomous bites. The best manner of treatment is to put a ligature upon the limb that has been bitten, between the wound and the trunk of the body, and apply a wine glass, from which the air has been exhausted, by burning a little spirit within it, as a cupping glass over the wound; or to cause the wound to be sucked by a person whose lips and tongue are not chapped, until professional aid can be procured. Animal poisons of this description, are innocuous when taken into the stomach, although their action is so powerful, and often fatal, when they are introduced into the system by a wound, or any other method of inoculation. If the lips or the tongue of the person who sucks the poisoned wound be chapped, the system is inoculated in the same manner as if it were inserted by a lancet, or a bite under the skin. (For the symptoms and treatment of a wound inflicted by the bite of rabid animals, see *Hydrophobia*.) The stings of bees, wasps, and other insects, are sometimes, though seldom, fatal; but the pain they excite is almost insupportable in some habits. The sting of a bee or wasp consists of a hollow tube at the root of which is a bag full of a sharp, penetrating juice, which is injected, in the act of stinging, into the puncture made by the insect. This tube is, in fact, but a sheath, containing two little spears, by which the puncture is made. The part affected should be bathed with the tepid spirit of Mindererus.

VENTILATION. We are all thoroughly aware of the necessity of breathing; and the agreeable freshness and reviving influence of the pure morning air must convince us that the breathing a pure atmosphere is conducive to health; yet we as carefully exclude the air from our houses as if its approach were noxious. Intending to shut out the inclemency of the weather only, in our care to guard ourselves from the external air, we hinder that renewal of the atmosphere which is necessary to prevent its becoming stagnant, and unfit to support animal life. Few persons are aware how very necessary a thorough ventilation is to the preservation of health. We preserve life without food for a considerable time; but keep us without air for a very few minutes, and we cease to exist. It is not enough that we have *air*; we must have *fresh air*; for the principle by which life is supported is taken from the air during the act of breathing. One fourth only of the atmosphere is capable of supporting life; the remainder serves to dilute the pure vital air, and render it more fit to be respired. A full grown man takes into his lungs nearly a pint of air each time he breathes; and when at rest, he makes about twenty inspirations in a minute. In the lungs by an appropriate apparatus, the air is exposed to the action of the blood, which changes its purer part, the vital air (oxygen gas), into fixed air (carbonic acid gas), which is not only unfit to support animal life, but is absolutely destructive of it. An admirable provision of the great Author of nature is here visible, to prevent this exhausted and now poisonous air from being breathed a second time: while in the lungs, the air receives so much heat as makes it specifically lighter than the pure atmosphere; it consequently rises above our heads during the short pause between throwing out the breath and drawing it in again, and thus secures to us a pure draught. By the care we take to shut out the external air from our houses, we prevent the escape of the deteriorated air, and condemn ourselves to breathe, again and again, the same contaminated, unrefreshing atmosphere. Who, that has ever felt the re-

freshing effects of the morning air, can wonder at the lassitude and disease that follow the continued breathing of the pestiferous atmosphere of crowded or ill ventilated apartments! It is only necessary to observe the countenances of those who inhabit close rooms and houses, the squalid hue of their skins, their sunken eyes, and their languid movements, to be sensible of the bad effects of shutting out the external air.

The history of the prison, since called the Black Hole, at Calcutta, furnishes a shocking example in illustration of this, in which, of 146 military men confined for a few hours without ventilation, only twenty-three survived the short confinement. The distress, often followed by serious illness, which many people feel in crowded and unventilated churches, courts of justice, theatres, and other meeting-places, furnishes other examples; and but that the meetings are usually of short duration, and that persons when they feel about to faint escape from them, and thereby warn those remaining to open windows and doors, fatal occurrences even in those situations would not be unfrequent. Where the invisible poison is less concentrated, but of longer continued operation, as formerly in crowded and ill ventilated ships and prisons, fevers of the worst description are the consequence, called gaol and ship fevers, and where this poison exists in a still weaker degree, as not long ago in many of our manufactories, milliners' work-rooms, &c., the health of the inmates was gradually destroyed, while the true cause remained unsuspected. And within a few years, since the establishment of infant schools, there have been instances of the children being collected at first in small rooms, where no fit provision had been made for ventilation, and where sickness broke out among them from the same cause.

The people working in cotton and other factories are observed generally soon to become pallid and sickly, and then scrofulous in various degrees, and many of them at last to sink into early graves; and this happens chiefly because they and their employers are ignorant of the fatal influence on their health of spending so much of their time in close apartments, of which the ventilation is either left to chance, or is even studiously prevented to preserve the warmth useful to the process of manufacturing. These work people are crowded together, constantly breathing a polluted, noxious air, nearly as noxious to them as to the trouts of a mountain stream is the water of a stagnant pool. Recently, however, wheels or fanners for ventilating have been introduced into many of the factories, by which the air is drawn out or changed with any desired rapidity, while fresh air, artificially warmed, is admitted in its stead. In places where these means have been adopted, the factory operatives are stouter and healthier than elsewhere.

Besides the contamination of the air from being breathed, there are other matters which tend to depreciate its purity; these are the effluvia constantly passing off from the surface of animal bodies, and the combustion of candles and other burning substances. On going into a bed-room in a morning, soon after the occupant has left his bed, though he be in perfect health and habitually cleanly in his person, the sense of smelling never fails to be offended with the odour of animal effluvia with which the atmosphere is charged. There is another case, perhaps still more striking, when a person, fresh from the morning air enters a coach in which several persons have been close-stowed during a long night. He who has made the experiment, will never voluntarily repeat it. The simple expedient of keeping down the windows but a single half inch would prevent many of the colds and even fevers, which this unwholesome mode of travelling often produces. If, under such circumstances, the air is vitiated, how much more injuriously must its quality be depreciated when several persons are confined to one room, where there is an utter neglect of cleanliness; in which cooking, washing, and all other domestic affairs, are necessarily performed; where the windows are immoveable, and the door is never opened but while some one is passing through it! It may be taken as a wholesome general rule, that whatever produces a disagreeable impression on the sense of smell is unfavourable to health. That sense was doubtless intended to guard us against the dangers to which we are liable from vitiation of the atmosphere: and if we have, by the same means, a high sense of gratification from other objects, it ought to excite our admiration of the beneficence of the Deity in thus making our senses serve the double purpose of affording us pleasure and security; for the latter end might just as effectually have been answered by our being only susceptible of painful impressions. To keep the atmosphere of our houses free from contamination, it is not sufficient that we secure a frequent renewal of the air: all matters which contaminate its purity must be carefully removed. Flowers in water, and living plants in pots, greatly improve the purity of the air during the night, by giving out large quantities of an air (carbonic acid) similar to that which is separated from the lungs by breathing, which, as before stated, is highly noxious. On this account, they should never be kept in bed-rooms. There are instances of persons, who have incautiously gone to sleep in a close room in which there has been a large, growing plant, having been found dead in the morning, as effectually suffocated as if there had been a charcoal stove in the room.

A constant renewal of the air is absolutely necessary to its purity; for, in all situations, it is rendered either by its vital part being absorbed, or by noxious vapours being disengaged and dispersed through it. Ventilation, therefore, resolves itself into the securing a constant supply of fresh air. In the construction of houses, this great object has been too generally overlooked, when, by a little contrivance in the arrangement of windows and doors, a current of air might, at any time, be made to pervade every room of a house of any dimensions. Rooms cannot be well ventilated that have no outlet for the air: for this reason, there should be a chimney to every apartment. The windows should be capable of being opened; and they should, if possible, be situated on the side of the room opposite to, and furthest from, the fire-place, that the air may traverse the whole space of the apartment in its way to the chimney. Fire-places in bed-rooms should not be stopped up with chimney-boards. The windows should be thrown open for some hours every day, to carry off the animal effluvia which are necessarily separating from the bed-clothes, and which will be assisted in their escape by the bed being turned up, and the clothes spread abroad, in which state they should remain as long as possible. This is the reverse of the usual practice of making the bed, as it is called, in the morning, and tucking it up close as if with the determination of preventing any ventilation from taking place. Attention to this direction, with regard to airing the bed-clothes and

tween the two governments, also have been entirely constructed by them. We begin with the Brunswick and Harzburg line. This, which is a little over 28 miles long, has formidable slopes to encounter on the skirts of the Harz, beginning at Weinenburg; these are surmounted by Stephenson's locomotives. This line joins, at Wolfenbüttel, the Magdeburg railway. It was opened in Oct. 1841.—Brunswick to Magdeburg. This line serves as an intermediate section of the great Prussian railway from Berlin to Cologne. It amalgamates, on one side, with the Magdeburg and Halberstadt line, at Oschlersleben; on another, at Wolfenbuttel, with the Brunswick and Harzburg railway. Total length about 40 miles.—The Brunswick to Hanover direct railway is nearly 37 miles long, and was opened May 19, 1844.—The Hanover and Minden line, now in progress, besides its other local uses, will serve to connect the two isolated portions of Prussia.—Lehrte to Hildesheim; Lehrte to Harbourg (upon the Elbe as regards Hamburg), by Celle and Luneburg; Hanover to Bremen, amalgamating at Wunsdorf with the Minden railway. These three lines are either all in operation, or will be soon. Total length about 200 miles.—A line from Hanover to Gottingen has been projected, to complete the Hanoverian and Brunswick conjoint state railways. The new Hamburg and Bremen railway passes, for the most part, over the Hanoverian territory; but this line, doubtless, will be at the charge of a united company formed in these great free marts of northern Germany.

8. *Hanseatic railways*—lines of the duchies of Holstein (Denmark), and Mecklenburg-Schwerin; and, firstly, that from Hamburg to Bergedorf. This short line may be considered the northern section of the railway communicating between Hamburg, &c. and Berlin; undertaken, for all the rest, by a Prussian company. The Hanseatic portion, nearly 10 miles, was opened 17th May, 1842.—Mecklenburg railways. These comprise a common trunk line from Hagenau (on the Hamburg and Berlin) to Schwerin, and two branches from Schwerin to the ports of Weimar and Rostock. By an agreement of March 18, 1844, these lines were to be executed, partly by means of state funds, and partly by those of a company.—Altona to Kiel, with branches. This railway unites these, the two principal ports of Holstein, which duchy it traverses in a diagonal line. At the Altona station, placed on a height which commands the Elbe, commences a steep plane, up which carriages are drawn by a fixed engine. Length of the entire main line 64 miles; it was opened Sept. 19, 1844. Short branches connect Altona and Kiel with Elmshorn, Glückstadt, Heide, Neumünster, Rendsburg, Lübeck, &c.

9. *Hessian and Frankfort city railways;* Nassau lines. We commence with the Northern or Friedrich-Wilhem railway. This line, granted to a company, is a prolongation of the Thuringian railway. It surmounts the ridge which separates the Weser from the Fulda, follows, as far as Cassel, the course of that river, and will extend thence to the Prussian frontier. This line will ultimately unite the Thuringian and Upper Weser line to that of Minden and Cologne. The works of this line, which is granted in perpetuity to a company, on condition of selling it to the state at the expiry of 30 years if required, were begun late in 1845.—Cassel and Frankfort railway, or line from the Weser to the Main. This will be constructed at the joint charge of the governments of the two Hesses and the Frankforters, and will be worked for the general benefit of the parties to the contract, signed May 16, 1845. The line traverses Upper Hesse, and touches at the towns of Marburg and Giessen.—Railway from the Main to the Neckar. The works of this line, a little more than 50 miles long, were begun in 1843, in virtue of an agreement, signed Feb. 28 of that year, between the governments of the grand-duchies of Hesse-Darmstadt and Baden; it is a northern prolongation of the existent longitudinal line of the latter state, commencing at Mannheim, and ending near Basle, as already detailed. It will be owned and worked by the two governments conjointly, as far as the point where the Frankfort authorities take it up.—Taunus railway, or line from Frankfort to Wiesbaden. This well frequented line begins at Kastel, the strongly fortified *tête-de-pont* on the right bank of the Rhine opposite Mainz (Mayence), shortly after leaving which, it throws off a branch to Wiesbaden and Biberich. At the latter, a prolongation to Rüdesheim commences, the sanction for constructing which was obtained in 1845; a branch of this prolongation will, in virtue of the same concession, run from Hochst to the baths of Soden, at the foot of the Taunus range. Frankfort has for its environs two short lines, one to Offenbach, the other to Hanau; this last will serve as a link of the Bavarian line from Nürnberg to Frankfort.—Mainz to Ludwigshafen. This railway is laid on the left bank of the Rhine, and passes along the Hessian territory to the Bavarian frontier. It belongs to a company. The line, prolonged by the lines from Spires to Lauterburg, and from Lauterburg to Strasburg, will become one of the sections of the great railway, on the left bank of the Rhine, from Basle to Mainz.

10. *Prussian railways to the west of the Weser.*—Line from the Weser to the Rhine, or from Minden to Cologne. This railway, politically so important to Prussia, was first projected in 1829. It opens the capital of that kingdom to its own widely-separated provinces on the Rhine, and all Northern Germany, Belgium, France, Holland, and Britain. Two successive companies failed to effect its construction; but, in Dec. 18, 1843, a third, with the aid of the government, promises to finish it entirely in 1847. It deflects upon the Rhine to Duisburg, partly to avoid the rugged ground on the left bank of the Ruhr, and partly because the direction taken will facilitate the intercourse of Northern Germany with Cologne and Holland. Length of the entire main line, 176 miles; two short branches add 5 more. Another branch is projected, from Lippstadt to the frontier of the electorate of Hesse, to amalgamate with the Friedrich-Wilhem or Northern railway.—Dusseldorf and Elberfeld Railway. This line, connecting the Rhine with the manufacturing towns of Elberfeld and Barmen, was begun in 1837, and opened Sept. 3, 1841. It is nearly 17 miles long. About midway there is an inclined plane, 2 miles long. This the descending train goes down with the locomotive in front, and at the same time, by means of an endless rope, raises the ascending train.—Elberfeld to Dortmund. A local line, 37 miles in all, and very sinuous; principally for coal and other minerals. It joins the Weser and Rhine railway at Dortmund.—Westphalian railways. The existing lines are but 17 local ones for the Ruhr collieries; but four great railways are projected, viz., 1. Hamm to Munster; 2. Munster to Lower Ems; 3. Elberfeld to Cologne; 4. Barmen to Cologne.—Cologne to Amsterdam. The Dutch portion is nearly finished; the Prussian section remaining to lay down.—Bonn to Cologne. This was meant to be continued to Coblentz. It is fully 18 miles long, and was opened Feb. 15, 1844.—Rhine railway. This line starts from Cologne, joins to the Belgian lines at Herbesthal, 53¼ miles distant, passing through Aix-la-Chapelle, &c. Before arriving at that city, there is a plane, 1½ mile long, to descend; an endless wire rope and fixed engines are used here. Although at

first only a single-track line (with provision made for being double-tracked), it cost the average price of £20,000 a mile, owing to the difficulties of the ground, especially towards Belgium. The portion next to Aix la Chapelle was opened in 1841; the section thence to Herbesthal, on the Belgian frontier, on the 21st Oct. 1843. By its means the metallic wares of Belgium, and colonial produce from Antwerp, &c. are readily carried into Germany; and it has lately become, by treaty with Belgium, the general highway for the Zollverein, or Prussian commercial league.—Rhine and Meuse Railway This may be considered as a prolongation of the Weser and Rhine line, towards the Belgian frontier. It proceeds from Dusseldorf to Sittard, on the Dutch territory, not far from Maestricht, and establishes a direct traffic between the manufacturing districts of the right and left banks of the Rhine; it likewise, by means of the intermediate Belgian railway, carries their several products to the port of Antwerp.

The following is a tabular summary of the whole German lines for the year 1845. Those which were open at that time, or shortly before, we have indicated in their several places; most of the rest were in construction, some have been finished since, and a few were merely projected, and may never be realized. Others again, then announced as merely in contemplation, are not enumerated:—

	Br. st. miles.
For the grand-duchy of Baden, there were,	174
" kingdom of Würtemberg (all then finished),	184½
" " Bavaria,	416½
" empire of Austria (including Lombardy, &c.),	1101
" kingdom of Prussia (with Anhalt),	1574½
" " Saxony,	464½
" " Hanover and duchy of Brunswick,	297½
Hamburg, Bremen, Lubeck, Holstein, Mecklenburg, &c.,	1492½
Hesse, Nassau (gr. duchies) Frankfort territory,	83
Total,	4500

The two following years saw the above account largely augmented, as we observed at the outset.

The German railways, as we have seen, partly belong to private companies, partly to the state, and partly to both. In most cases, though not all, the contracts with the subject stipulate, that they shall ultimately be state property. The gauge adopted for all the lines is uniform, with the unlucky exception, already noted, of the Baden lines. It is 4 feet 8½ inches wide (same as the British). The rails are all of wrought iron, except on one short local line, from Prague to Lahna. Various forms of rail have been adopted, and different modes of supporting them proposed; as, has occurred, indeed, in all other countries. British examples, on most points, have served as models. From us, too, the Germans had the chief portion of their first locomotives, and some few are still sent; but the majority are now home-made; there are about 20 German establishments for making them, in various localities.

RAILWAYS OF NORTHERN EUROPE, &c.

Holland.—The Dutch railways are insignificant as yet. The "Dutch-Rhenish Railway" passes from Amsterdam to Rotterdam, through Utrecht, to Arnheim (where it joins the Over-Yssel line), and the Prussian frontier near Emmerich. Length, 103 miles; of which 22, Amsterdam to Utrecht, op. Dec. 1843; Utrecht to Arnheim, 36, May 14, 1846; leaving, from Rotterdam to Utrecht (31 miles), and Arnheim to Emmerich (12), and 2 miles branches. Granted for 53 years. Gauge, 6½ feet. Fifty miles cost only about £5000 per average mile. The Haarlem railway was opened in 1839; Leyden, 1842; the Hague, 1843; Rotterdam, 1844. Towards the German frontier, and approximating Belgian railways, the cost of the lines was £15,000 per average mile.—Some few other Dutch lines are sanctioned.

Russia.—In this great empire little has effected as yet, either by public or private enterprize. By a ukase of the czar, dated Feb 1[illegible] the formation of four lines of state railways was ordered; namely, 1. From Petersburg to Moscow (397½ miles), which was nearly finished in [illegible] Petersburg to Warsaw, and towards Cracow nearly completed in 1846). 3. Proloagation Austro-Hungarian lines to Odessa. 4. Ra[illegible] tween the rivers Volga and Duna; for the transit of goods chiefly. Total length of the four about 1600 miles.

In 1846, a private company obtained the sanction for a line between Petersburg and Cronstadt, near the mouth of the Neva; (22 miles) with a bifurcation seaward to the N.W. of about the same length.

Besides the foregoing, the only line Russia possessed was an early one, about 20 miles long, between Petersburg, Tsarkoëselo, and Paulowsk.

Poland.—The Warsaw and Vienna Railway has a branch to Cracow, is 230 miles long, and joins the Austrian Northern near Oswiecim. In 1846, it was opened from Warsaw to Petrikau, the frontiers of Silesia. It will all be finished 1848.—Constructed by a company.

Denmark.—With the exception of the connecting links of the Hanse town lines, through the Holstein territory, noted above, none have been sanctioned, though some have been projected; one, of 22 miles, was undertaken by a company, to unite Hamburg, Altona, and Kiel.

Sweden.—The first line possessed by this kingdom, was that begun to be laid down in the autumn of 1847, by an English company, between the copper mines of Gillimars and the port of Tunaberg, in Swedish Lapland.

ITALIAN RAILWAYS.

The great Lombard line has been already noticed under the Austrian section of our survey. It begins at Milan (throwing off a northern branch to Monza), and ends at Venice, to which city it is carried across the Lagoons, on a magnificent bridge, a league in length. On the 4th Jan 1846, the line from Vicenza to Venice was finished and opened. It is about 40 miles long; it passes over the rivers Tessina, Bochigliere, and Retrone, and through three tunnels, near Vicenza.

Florence to Leghorn.—The section of the line from Leghorn to Pisa, has been open for many years. Early in 1846, it was prolonged to Cascine d'Erra; in Oct., 1846, it was continued to Pisa, a distance of 19 miles; in 1847, finished to Florence. Another line (15 miles,) to be finished in 1848, connects Pistoia with the latter, through Prato. A line from Pisa to Lucca, was opened in the autumn of 1846; and another, from Empoli to Sienna, the same year.

In 1846, Lieut. Waghorn proposed laying down a line along the eastern territories of the peninsula, to forward the delivery of the overland India mails.

Roman States.—Till the accession of pope Pius IX. in 1846, no railway project was even mooted in the territories of the Church, although at that time the sacred borders had already been touched at the points of Sienna and Capua. In that year, however, a company obtained papal sanction for a 10 mile line between Rome and Albano; and in 1846 it was concluded, an Italian-Anglo Company received a privilege for several main lines, on condition of realizing a guaranteed fund of about £7[illegible] sterling. The four following routes were projected:—1. Rome to Ciprano, on the Neapolitan frontier. 2. Rome to Porto d'Augio. 3. Rome to Civitá Vecchia. 4. Rome to Ancona, and thence to Bologna. His holiness, at the same time [illegible]

a gold medal for the best line from Umbria to the Marches. Early in 1847, the preliminary works on the line from Rome to the Neapolitan frontier were begun; those upon the Cività Vecchia line also.

In the south of Italy, there is a line of about 20 miles, between Naples city and Capua, lately finished. A continuation, to Terracina, on the papal frontier, is in progress. Naples to Castellamare, 17¾ miles; it throws off a branch to Nocera and Pompeii.

ORIENTAL RAILWAYS.

A line was surveyed, some years ago, by Mr. J. G. Galloway of London, a young engineer once in the service of Mehemet Ali, for facilitating the overland passage to India, by Alexandria, Cairo, and Suez. This has never been effected, possibly never will be. The transit from Alexandria to Cairo, and across the isthmus, is now regularly made in 48 hours; it has been, and can be done constantly (though at great expense) by express, in 30 hours. The advantages accruing from a railway over such a desert do not countervail the enormous first cost, and the still greater cost of maintaining a line through an unsettled region, where an army might be required for its occasional or even constant protection. In 1846, the average number of passengers conveyed by means of transit at present in use, was 300 a month. The pacha has cleared £30,000 a-year by the profits arising from the permission and facilities furnished by him to British mails and travellers.

India.—The following lines were applied for to Parliament, by companies, in 1847: "East Indian," to run from Calcutta to N. W. provinces. "Calcutta and Diamond Harbour," on the Hooghley. "Great Indian Peninsular," from Bombay westward. "Great Western Bengal," Calcutta to Patna. "Direct Bombay and Madras," to cross the Peninsula. The "Madras, Nellore, and Arcot," was started, promisingly, in 1846. The "Direct Trunk," one of the E. I. Co.'s lines, was adopted by the Directors in Dec. 1846. It is to connect Calcutta with the N W. provinces. Sundry conditions were laid down by the E. I. Co. Directors. The latter agreed to obtain the land for the whole lines, but they reserved a right of purchase from the Railway Co. after 30 years. But no line had been realized in our E I. possessions at the close of 1846.

Ceylon.—A company was formed, in 1846, for a line 90 miles long, between Columbo and Kandy.

AMERICAN RAILWAYS.

These are, as yet, confined to the northern continent, and chiefly to the United States, with the addition of the few, realised or projected, in Canada, or other British possessions on the American N. mainland. "Most of the railways, hitherto constructed in the United States were, till recently, designed merely to connect certain local points, without reference to a general system." These are the words of Mr. H. S. Tanner, in his *U. S. Canals and Railroads* (1840), to which able work we are largely indebted for a portion of the materials of this section.

The first great chain of railroad, is that commencing at Portsmouth in New Hampshire, and extending, with an occasional interval, through the Atlantic states to Pensacola in Florida. From Portsmouth the Eastern railroad extends to Boston, whence the line is continued, by the Boston and Providence railroad to Providence, where it meets the railroad to Stonington, in Connecticut. From Stonington, after crossing Long Island Sound to Greenport, on Long Island, the line is resumed, and proceeds to Brooklyn, opposite New York, by the Brooklyn and Long Island railroad. Length 100 miles. Crossing the East river to New York, and thence over the Hudson to Jersey city, the line is continued by the New Jersey rail-road to New Brunswick, thence by the Trenton and New Brunswick railroad to Trenton, and thence to Philadelphia by the Philadelphia and Trenton railroad. From Philadelphia it proceeds to Baltimore by the Philadelphia, Wilmington and Baltimore railroad, and thence to Washington by the Washington branch of the Baltimore and Ohio railroad. The road continues from Washington to Fredericksburg in Virginia. At Fredericksburg the line is resumed and proceeds to Richmond by the Fredericksburg and Richmond railroad, thence to Petersburg by the Richmond and Petersburg railroad, thence by the Petersburg and Roanoke railroad to Gaston in North Carolina, thence by the Raleigh and Gaston railroad to Raleigh, whence it continues to Columbia, in South Carolina. From Columbia, by the Columbia branch of the South Carolina railroad, the line is conducted to Branchville, and thence by the main line of the South Carolina railroad to Augusta in Georgia. At Augusta commences the Georgia railroad, which extends to De Kalb county, whence runs a road to West Point, on the Chottahooche. From West Point the line proceeds along the Montgomery and West Point railroad to Montgomery in Alabama, and thence by the Alabama, Florida and Georgia railroad to Pensacola in Florida. The aggregate length of these railroads was, in 1840, 1600 miles. By the railroad from Richmond, via Abingdon, to the Tennessee line, a route to New Orleans is effected by means of the Highwassee, Knoxville and Nashville, and the New Orleans and Nashville railroads.

The second great thoroughfare commences at Boston, and proceeds to Worcester by the Boston and Worcester railroad; at Worcester the line is continued by the Great Western railroad to West Stockbridge, and thence to Albany by the Albany and West Stockbridge railroad. From Albany the line proceeds along the Hudson and Mohawk railroad to Schenectady; thence by the Schenectady and Utica railroad to Utica; thence by the Syracuse and Utica railroad to Syracuse; thence by the Syracuse and Auburn railroad to Auburn; thence by the Auburn and Rochester railroad to Rochester; thence by the Tonawanda railroad to Attica; and continues by the Attica and Buffalo railroad to Buffalo. This line is 530 miles long, and one of the most important in the United States, especially that portion of it extending from Albany, westward.

The third route is that by the New York and Erie railroad, about 450 miles in length.

The fourth route commences at Philadelphia, with the Reading railroad to Port Clinton; thence by the Danville and Pottsville railroad to Sunbury, or the Little Schuylkill and Susquehanna railroad to Williamsport; and thence by the Sunbury and Erie railroad to the town of Erie, on Lake Erie, 420 miles.

The fifth route consists of railroads and canals. It commences at Philadelphia, and proceeds to Columbia, on the Susquehanna, by the Philadelphia and Columbia railroad. The central division of the Pennsylvania canal takes up the line at Columbia, and proceeds to Hollidaysburg, at the eastern base of the Alleghany mountain, which is crossed by another railroad, (the Alleghany portage,) extending to Johnstown on the western declivity of the same ridge. At Johnstown commences the western division of the Pennsylvania canal, which terminates the line at Pittsburg. Length, 394 miles.

The sixth route extends from Baltimore to Wheeling, on the Ohio river, by the Baltimore and Ohio railroad, 280 miles in length.

The seventh route commences at Richmond, in Virginia, by the James River Canal, which extends to Covington, in Alleghany county; thence by railroad to Loup shoals in the Kanawha river; and thence by the Kanawha, the navigation of which has been improved by dams and locks, to the Ohio river.

The eighth route, 718 miles in length, extends from Charleston by the South Carolina railroad to Columbia, and thence by Louisville, Cincinnati, and Charleston railroad, to Cincinnati, Ohio; and the Ninth route extends from Savannah, in Georgia, *vid*. the Central railroad, to Macon, and thence by the Alabama roads to Pensacola.

All these routes, it will be perceived, are connected with the great Atlantic line, which may be regarded as the main artery. The minor canals and railroads, in turn, are mere ramifications of branches, and as such, augment the revenues of the whole.

Thus far had reached, or were soon to reach, the chief lines at the end of the year 1840. Several subordinate lines, realised or projected, fill up the interval between 1840 and 1846; which we are sorry our space does not permit us even to enumerate. Suffice it to say, that Montreal and New York city are (Sept. 1846) within but 24 hours' distance, thanks to steam in boat or on rail. Canada and N. Carolina are now conjoined, by *continuous* rail, *vid* Boston.

Near the end of the same year a line was surveyed, perhaps begun, to prolong the great Baltimore line westward to the Ohio; and, yet more enterprising, some American speculators were about to connect the Atlantic to the Pacific.

The total amount of "realised railway" in the United States, early in the year 1846, was about 4500 miles; but lines to the length of 10,000 more were projected, and would, on many points, have been finished, or in progress, long ere now, had the financial state of the country been more favourable. The "*American Almanack*" for 1847 gives a "grand total of realised railway," in the U.S. of 4864¼ miles. The rate of speed on the existing lines is low, perhaps not more than from 14 to 15 miles an hour; though, in some rare instances, 20 miles may be exceeded on the older and superior routes. Nearly all are single-tracked; as this disadvantage has to be obviated by frequent "sidings," the slow average rate is easily accounted for. There are no "class" carriages; or, rather, they are all of one class. Most of the carriages are long omnibus-looking vehicles, with padded seats, each holding two persons, ranged on each side of a middle passage. As there are usually 14 rows of double seats, the number of adults they accommodate is 56. Ladies may be accommodated together in a separate vehicle. In winter they are heated by a stove; and always lighted at night.

In all cases, the state legislatures have retained some right of control over the lines of railway; in several cases, the states are the chief shareholders; in particular instances having advanced portions of funds, in others guaranteed payment of interest on borrowed capital, they have become, in some sort, mortgagees of the lines, which are held, after all, only on leases, ranging between 50 and 100 years. The average cost per mile has not hitherto exceeded £9000 sterling. Wood is the fuel used, nearly everywhere; coke scarcely ever. The utmost economy has been generally used in the construction of the lines and stations; the latter are little better than sheds for "liquoring." Short curves are rounded, and heights ascended, which surprise British travellers, and yet accidents are very rare. In general the termini are set up in the very centre of the towns, but there horse traction is usually had recourse to.

The Americans early availed themselves of the advantages of the *electrical telegraph*. Mr. Morse's, on the Washington and Baltimore line, has been in operation for several years. There is now, or soon will be, a magnetic connection between the most distant sections of the United States. In 1845, there were already 1107 miles of wires contracted for; total, 188,190 lbs. weight, being 17,000 lbs. to 100 miles.

In a sitting of the Paris Academy of Sciences (Sept. 14, 1846) a communication was read from Mr. Morse, giving the extent of telegraphic lines established in the U. States. It was as follows:—

	Miles.
Albany to Buffalo,	240
New York to Boston,	210
Do. to Albany,	160
Do. to Washington,	230
Washington to Baltimore,	40
Baltimore to Philadelphia,	97
Philadelphia to New York (rail portion),	88
New York to Newhaven,	84
Newhaven to Hartford,	36
Hartford to Springfield,	26
Springfield to Boston,	86
Albany to Rochester,	200
Total,	1500

Mr. Morse stated that the electric telegraph was the chief mode of transmitting all the news of the Government and the important correspondence of merchants and of the public generally.

Canada, &c.—La Prairie and St. John's Railroad. This, the first line laid in Canada, is over 16 miles long, and forms a part of the principal line of communication between the States and Canada. It unites Lake Champlain with the St. Lawrence by a more convenient route than was formerly pursued.—Quebec to St. John's. This line, as surveyed in 1840, after leaving Quebec was to pass down the right bank of the St. Lawrence, to St. Nicholas river; thence along its valley, and across the dividing ridge into that of Black river, a branch of the St. John's, whose valley is traversed in its whole course to the city of St. John's, a distance of about 200 miles. Much of this railway had to be run across the debateable territory claimed by the state of Maine, the misunderstanding about which nearly involved us in war with the United States.

At the time we write, the Canadian Portland is in progress, as also that to Halifax, Nova Scotia.

In 1846, our home government, it is asserted, projected the junction of all British America into one great colony; with a continuous line of state communication, between Halifax, N.S. and the most western point of our wide-spread possessions. Much of the proposed line would necessarily be by rail, by the new system of *plank roads*, which has been eminently successful in Canada, and is equally suited to any country where iron is scarce, labour cheap and wood abundant. One between London (Canada) and Port Stanley, 30 miles long, was finished in 1845; another, 50 miles, between Port Dover and Hamilton, in 1846; and a third, between Hamilton and London, 80 miles, was contracted for the same year. They are laid for double or single tracks; the expense of the former being 4000, the latter 2500 dollars per mile. Those already constructed are expected to last ten years without renewal.

West Indies.—Jamaica (Kingston to Spanish-town) railway; 12 miles: opened in August 1845. Cuba railway, from the Havana to the interior, traverses a rich plain, through fine scenery; 45 miles long; opened in 1838. Two other lines have their termini at the town of St. Jago, opposite Jamaica. Mr. Tuck says, that the aggregate extent of railway lines in Cuba was, July 1845, 650 miles. We doubt this alleged amount far beyond the truth. In 1845 a company was formed for a "Barbadoes General Railway," 40 miles long; and another, many-branched, for Demerara. In Trinidad, a double line in the same year, determined on, between Port of Spain, Arima, and Pont à Pierre.

RAIN. This meteorological phenomenon depends upon the formation and dissolution of clouds. The humidity suspended in the atmosphere arises from the evaporation of water, partly from the but chiefly from the vast expanse of the ocean, surface of lake, of pasture, cornfield or forest,

ports a continual evaporation, augmented only by the dryness of the air, and the rapidity of its successive contacts. Even ploughed land will supply nearly as much moisture to the atmosphere as a sheet of water of equal dimensions. If the whole of the waters, which fall from the heavens, were to return again, the evaporation from the ground might be sufficient alone to maintain the perpetual circulation. But more than one-third of all the rains and melted snows are carried by the rivers to the ocean, which must hence restore this continued waste. The air, in exhaling its watery store, is rendered quite damp; but it may afterwards become dry, on being transported to a warmer situation. Such is the case with the sea-breese, particularly in summer. It arrives on the shore cold and moist; but as it advances into the interior of the continent, it grows milder and drier. The moisture deposited by a body of air in minute globules, which remain suspended or subside slowly in the atmosphere, constitutes a *cloud*. When it comes near us, whether it hovers on the tops of the hills or spreads over the valleys, it receives the name of a *fog*. The production of rain has, from the earliest times, engaged the attention of philosophers; but it was reserved for doctor James Hutton, of Edinburgh, to afford the true solution of the problem. His theory of rain was made known in 1787; since which period it has been greatly neglected by writers upon meteorology, until within a very few years. We shall now give an outline of doctor Hutton's views. Air, in cooling, it is known, has the property of depositing the moisture it contains. But how, it may be asked, is it cooled in the free atmosphere, unless by the contact or commixture of a colder portion of the same fluid? Now the portion of air which is chilled must, in an equal degree, warm the other. If, in consequence of this mutual change of condition, the former be disposed to resign its moisture, the latter is more inclined to retain it; and, consequently, if such opposite effects were balanced, there could on the whole be no precipitation of moisture. The separation of moisture, on the mixing of two masses of damp air at different temperatures, would therefore prove, that the dissolving power of air suffers more diminution from losing part of the combined heat, than it acquires augmentation from gaining an equal measure of it; and, consequently, this power must, under equal accessions of heat, increase more slowly at first than it does afterwards, thus advancing always with accumulated celerity. The quantity of moisture which air can hold, thus increases in a much faster ratio than its temperature. This great principle in the economy of nature was traced by doctor Hutton from indirect experience. It is the simplest of the accelerating kind, and perfectly agrees with the law of solution, which the hygrometer has established. Suppose equal bulks of air in a state of saturation, and at the different temperatures of fifteen and forty-five centesimal degrees, were intermixed; the compound arising from such union will evidently have the mean temperature of 30°. But since, at these temperatures, the one portion held 200 parts of humidity, and the other 800, the aggregate must contain 1000 parts, or either half of it, 500; at the mean or resulting temperature, however, this portion is only capable of suspending 400 parts of humidity, and, consequently, the difference, or 100 parts, amounting to the two hundredth part of the whole weight of air, must be precipitated from the compound mass. In this example, it has been assumed that the portions of differently heated air were saturated with moisture before mixing; but it is only required that they should approximate to this condition. The effect, however, of simple commixture would, in most cases, be very small. To explain the actual phenomena, we must have recourse to the mutual operation of a chill and of a warm current driving swiftly in opposite directions, and continually mixing and shifting their surfaces. By this rapidity, a larger volume of the fluid is brought into contact in a given time. Suppose, for instance, the one current to have a temperature of 50°, and the other that of 70° Fahr.; the blending surfaces will therefore assume the mean temperature of 60°. Consequently the two streams throw together 200 and 334 2 parts of moisture, making 567.1 parts for the compound, which, at its actual temperature, can hold only 258.6 parts; the difference, or 8.6 parts, forms the measure of precipitation, corresponding to the 2325th of the whole weight of the commixed air. It would thus require a column of air thirty miles in length to furnish, over a given spot, and in the space of an hour, a deposit of moisture equal to the height of an inch. If the sum of the opposite velocities amounted to sixty miles an hour and the intermingling influence extended but to a quarter of an inch at the grazing surfaces, but there would still, on this supposition, be produced, in the same time, a fall of rain reaching to half an inch in altitude. These quantities come within the limits of probability, and agree sufficiently with experience and observation. But in the higher temperatures, though the difference of the heat between the opposite strata of air should remain the same, the measure of aqueous precipitation is greatly increased. Thus, while the mixture of equal masses of air, at the temperatures of 40° and 60°, is only 6.6, that from a like mixture of 80° and 100° amounts to 19. This result is entirely conformable to observation, for showers are most copious during hot weather and in the tropical climates. The quantity of rain precipitated from the atmosphere thus depends upon a variety of circumstances,—on the previous dampness of the commixed portions of the fluid,—their difference of heat,—the elevation of their mean temperature,—and the extent of the combination which takes place. When the deposition is slow, the very minute aqueous globules remain suspended, and form clouds; but if it be rapid and copious, those particles conglomerate, and produce, according to the temperature of the medium through which they descend, rain, mist, snow, or hail. The foregoing theory tallies precisely with what we experience in the connexion of rains with the variable nature of the winds. Steady dry weather is always accompanied by a steady direction of the wind; whereas, in rainy weather, the winds are unsteady and variable. The heavy rains that fall in India always take place during the shifting of the monsoons; and while they last, the winds are always veering.—The annual quantity of rain is greatest at the equator, and gradually diminishes as we approach the pole. This will be evident from the following table, showing the annual depth of rain in different latitudes:

	Lat. N.	*Fall of Rain.*
Grenada,	12°	126 inches.
Cape Francois,	19° 46′	120 "
Calcutta,	22° 23′	61 "
Rome,	41° 54′	39 "
England,	50° to 58°	31 "
Petersburg,	59° 16′	16 "
Uleaborg	65° 1′	13½ "

On the contrary, the number of rainy days is smallest at the equator, and increases in proportion to the distance from it. From north latitude 12° to 43°, the mean number of rainy days is 78.

From 43° to 46° the mean number is			103
" 46° " 50°	.	.	134
" 50° " 60°	.	.	161

Hence it is obvious that the rain falls in very heavy showers in warm climates, and that it becomes more and more gentle as we advance towards the pole. Consequently, in hot climates, the air must be much less loaded with moisture, and the rate of evaporation much greater than in cold climates. For when rain falls very heavy, a great portion of it runs off by the surface, and flows into the sea. But this happens to a much less extent when the fall of rain is more gentle.

RAINBOW. To what has been said on this subject in the article *Optics* we will only add, that in a stormy sea, in which the water is frequently sent up into the air in large drops, the rays of the sun form in them inverted rainbows, of which from twenty to thirty are frequently visible at the same time. They usually have but two colours; yellow upon the side towards the sun, and pale green upon the other side. The appearance of two rainbows, intersected by each other, which sometimes takes place on the seacoast, when the rain-cloud is over the water, is perhaps the effect of the image of the sun reflected from the surface of the water. In the morning, we often see the colours of the rainbow in the dew-drops on the meadows, where the bow is hyperbolic or elliptical. Rainbows likewise have sometimes been observed in the night, which arise from the refraction and dispersion of the coloured rays of the moon in the drops of rain; they are, however, very faint, and usually form only white and yellow bows. The bishop of Spalatro, Antony de Dominis, gave the first accurate explanation of the principal rainbow, in a treatise which appeared at Venice in the beginning of the seventeenth century; but we are indebted to Newton for the complete elucidation, on mathematical principles, of this bright appearance of the heavens (*Optica*, London, 1706, quarto). See *Iris*.

RAINGUAGE, or PLUVIOMETER; a machine for measuring the quantity of rain that falls. There are various kinds of rainguages: one of the best is a hollow cylinder, having within it a cork-ball attached to a wooden stem, which passes through a small opening at the top, on which is placed a large funnel. When this instrument is placed in the open air, in a free place, the rain that falls within the circumference of the funnel will run down into the cylinder, and cause the cork to float; and the quantity of water in the cylinder may be seen by the height to which the stem of the float is raised. The stem of the float is so graduated as to show, by its divisions, the number of perpendicular inches of water which fell on the surface of the earth since the last observation. It is hardly necessary to observe that, after every observation, the cylinder must be emptied. A very simple rainguage, and one which answers all practical purposes, consists of a copper funnel, the area of whose opening is exactly ten square inches. This funnel is fixed in a bottle, and the quantity of rain caught is ascertained by multiplying the weight in ounces by 173, which gives the depth in inches and parts of an inch. In fixing these guages, care must be taken that the rain may have free access to them. Hence the tops of buildings are usually the best places. When quantities of rain, collected in them at different places, are compared, the instruments ought to be fixed at the same heights above the ground at both places, because, at different heights, the quantities are always different, even at the same place. See *Rain*.

RAJAH; the hereditary princes of the Hindoos, who, before the subjugation of the country by the Moguls, governed the various countries of Hindostan, as they still continue to do in some measure, though they are generally dependent on the European. They belong to the caste of Casiatriyas or Chehteree. (See *Caste*, and *Hindoos*.) In the East Indian islands, especially in the interior of them, where the arms of foreign conquerors have never penetrated, there are yet many independent rajahs. The following cut represents a Malay rajah seated, with his two attendants behind him.

Rajah is the prefix to many geographical names in the East Indies.

RAJASTHAN (or the central and western Rajpoot states) extends from 22° to 30° north latitude, and from 69° to 78° east longitude, comprising [illegible] square miles. It consists of seven states, [illegible] to the British dominions. This country was comparatively but little known to Europeans till the publication of a valuable work on it by Colonel Tod, who had been for a long time [illegible] there. The work is of much interest to the geographer, the historian, the lover of poetry and antiquities, the linguist, and brings to light curious traces of institutions similar to those of Europe. Were the remote countries of the East explored in the same spirit, many more such analogies would probably be found. See the *Annals and Antiquities of Rajasthan, by Lieut. Col. James Tod, late Political Agent to the Western Rajpoot States* (two vols. 4to. London, 1829).

RAJPOOTANA. See *Rajasthan*.

RAKE; a term applied to the masts when they are out of a perpendicular situation; as, The ship's mainmast *rakes* aft.

RAKING; the act of cannonading a ship in the stern, or head, so that the balls range the whole length of the decks, which is one of the most dangerous incidents that can happen in a naval battle. This is frequently called *raking fore and aft*, and is similar to what is termed by engineers *enfilading*.

RALEIGH, or RALEGH, Sir Walter, a distinguished warrior, statesman, and writer in the reigns of Elizabeth and James I., was the younger son of a gentleman of ancient family in Devonshire. He was born in 1552, in that county, and went to Oriel college, Oxford, where his proficiency gave a high opinion of his capacity. His martial disposition and martial ardour led him at the age of seventeen, to join a body of gentlemen volunteers raised to assist the French Protestants. He subsequently accompanied the forces sent under Sir John Norris to assist the Dutch, and afterwards accompanied his half-brother Sir Humphrey Gilbert

voyage to Newfoundland. On his return, he distinguished himself in the Irish rebellion, and was rewarded for his services by a considerable estate in Ireland. His favour at court was advanced by a well-known act of gallantry. The queen, in a walk among a crowd of courtiers, having come to a spot in which the path was obstructed by mire, Raleigh immediately took off his rich plush cloak, and spread it on the ground for a foot-cloth. In 1584, his active disposition was manifested in a scheme for the discovery and settlement of those parts of North America not already appropriated by Christian states. By his interest, he obtained a very extensive patent for this purpose; and, with the help of friends, two ships were fitted out. These vessels having carried home cargoes that sold well, a second expedition of seven vessels followed, under the command of Sir Richard Grenville, Raleigh's kinsman. The latter enterprise terminated in the settlement of Virginia, so called in honour of queen Elizabeth, and is said to have first introduced tobacco and potatoes to Europe. In the mean time, he was honoured with knighthood, and rewarded by several lucrative grants, including a large share of the forfeited Irish estates. He was one of the council to whom the consideration of the best means of opposing the Spanish armada was intrusted, and was among the number of volunteers who joined the English fleet with ships of their own. In 1589, he accompanied the expelled king of Portugal in his attempt to reinstate himself, for which service he received several additional marks of favour and emolument; for, although fond of glory, he was almost equally so of gain. On his return from Portugal, he visited Ireland, and contracted an intimacy with Spenser, who celebrated Sir Walter under the title of the Shepherd of the Ocean, and to his Faery Queen prefixed a letter to him explanatory of its plan and design. The latter, in return, introduced the poet to Elizabeth. In 1592, he commanded an expedition with a view of attacking Panama; but was recalled by the queen, and, soon after, incurred her displeasure by an amour with one of her maids of honour, the daughter of Sir Nicholas Throckmorton. Although he made the best reparation in his power, by marrying that lady, he was imprisoned for some months, and banished the queen's presence. To recover favour, he planned an expedition to Guiana, in which he embarked in February, 1595, and reached the Orinoco; but was obliged, by sickness and contrary winds, to return, after having done little more than take a formal possession of the country in the name of Elizabeth. In 1596, he had so far regained favour that he had a naval command under the earl of Essex, with whom a difference ensued, that laid the foundation of a lasting enmity between them. Sir Walter was subsequently fully restored to the good graces of Elizabeth, who nominated him to the government of Jersey. He witnessed the ruin of his antagonist, the earl of Essex, whose execution he urged, and personally viewed from a window in the armoury. (See *Devereux*.) The speedy death of the queen, which this very catastrophe hastened, put a period to his prosperity. James I., whom, with some other courtiers, he sought to limit in his power of introducing the Scots into England, resented that attempt, and disliked him as the enemy of his friend the earl of Essex. Although received with external civility at court, he was deprived of his post of captain of the guards, and evidently discountenanced. This treatment preyed upon his high spirit; and, a conspiracy having been formed for the purpose of placing upon the throne the lady Arabella Stuart, Sir Walter was accused of participating in it by lord Cobham, to whose idle proposals he had given ear, without approving them. By the base subservience of the jury, he was brought in guilty of high treason, even to the surprise of the attorney-general Coke himself, who declared that he had only charged him with misprision of treason. Raleigh was reprieved, and committed to the Tower, where his wife, at her earnest solicitation, was allowed to reside with him, and where his youngest son was born. Though his estates, in general, were preserved to him, the rapacity of the king's minion, the infamous Car, seised on his manor of Sherborne, upon a flaw found in his prior conveyance of it to his son. It was not until after twelve years' confinement that he obtained his liberation, during which interval he composed the greater part of his works, and especially his History of the World. He was only released, at last, by the advance of a large sum of money to the new favourite Villiers (see *Buckingham*); and, to retrieve his broken fortunes, he planned another expedition to America. He obtained a patent under the great seal for making a settlement in Guiana; but, in order to retain a power over him, the king did not grant him a pardon for the sentence passed upon him for his alleged treason. How far Raleigh knowingly deceived the court by his representations of rich discoveries, and gold mines, it is impossible now to ascertain; but, having reached the Orinoco, he dispatched a portion of his force to attack the new Spanish settlement of St. Thomas, which was captured, with the loss of his eldest son. The expected plunder, however, proved of little value; and Sir Walter, after having, in vain, attempted to induce his captains to attack other Spanish settlements, arrived at Plymouth in July, 1618. In the mean time, the Spanish ambassador had produced such an effect upon James (see *James I*), who was seeking the hand of the Infanta for his son Charles, that Raleigh was arrested, and committed to the Tower. James had reason to be offended with the conduct of Raleigh against a power in amity with himself, and might have tried him for this new offence; but, with his usual meanness and pusillanimity, determined to execute him on his former sentence. Being brought before the court of king's bench, his plea of an implied pardon by his subsequent command was overruled; and, the doom of death being pronounced against him, it was carried into execution the following day (October 29, 1618), in Old Palace-yard. His behaviour at the scaffold was calm; and, after addressing the people at some length in his own justification, he received the stroke of death with perfect composure. Thus fell sir Walter Raleigh, in the sixty-sixth year of his age, by one of the most odious acts of the disgraceful reign of James I. As a politician and public character, this eminent person is open to much animadversion; but, in extent of capacity and vigour of mind, he had few equals, even in an age of great men. His writings are on a variety of topics, poetical, military, maritime, geographical, political, and historical. Most of his miscellaneous pieces have ceased to be interesting, but his History of the World is one of the best specimens of the English of his day, being at once the style of the statesman and the scholar. The compass of the work did not admit fulness of narrative, but he is often an acute and eloquent reasoner on historical events. The best edition is that of Oldys (1736, 2 vols.. fol.). Of his miscellaneous works, an edition by Doctor Birch was published in 1748, in two volumes, octavo.

RALLENTANDO, also RITARDANDO, or LENTANDO (*Italian*), in music, indicates that the

time of the passage over which it is written, is to be gradually retarded.

RALPH, JAMES, a native of Philadelphia, in North America, came to England as a literary adventurer in 1725, in company with Benjamin Franklin. In 1728, Ralph published a poem, entitled "Night," to which Pope thus alludes in the Dunciad:

> "Silence, ye wolves, while Ralph to Cynthia howls,
> Making night hideous,—answer him, ye owls!"

He afterwards attempted the drama, but without success; and having produced a tragedy, a comedy, an opera, and a farce, he took up the employment of a party writer. In 1742, he published an Answer to the Memoirs of Sarah, Duchess of Marlborough; and in 1744, appeared his History of England, during the reigns of Charles II., James II., William III, &c., (2 vols., folio), which, as a work of research, is by no means destitute of merit. He was at length connected with the politicians and literary men who were attached to the service of Frederic, prince of Wales; in consequence of which, Ralph is said to have become possessed of a manuscript written by the prince, or under his direction, to which so much importance was attributed, that a gratuity or a pension was bestowed on the holder, as a compensation for surrendering it. He obtained a pension after the accession of George III., but he did not long enjoy it, as his death took place in 1762. Besides the works mentioned, he published a treatise on the Use and Abuse of Parliaments (2 vols., 8vo.); the Case of Authors by Profession (8vo.); and a number of political pamphlets.

RAM, BATTERING. See *Battering Ram*.

RAMBERG, JOHN HENRY, distinguished for his paintings and etchings, was born in 1767, in Hanover. He first showed his talent by drawings of scenes in the Harts mountains. These drawings became known to the king of England, his sovereign, as elector of Hanover, who induced him to come to London, where he provided for him. He remained there nine years, and perfected himself under Reynolds. Murphy, Bartolozzi, and other engravers of the first rank in England, engraved drawings of his. In 1788, the king sent him to Italy, whence he returned to Hanover, where he was appointed painter to the court. Few painters and designers have produced so many works as he has; but this rapidity prevented the full development of his talent. Ramberg distinguished himself particularly in the humorous caricature. The drawings to the magnificent edition of Wieland's works are all by him: some he etched himself.

RAMBOUILLET, a village of France, thirty miles south-west of Paris, and near the extensive forest of the same name. Here is situated a royal castle, with extensive grounds, and several large buildings connected with it. The castle has a fine library, and there is a celebrated breed of merino sheep here, introduced by Louis XVI. in 1786. Rambouillet was bought by that prince in 1778, and was one of his favourite residences. It was also the favourite resort of Charles X. for hunting, and here he retired when obliged to abandon St. Cloud, after the revolution of 1830. He was, however, forced to quit Rambouillet for Cherbourg, by the approach of a Parisian force on the night of August 3d.

RAMEAU, JEAN PHILLIPPE, an able French theorist in the science of music, was a native of Dijon, and born in 1683. Having, at an early age, acquired some skill in music, he joined a strolling company of performers, by whose assistance a musical entertainment of his composition was represented at Avignon, in the eighteenth year of his age. He was afterwards appointed organist in [illegible] mont cathedral, applied himself to the study the principles of his profession, and in 17[illegible] printed the first fruits of his investigation a treatise, entitled *Traité de l' Harmonie*. [illegible] years after appeared his *Nouveau Système Musique Théorique*, which was followed by *Génération Harmonique*. In 1750, he publish celebrated *Dissertation sur le Principe de l'Harmonie*, in which he reduces harmony to one principle—the fundamental bass, on which he pro all the rest to depend. This work procured him invitation from the court to superintend the ope at Paris. He possessed a great facility in adapting words to music, and piqued himself so much on this talent, that he is said to have declared he w set a Dutch gazette, if it was required of him. [illegible] remaining theoretical works are, Remarks on Demonstration of the Principles of Harmony, re ply to a Letter of M. Euler (both printed in 17[illegible] On the Instinctive Love of Music in Man (17[illegible] On the Mistakes of the Encyclopædia with Regar to Music (1755); and a Practical Code of Mu (1760). He was also the author of six operas, viz *polyte et Aricie, Castor et Pollux, Dardanus, Zo son, Pygmalion*, and *Zoroaster*, besides a gre variety of ballets and other minor pieces. Lo XV. acknowledged his merits by the grant patent of nobility, and the order of St Micha Rameau's theory is formed on the base of V D'Alembert's celebrated treatise on music in wh all the laws of harmony are derived from the re tions of the three subordinate tones heard along w any musical tone, i. e. the octave, twelfth, a seventeenth major. Rameau died at Paris, in [illegible]

RAMILLIES; a village of Belgium, in Sou Brabant, thirteen miles north of Namur, and twen six south-east of Brussels. May 23, 1706, the D of Marlborough (see *Churchill*) gained here a gr victory over the French under marshal Villeroi an the duke of Bavaria. The numbers were ne 60,000 on each side: the loss of the allies was 6 men, that of the French 15,000. The consequen of the battle was the immediate evacuation of Fla ders by the French.

RAMLER, CHARLES WILLIAM, a German p poet, translator, and critic, was born at Colber 1725, studied at Halle, and was appointed a pr fessor in the royal military school for young nobles in Berlin, in 1748. In 1790, he became co-director the theatre of Berlin. He died in 1798. Ram appeared at a period poor in poets, and attach his fame to that of Frederic the Great, whom celebrated as Horace did Augustus. From circumstance, and from his occasional imitations Horace, he has been called the German Hora but is greatly below his model. Ramler had poetical genius, but he did much to polish Ger versification. His ideas respecting German gram were, however, very deficient. He translated m of the classics. His poetical works appeared in volumes (Berlin, 1800, 4to and 8vo.); a pos edition, in the same place (1825, 2 vols. 12 Ramler wrote also in prose. The words to Gra celebrated oratorio (the Death of Jesus) are by

RAMMELSBERG. See *Harts*.

RAMMER is a cylindrical block of wood fitting the bore of a cannon, and fastened wooden staff, or on a stiff rope well served spun yarn. It is used to drive the charge cannon home, or to the innermost part of it. rope-rammers are most general in ships of war

RAMMOHUN ROY, an Indian rajah, who

tinguished himself by his literary attainments and his conversion from the ancient Hindoo faith to a belief in Unitarian Christianity, was born about the year 1780, at Bourduan, in the province of Bengal. The first elements of his education he received under the paternal roof, where he also acquired a knowledge of the Persian language. He was afterwards sent to Patna to learn Arabic; and here, through the medium of translations of Aristotle and Euclid, he studied logic and mathematics. When he had completed these studies, he went to Calcutta to learn Sanscrit, the sacred language of the Hindoo scriptures, the knowledge of which was indispensable to his caste and profession as a Bramin. (See *Caste*, and *Bramin*.) About the year 1804 or 1805, he became possessed, by the death of his father and of an elder and younger brother, of the whole family property, which is said to have been very considerable. He now quitted Bourduan, and fixed his residence at Moorshedabad, where his ancestors had chiefly lived. Shortly after his settlement at this place, he commenced his literary career by the publication of a work in the Persian language, with a preface in Arabic, which he entitled, Against the Idolatry of all Nations. The freedom with which he animadverted on their respective systems gave great umbrage, both to the Mahommedans and the Hindoos, and created him so many enemies that he found it necessary to remove to Calcutta, where he again took up his residence in the year 1814. Two years previously to this period, he had begun to study the English language; but he did not then apply to it with much ardour or success. Being some years after appointed dewan, or chief native officer in the collection of the revenues, and the duties of his office affording him frequent opportunity of mixing with English society, and of reading English documents, he applied to it with increased attention, and very soon qualified himself to speak and write it with considerable facility, correctness and elegance. He afterwards studied the Latin, Greek and Hebrew languages. A careful study of the sacred writings of the Hindoos had convinced him that the prevailing notions respecting the multiplicity of deities, and the superstitious devotion to the licentious and inhuman customs connected with them, were grounded upon a gross perversion of their religion. These original records appeared to him to inculcate a system of pure Theism, which maintained the existence of one God, infinite in his perfections and eternal in his duration; and that it required from its professors a mental rather than a corporeal worship, accompanied by strict and exemplary virtue. Having embraced these views of the Hindoo theology and morals, he became anxious to reform the creed and practice of his countrymen, and determined to devote his talents and his fortune to this important and honourable undertaking. The sacred books or Vedas (see *Indian languages* and *literature*) contain the religious documents of the Hindoos. This work Rammohun Roy translated from the Sanscrit into the Bengalee and Hindoo languages, and distributed the translation gratuitously. This he afterwards published in English, for the purpose of proving to his European friends, "that the superstitious practices which deform the Hindoo religion, have nothing to do with the pure spirit of its dictates." But, as might be expected, his benevolent conduct, and zeal for the good of his fellow men, exposed him to many personal inconveniences. He had, nevertheless, the gratification of witnessing the beneficial effects of his labours. From the perusal of the New Testament, in his "long and uninterrupted researches into religious truth, he found (he says) the doctrines of Christ more conducive to moral principles, and better adapted for the use of rational beings, than any other which had come to his knowledge." As the most likely method of acquiring a correct knowledge of his doctrines, he determined upon a careful perusal of the Jewish and Christian scriptures in their original languages. From this undertaking he rose with a full conviction that the Christian religion is true and divine. In 1820, he accordingly published a work, entitled the Precepts of Jesus the Guide to Peace and Happiness, consisting chiefly of a selection of moral precepts from the Evangelists. In this undertaking he was governed by the consideration, that historical and some other passages are liable to the doubts and disputes of free-thinkers and anti-Christians, especially miraculous relations, which are much less wonderful than the fabricated tales handed down to the natives of Asia, and would consequently be apt at best to carry little weight with them. Rammohun Roy, in his doctrinal views, was a Unitarian, holding, however, the pre-existence and superangelic dignity of Christ, and considering the doctrine of the Trinity as a species of polytheism, objectionable in itself, and calculated to prevent the adoption of what he considered the Christian faith by the natives of Hindoostan.—See *Correspondence relative to the Prospect of the Reception of Christianity in India*. This work was followed by the First, Second, and Final Appeal to Christians, in reply to the animadversions of Dr Marshman, Baptist missionary at Serampore, who defended the Trinitarian views of the deity of Christ, and the atonement. In 1833, Rammohun Roy visited England, where he was seized with a fever, which proved fatal. He died at Stapleton Grove, the residence of Dr Lant Carpenter, near Bristol, on the 27th September of that year. When in the extremities of death, he went through the rites of the Braminical religion, in order that his children might not lose their property and caste. For the same reason, he was privately interred at Stapleton Grove, instead of a christian cemetery.

RAMPANT, in heraldry; a term applied to a lion, leopard, or other beast, that stands on his hind legs, and rears up his fore feet in the posture of climbing, showing only one half his face, as one eye, &c. It is different from *salient*, in which the beast seems springing forward.

RAMSAY, Allan, next to Burns the most distinguished among the modern Scottish poets, was born on the 15th of October, 1686, at Leadhills, in Lanarkshire. His father was superintendent of lord Hopetoun's mines there, and his mother, Alice Bower, was the daughter of a gentleman in Derbyshire. All the education which Allan ever received was at his native parish school in Crawfordmuir, where it is probable he merely went through the common routine of instruction to be had at such seminaries. The death of his father in early life prevented him, it is to be supposed, from receiving any thing like a liberal education, and forced him to seek, while yet a youth, a means of livelihood in the Scottish capital. There he became bound as an apprentice to a *wig-maker*—an occupation which the greater part of his biographers are very anxious to distinguish from a *barber*, but with what degree of justice we know not. Allan himself, it would seem, was not ashamed of his trade, but continued in it long after his apprenticeship had ceased; nor did he abandon it for the more congenial pursuit of bookselling, until he had held for some time a name in the poetical world. The exact period when he commenced bookseller we cannot ascertain; but he is said to have been the first who established a circulating library in Scotland. The library still

exists; and is now perhaps the most extensive of the kind in Britain. His first shop, as we learn from the imprint of some of his books, was, "at the sign of the Mercury, opposite to Niddry's Wynd;" but in 1726, he removed to a house at the east end of the Luckenbooths, and, instead of Mercury, adopted for his sign the heads of Ben Johnson and Drummond of Hawthornden. In 1720, he published a collection of his poems, in one vol. quarto, which was so liberally subscribed for, that he is said to have cleared by it 400 guineas. The greater part of the pieces in this collection had previously appeared, at different periods, in the form of sheets or half sheets; and so popular had their author become, that it was quite customary for the good people of Edinburgh to send their children with coppers for "Allan Ramsay's last piece." In 1724, the first volume of "The Tea-Table Miscellany, a Collection of Songs," appeared, which was soon followed by a second and third volume. The rapid sale of this compilation induced Ramsay to publish another, entitled, "The Evergreen, being a Collection of Scots poems wrote by the Ingenious before 1600," which was equally successful. His next publication, established his fame upon a sure and lasting basis. In 1725, appeared "The Gentle Shepherd"—the best pastoral perhaps in any language. Its success was instantaneous and unprecedented; edition followed edition with great rapidity; and it was not long till it was known by every lover of poetry, and —what bespeaks a higher popularity—till it had taken a place on the shelf of almost every cottage in Scotland. In 1728, a second quarto volume of his poems appeared; and in 1730, his "Thirty Fables," which concluded his public poetical labours. The "Fables" are undoubtedly the best of Ramsay's lesser productions. Among them stands "*The Monk and the Miller's Wife;*" a story which, although previously told by Dunbar, "would of itself," as a competent judge has remarked, "be Ramsay's passport to immortality as a comic poet." He was now at the height of his celebrity: his acquaintance was courted by many distinguished individuals, and his shop was the common resort of the literary characters and wits of Edinburgh. An extract from a letter to a friend, which he wrote about this period, gives us a very enviable view of his later years:—"Half a century of years have now rowed o'er my pow, that begins now to be lyart; yet, thanks to my author! I eat, drink, and sleep, as sound as I did twenty years syne. Yes, I laugh heartily too, and find as many subjects to employ that faculty upon as ever Fools, fops, and knaves, grow as rank as formerly; yet here and there are to be found good and worthy men, who are an honour to human life.....My gude auld wife is still my bed-fellow. My son, Allan,* has been pursuing your science [painting] since he was a dozen years auld," &c....." I have three daughters, one of seventeen, one of sixteen, and one of twelve years old; and no waly-draggle among them —all fine girls. These six or seven years past I have not written a line of poetry. I e'en gave over in good time, before the coolness of fancy, that attends advanced years, should make me risk the reputation I had acquired." In 1736, he took a principal part in the erection of a theatre in Carubber's Close, by which he came to considerable pecuniary loss; and it is remarked by his biographers, that this was perhaps the only unfortunate project in which he ever was engaged. In 1743, his wife died, to whom he had been married thirty years; and soon after this, with the view relinquishing his shop, he built a house on the side of Castle-hill, in rather a whimsical architecture. Here he spent the last twelve of his life in a calm and pleasant manner; although he did not give up his shop until within three his decease. He died on the 7th January, 1758, seventy-two; and was buried in Greyfriars yard, where a monument to his memory is erected

RAMSAY, ANDREW MICHAEL, better known the name of the Chevalier de Ramsay, was born Ayr, in 1686. He was the son of a baker of lent circumstances, who was able to give him good education. After spending some time at the universities of Edinburgh and St Andrews, he went to Leyden, the university of which was at that the common resort of the literary youth of Scotland. In 1710, he repaired to Cambray, on a visit to celebrated Fenelon, who received him into his house as an inmate of the family, and by whom he was persuaded to embrace the Catholic faith. The influence procured him the preceptorship to the duke de Chateau-Thiery and the prince de Turenne. He was afterwards engaged to superintend the education of Prince Charles Edward Stuart and brother Henry, afterwards Cardinal de York; for this purpose he removed from Paris to Rome in 1724. Later in life, he visited his native country and offered to settle a handsome annuity on his lations, which they refused to accept, on the of his having renounced the Protestant faith. died, while residing with the family of Marshal Turenne, at St Germain en Laye, on the 6th 1743. The Chevalier de Ramsay, during his published several works, which give him a respectable place both in French and English literature. The chief of these are, a Life of Viscount Turenne, a Life of Fenelon, the Travels of Cyrus, and a work on the principles of Natural and Revealed Religion.

RAMSAY, DAVID, M. D., an eminent American physician and popular historian, was born in 1749, in Lancaster county, Pennsylvania. His father was an Irish emigrant, and a respectable farmer. He studied medicine in Philadelphia; and year 1772, when he commenced the practice of profession in Maryland, and, after a year, removed to Charleston, South Carolina, where he soon acquired celebrity. He laboured zealously with pen to promote the independence of his country. For some time he attended the army in the capacity of a surgeon, and was at the siege of Savannah. He was a leading member of the legislature of South Carolina, from 1776 to the conclusion of war. In 1782, he was elected a member of the tinental congress, and continued in that body close of the war. In 1785, he was elected to represent the Charleston district in congress, and chosen its president, *pro tempore*. In the ing year, he again returned to his profession his literary pursuits. In 1785, he published tory of the revolution in South Carolina, which translated and published in France. In 1789 published the History of the American Revolution which passed through two large editions; the Life of Washington; in 1808, the History South Carolina. He also left, among his manuscripts a History of the United States, from their settlement as English colonies to the end of 1808; and a series of historical volumes on Universal History Americanized, or an View of the World, from the earliest Records Nineteenth Century, with a particular Review the State of Society, Literature, Religion, and

* Who afterwards became a distinguished portrait painter, as well as intelligent political writer. He was born in 1709, and died in 1784.

of Government of the United States of America. The first was published early in 1817, with a continuation to the treaty of Ghent, by the reverend Samuel Stanhope Smith, and other literary gentlemen (in 3 vols., 8vo.) The latter, which had occupied doctor Ramsay's leisure during more than forty years, was published in 1819 (12 vols., 8vo.) He died May 8, 1815, in consequence of wounds received two days previous from the pistol of a maniac, in open day, within a few paces of his dwelling.

RAMSDEN, Jesse, an eminent mechanist and optician, was born at Halifax, in Yorkshire, in 1738. He applied himself to engraving, and, in the course of his employment, having to engrave several mathematical instruments, finally constructed them himself. He married a daughter of Mr Dolland, the celebrated optician, and opened a shop in the Haymarket, whence he removed to Piccadilly, where he remained until his death, in 1800. Ramsden obtained a premium from the board of longitude, for the invention of a machine for the division of mathematical instruments; he also improved the construction of the theodolite, the pyrometer for measuring the dilatation of bodies by heat, the barometer for measuring the height of mountains, &c.; also the refracting micrometer, and transit instrument and quadrant. He made great improvements in Hadley's quadrant and sextant, and procured a patent for an amended equatorial. Mr Ramsden, who was chosen a fellow of the royal society in 1786, was distinguished during the whole of his life by an enthusiastic attention to his own profession, which formed his amusement as well as his occupation; and such was his reputation, that his instruments were bespoken from every part of Europe; and ultimately to obtain the fulfilment of an order, was deemed a high favour.

RAMSGATE; a fashionable bathing place in the isle of Thanet, five miles from Margate, and seventy two east of London. It has an excellent artificial harbour, formed by immense piers, extending 800 feet into the sea; more than 300 sail have been sheltered in it at once. Ramsgate derives its principal importance from the great resort of persons hither for sea-bathing, for which purpose the beach is particularly suited, in consequence of the smoothness of the sands, the limpid clearness of the water, and the salubrity of the air, and beauty of the prospects. Here are bathing-houses, conveniently and handsomely fitted up, where cold, warm, shower, and vapour-baths are provided, together with other accommodations for visitors. On the west cliff are the Isabella warm sea-water baths, the water for the use of which is raised 110 feet through an aperture in the rock, by means of machinery. Here are assembly-rooms, public libraries, and reading-rooms; and the inns, taverns, lodging and boarding-houses in general, afford good accommodations. The erection of the harbour tended greatly to the improvement of the commerce of this port, but the trade in timber from the Baltic, formerly carried on here, has been discontinued. The coasting-trade is considerable, much coal being imported; and off the coast the fishery is extensively prosecuted by large vessels from the western ports, and by some small-craft belonging to Ramsgate. In 1829, there were seventy ships belonging to this port, the burden of which altogether amounted to 4397 tons. Steam packets pass hence to London every day during the season. Here are two large yards for ship-building, rope-walks, and naval store-houses. The markets are often visited by persons bringing for sale, from France, fruit, eggs, and other articles. Population of the town and parish in 1841, 10,909.

RAMUS, Peter, a philosopher of the sixteenth century, was a native of France. He went to Paris about 1523, when he was but eight years old, and became a lackey in the college of Navarre. Such was his strong inclination for learning, that he not only devoted to study all the time he could spare in the day, but also a part of the night. After attending a course of philosophy, he was admitted to the degree of M A., on which occasion he contested the infallibility of Aristotle. His opinions excited violent opposition, and the partisans of the Aristotelian philosophy had recourse to the civil power, in order to silence their adversary. His publications were prohibited, and ordered to be burnt before the royal college of Cambray, and he was commanded to abstain from teaching his doctrines, in 1543. Having obtained the patronage of the cardinal De Lorraine, the prohibition of lecturing was withdrawn in 1547; and, in 1551, he was appointed royal professor of rhetoric and philosophy at Paris. His spirit of free inquiry ultimately led him to become a Protestant. This change obliged him to flee from Paris; but, in 1563, he was restored to his chair. In the massacre of St Bartholomew's, 1572, Ramus was one of the victims. His works, relating to grammar, logic, mathematics, &c., are numerous.

RANA. Under this head we shall not go into a description of this genus of reptiles, but shall confine ourselves to an account of the frogs which make so important a part of it. Toads the reader will find described in a separate article. The muzzle of frogs terminates more in a point than that of toads. The nostrils are visible at its summit. The teeth are very small; the eyes large and brilliant, and surrounded with a yellow circle; the ears are placed behind them, and covered by a membrane. The muscles of frogs are considerable in relation to their bulk, and peculiarly elastic, strong, irritable, and sensible to the action of galvanism. Their general sensibility does not appear to be great; they are killed with difficulty; the heart contracts and dilates a long time after the death of the animal, and even when it has been extracted from the body. The ordinary mode of progression is by leaps. Frogs feed on the larvæ of aquatic insects, on worms, small mollusca, flies, &c., and always choose a prey which is living and in motion. They are useful in gardens by destroying great quantities of small slugs. These reptiles are usually found during the summer on the ground in humid places, in the grass of meadows, and on the banks of streamlets, into which they continually leap and dive. They swim well and without difficulty by means of their hinder feet, the toes being united by a membrane. At the close of warm rains in the fine season, they frequently spread themselves through the country. To this is owing the popular belief in the rains of frogs—a very ancient prejudice. Frogs are distinguished by a peculiar cry, termed *croaking*, particularly during rain and hot weather, in the morning and evening. During the feudal *régime* in France, when the castles were surrounded with water, it was the occupation of the slaves or villeins to strike the water of the dikes morning and evening to prevent the frogs from disturbing the repose of their masters. Even up to the period of the revolution, this custom existed in many places. As soon as the summer is over, and the weather begins to be a little cold, the frogs lose their natural voracity, and cease eating. As the cold increases, they sink into the mud of deep waters, the holes of fountains, and

sometimes even into ground not covered by water, and pass the winter in profound lethargy. The female lays annually from six to twelve hundred eggs; and frogs can live a great number of years if they escape their enemies,—serpents, pikes, vultures, storks, &c.,—which destroy immense quantities of them. In France they are much used for food, and in Germany also. The continental physicians employ their flesh, variously prepared, in the treatment of a number of diseases. There are numerous species of this animal. The *green frog* (*rana esculenta*) is about two or three inches long, without reckoning the hinder feet. It abounds in stagnant waters on the continent of Europe and in Asia, but is less common in England than the *rana temporaria*. It seldom comes to land, and never removes from the banks of streams, ponds, or lakes. The *rana temporaria*, or common frog of England, is tolerably abundant throughout Europe, prefers wooded and mountainous situations, and frequents meadows and gardens during fine weather. It is generally found on land in summer. At the approach of winter, it retires into fountains and ponds of pure water, but does not bury itself in the mud at the bottom. The *rana clamitans*, found in Carolina, of an obscure colour, is the liveliest of all known frogs. It croaks continually, and never removes far from the shore. The *rana pipiens*, or *bull frog*, is the largest species of this genus, being three or four inches broad, and six or eight in length, without including the feet; with the limbs extended, it measures about eighteen inches. It inhabits North America, particularly the southern part of the United States. Its cry is very deep and hoarse. It is very fond of young ducks and goslings, which it swallows whole. On level ground, it makes leaps of from six to eight feet. The *rana grunions*, if distinct from the preceding species, is fully as large. It is found in the West Indies, and is said to be able to clear, with a leap, a wall five feet high. The *rana paradoxa* is found at Surinam, and in other countries of South America. As the adult animal is less than the tadpole, in consequence of the loss of an enormous tail, and of some envelopments of the body, some observers formerly supposed that the animal passed from the frog to the tadpole state, and was subsequently transformed into a fish; this error, however, is completely refuted.

RANCE. See *Trappe, La.*

RANELAGH ROTUNDA and GARDENS; near Chelsea, built and opened for musical performances, in 1742. Degenerating into a scene of licentiousness, it was shut up in 1803, since which the buildings have been wholly demolished.

RANGE, in gunnery; the path of a bullet, or the line it describes from the mouth of the piece to the point where it lodges. *Range* is also the distance to which a bomb or cannon ball is thrown from a piece of artillery by the explosion of gunpowder. The flight of a shot is distinguished by artillery men into two different ranges, of which the first is called the *point-blank*, and the second the *random shot*. To these also may be added the *ricochet*, or *rolling* and *bounding shot*. The point-blank range is the extent of the apparent right line described by a ball discharged from a cannon. The random shot is when, by letting the breech down upon the bed of the carriage, the ball is carried to its greatest possible distance, and describes a curve in its flight. The ricochet is fired by elevating the piece from three to six degrees, and only charging it with a quantity of powder sufficient to carry the shot along the face of the works attacked. The shot thus discharged, so as to go just over the parapet, rolls and bounds along, killing, maiming, or destroying all it meets in its course, creating much more disorder, by going more slowly, than if thrown from the piece with greater violence. As one of the effects of the bomb results from its weight, the range of mortars is extremely different from that of cannon, because the former is not pointed at a certain object, like the latter, but inclined to the horizon at a certain angle, so that the bomb, being thrown up obliquely, may fall upon the place intended: hence it appears that a mortar has no point-blank range, or, at least, that no use is made of it. *Ricochet* signifies duck and *drake*—a name given to the bounding of a flat stone thrown almost horizontally into the water. It was the opinion of engineers formerly, that, by charging the pieces high, the ball was thrown to a greater distance: hence the pieces were charged with two thirds, or even the whole weight of the shot, in order to impel it with greater velocity; but it has been discovered since, that the half or one third the weight of the ball is the fittest charge for the piece. It may not be amiss to observe here, that the range of cannon is greater in the morning and at night than at noon, and in cold than in hot weather. The reason is, that, at these times the air being less heated, gives less way to the dilatation of the powder, which being, by these means confined, as it were, to a smaller sphere of action, must have a stronger effect in proportion. Hence the lengths of cannon are proportionable to the height of the charge, the shot will be discharged with the same velocity, whatever the calibre may be. The greatest distance to which a shell can be thrown, with the strongest charge, is little more than about 1800 or 2000 fathoms.

RANGER; an officer of a forest, appointed to drive the deer back from the purlieus, to prevent trespasses, &c.

RANGOON (formerly *Dagoon*); a city of Ava, in Pegu; 600 miles south-east of Calcutta; lon. 96° 9′ E.; lat. 16° 47′ N. It is the principal port of the Birman empire, situated on a branch of the Irrawaddy, or Ava, called the *Rangoon* river, thirty miles from the sea, and was founded in the year 1755, by Alompra, king of Birmah, who had taken the country from the king of Pegu. The river is commodious for building ships, and the forests of Birmah and Pegu yield teak wood. Its population has been estimated at 30,000, but is not more than 12,000. It was taken by the English in 1824, but restored. The American Baptist missionary society has a mission here.

RANK. In the article *Ceremonial of European Powers*, we have spoken of the former and present arrangement of rank among them. As to the distinctions of rank among individuals, these will always be more marked in proportion as the government of a country is arbitrary, and the spirit dead. The Roman and Byzantine empire courts exhibit a striking instance of the importance attached to these distinctions, when compared with the vigorous period of republican Rome. In Russia, the most absolute government in Europe, the nobility are divided into fourteen classes; and whoever comes a member of one of the eight highest, ennobles himself and family. The rank of these classes is estimated with reference to military degrees; thus a doctor of medicine, if we are properly informed, is equal in rank to a captain of infantry. In a country where the mania for titles has arrived to such excess as in Germany (see *Commonial*, and the note to article *Majesty*) it may easily be imagined that there must have arisen an abundance of contested questions respecting

In the seventeenth and eighteenth centuries, these prevailed there, and in other countries of the European continent, to a ridiculous extent. There are, in England, above sixty degrees of precedency; but these are intended principally to designate the order to be observed in processions, and on other occasions of ceremony, and have little to do with determining the respect which is paid to men in society.

RANK, in war, is a row of soldiers placed side by side; while FILE is a number drawn up in a direct line behind each other.

RANUNCULUS; a genus of plants containing about 150 species, almost exclusively inhabiting the northern hemisphere. The species of *ranunculus* are herbaceous plants, with entire lobed or dissected leaves, and usually terminal flowers, of a yellow colour, but, in a few species, white. The calyx consists of five caducous leaves. There are five petals, and numerous stamens, surrounding a cluster of one-seeded capsules. Almost all are acrid and caustic, poisonous if taken internally, and, when externally applied, will raise blisters, which are followed by deep ulcerations, if left on too long. Beggars sometimes avail themselves of this property to produce ulcers, in order to excite pity. This acrid principle is destroyed by desiccation or immersion in hot water.—The *R. Asiaticus* is a native of the Levant and North Africa, and was first brought to Europe by the crusaders. It is now a favourite ornamental plant, which has produced innumerable varieties, of every shade and combination of colours excepting blue. The flowers are double and semi-double, and often two inches or more in diameter.

RANZ DES VACHES (in German, *Kuhreihein*) is the name of the celebrated national air, which the herdsmen of the Alps in Switzerland sing or play when they drive out the herds. It consists of a few simple intervals, is entirely adapted to the simple life of these people and their instrument (the *Alpenhorn*, horn of the Alps), and has an uncommon effect in the echoes of the mountains. This effect becoming intimately associated with the locality of Switzerland, explains the many anecdotes of the home-sickness caused by the sound of the *Ranz des Vaches*, when heard by Swiss in foreign countries. There are, however, variations in the melody, and we find, even in Rousseau's *Dictionnaire de Musique*, several *Ranz des Vaches*. In 1815, appeared at Berne, the second edition of a complete collection of these airs. Appenzell is said to have the most genuine and original *Ranz des Vaches*.

RAPE (*brassica napus*); a cruciferous plant, with small yellow flowers, belonging to the same genus with the cabbage and turnip, and cultivated, to a considerable extent, in many parts of Europe. There are two varieties, the rape and cole, the latter distinguishable by its greater height, fewer branches, and its being more soft and tender. Both are frequently sown intermixed. When sown separately, the cole is usually used as fodder for sheep, and the rape allowed to remain for the seed. The harvest commences in the month of August, when the pods are yellow, but before perfect maturity; and, as the seed is easily shed, it is customary in some places to thresh the plants in the field, upon a large cloth. Oil is obtained from the seeds by pressure, and is used in large quantities for various economical purposes, for making the soap called *green soap*, for burning in lamps, by clothiers and others; also in medicine, &c., &c. It is apt to become rancid, though there are means of purifying it. The oil-cake is sometimes employed for fattening oxen, or as a manure. The roots may be eaten as a substitute for turnips, but they have a stronger taste. The stalks are generally burnt, and the ashes, which are very rich in alkaline matter, are collected and sold. A mixture of rape and millet seed is frequently employed as food for cage birds. This plant grows wild in many parts of Europe. The radical leaves are lyrate, and the superior ones very smooth, and embracing the stem.

RAPE CAKE. See *Rape* and *Manure*.

RAPHAEL, OR RAFFAELLO SANZIO OR DE' SANTI, the greatest painter of the modern, or, as he is considered by many, the last of the ancient school of art, was born at Urbino, on Good Friday, March 8, 1483, and died at Rome, on Good Friday April 7, 1520. A Madonna and Child, painted by him on the wall of the yard of his father's house, without his having received any instruction (which painting was subsequently transferred, together with the portion of wall on which it was painted, to a room in the house, where it may still be seen), convinced his father, Giovanni Sanzio, an indifferent painter, of his own incompetency to do justice to the talents of his son, and induced him to place him in the school of an abler master. At his request, Perugino received the young painter into the number of his pupils. Raphael soon surpassed his numerous compeers, and in a short time, so completely acquired his teacher's manner, that it is difficult to distinguish the works of the two belonging to this period. This is shown by Raphael's first works,—the Coronation of the Duke Niccolo da Tolentino, a Crucified Saviour, between two Angels, a Holy Family, a Betrothal of Mary, and, particularly, the Crowning of Mary, for the Franciscan convent in Perugia,—all executed by him between his fifteenth and eighteenth years. During this time, the painting of the library of the cathedral at Sienna was intrusted to Pinturicchio, who had been a fellow pupil of Raphael, and now invited him to assist in this labour. Raphael had already completed a great part of the cartoons for this purpose, when he learned that the cartoons of Michael Angelo and Leonardo da Vinci, which had been prepared by these two great artists in consequence of the prize offered by the city of Florence, were publicly exhibited in that city. Burning with desire to behold them, he hastened to Florence. These cartoons, and Florence itself, then the seat of all that was beautiful, made a deep impression on his youthful sensibilities; and he derived great advantage from the acquaintance of many young artists of distinction, Ghirlandaio, San Gallo, &c. Although Raphael's biographers do not expressly say that he studied assiduously in Florence, the works of the earlier masters, Cimabue, Masaccio, Giotto, Verochio, Ghiberti, as Michael Angelo and Leonardo da Vinci had done, the fact is evident from the pictures executed by him while there, among which a Madonna and Child (now in the Tribuna at Florence) is highly commended by Vasari. The death of his parents obliged Raphael to hurry home; and while he was arranging his father's affairs in Urbino, he completed, in his hours of leisure, several paintings, e. g., two Madonnas, a St George, and probably its pendant, the St Michael (now in Paris), Christ praying in the Garden (in Paris), and, in 1504, the Marriage of Mary (*Lo Sposalizio*, now in Milan). His love for Perugia soon induced him to return thither. He there sustained his reputation by several paintings —a Madonna for the church of the Frati de' Servi, a Mater dolorosa, over which he delineated, in a second picture, God the Father (now in the Palace Colonna, at Rome) with some other easel-pieces, and a Christ, with God the Father, surrounded by several Saints, for the small Camaldulian convent, which was his first painting in fresco. All thes-

works partake somewhat of the style of his master, and do not exhibit the grandeur, dignity, and power of his later performances, but are distinguished for the sensibility and feeling belonging to the earlier school. His desire for further improvement drew him a second time to Florence, where he sealously pursued his study of the old masters above mentioned, and where his acquaintance with Fra Bartolomeo gave him a more correct knowledge of colouring. He seems to have spent the whole time of his residence in that city in his studies; at least it is known that he executed there nothing but a few portraits and the cartoon for his Entombing of Christ. This picture itself he painted in Perugia, whence it was afterwards transferred to the Borghese palace at Rome. It is a miracle of composition, design and expression, and was surpassed, in these respects, by few of his subsequent performances. After finishing it, Raphael returned, for the third time, to Florence, where his studies became again his chief employment; at least we are able to point out, with certainty, as having been executed at this time, only the excellent Madonna, called *La Bella Giardiniera* (now in Paris), and another Madonna, with the Fathers of the Church (now in Brussels), neither of which was entirely finished by Raphael. His repeated residence in Florence had the greatest influence, not only on himself, but on the whole of the modern school of art. He found that Cimabue, Giotto, Fiesole, and the Florentine artists of the time, could not only compete with his teacher, Perugino, in all the departments of art, but that some of them—Masaccio, Fra Filippo Lippi, Mariotto Albertinelli, Ghirlandaio and Fra Bartolomeo—surpassed him in excellence of composition, correctness of design, and liveliness of colouring. In the works of Ghirlandaio, and above all of Masaccio, he found, what he most desired, a grander style in forms, drapery, and outline. As Raphael had already acquired the excellences of the greatest masters of his time in Romagna, he now possessed himself of those of the Florentine school, for which he ever entertained a great esteem. A striking proof of this was his copying, in his *loggie*, without the least alteration, two figures by Masaccio, which may still be seen in the Carmelite monastery at Florence, namely, Adam and Eve driven from Paradise by the Angel. Pope Julius II. had employed Bramante in rebuilding St Peter's, and in the embellishment of the Vatican. At Bramante's suggestion, Raphael was, in 1508, invited to Rome. The pope received him with distinguished favour, and the artists of Rome with the greatest respect. Here he executed the *Disputa*, or Dispute of the Fathers of the Church, on the wall of the second chamber, called the *stanza della Segnatura*, next to the great hall of Constantine. Between this painting and his Entombing of Christ there is a similarity, which is not the case with his later performances. In the grouping, also, he has adhered to the style of his earlier predecessors; but the *Disputa* is by far the more perfect of the two. All is life, motion, action: the variety of the characters is admirable; every stroke is full of meaning. If we divide Raphael's works into several periods, the first comprising his earlier performances, executed in the manner of Perugino, the second comprising those which he executed in Urbino, Florence, &c., we recognise in the *Disputa* the transition to the third manner, which is still more clearly manifested in the School of Athens, the second grand painting in this chamber. This painting (which was probably preceded by the Parnassus, the third great painting of the room) displays far more freedom of handling, and more manliness and energy. By it Raphael gained completely the favour of the pope, that he almost all the frescoes of other artists in the can to be effaced, that the rooms might be by him. Raphael painted in their stead, in the mentioned *stanza*, the allegorical figures of Philosophy, Justice, and Poetry, in the curve the ceiling; the Fall of Adam, Astronomy and Marsyas, and Solomon's Judgment, in reference to the four principal figures of the ment; and, lastly, on the fourth wall, windows, Prudence, Temperance, and below them, the emperor Justinian, delivering Roman law to Tribonian, and Gregory IX the Decretals to an Advocate, and, above Moses and an armed allegorical figure all the pieces of the first *stanza* or hall ished. According to Vasari's account, executed several less important but excellent coes (Isaiah in St Augustine's, the Prophet Sibyls in Sta-Maria della Pace, and the *Madonna di Foligno* in the Vatican). The gress which Raphael made, in his peculiar shown by his next painting in the *stanza* pulsion of Heliodorus from the Temple. His style is far more earnest, grand, bold, and the execution far more spirited and masterly was followed, in 1514, after the accession new pope, Leo X., by his Leo the Great the Progress of Attila, the Deliverance from Prison, and, on the ceiling of the Moses viewing the burning Bush, the Bless the Ark, the Sacrifice of Isaac, and Jacob's Nearly contemporary with them are the easel-pieces: the famous *Madonna del Pesce* Escurial), which was transferred, in the wood to canvass; his equally beautiful which is said to have been finished by mano; a Holy Family, called *La Perla* Escurial); Ezekiel's Dream; among several donnas, that called *Dell' Impannata*; Christ ing the Cross, known by the name of *La di Sicilia* (now in Madrid); Christ in Glory rounded by saints; *I cinque Santi*; his trait (now in Munich); the portrait of Leo in Paris), &c. Albert Durer, induced by reputation, is said to have made him an friendship, and to have sent him several etchings, with his portrait, and to have in return, a number of drawings by Raphael. With the Conflagration of the Borgo (*Incendio del Borgo*), extinguished by the Prayers of Leo, phael began the third *stanza* of the Vatican. work is a master-piece for strength of expression, beauty of forms, excellence of and variety. It was followed by the Coronation Charlemagne, Leo III.'s Vindication before Charlemagne, and the Victory of over the Saracens at Ostia (on which Raphael's scholars were employed in working his designs). He next completed the Loggie (*loggie*) of the Vatican palace, by which communicate, and which had been left by Bramante, and furnished designs for ings and stucco-work with which they adorned. The execution of the paintings four done by himself) Raphael Giulio Romano and some of his other the stucco-work to John of Udine. It was formed a complete series of works have exalted the palace of the Vatican ple of the arts. The pope, charmed cellence of these performances, commanded phael the decoration of another *stanza* with images of the saints and apostles

him superintendent of all the embellishments of this palace, and loaded him with marks of honour. During this time, Raphael produced many other excellent pieces, prepared designs for several palaces in Rome and other cities of Italy, and finished the Madonna for the church of St Sixtus in Piacenza (now in Dresden), unquestionably one of the master-works of his pencil. The loftiness, dignity, and sublimity, combined with sweetness, grace, and beauty, which reign in this picture, render it inimitable. Other works of this period are St Michael, the portraits of Beatrice of Ferrara, of his beloved Fornarina, of Carondelet (now in England), of count Castiglione, and of the beautiful Joanna of Arragon (both in Paris). Of the last there are two excellent copies, which are often represented as the work of the artist himself, one in the possession of count Fries at Vienna, the other of Wocher at Basle. To this time, also, belong the frescoes in the Farnesina, representing the life of Psyche in twelve pictures, and Galatea, all, except the last, executed by his scholars; also the designs from the fable of Psyche, altogether different from the former, thirty-eight in number, and the Madonna della Seggiola (now in Paris). It was probably at a later period that Raphael prepared for Augustino Ghigi designs for the building and decoration of a chapel in Sta-Maria del Popolo, and for Leo X. the celebrated cartoons (see *Cartoons*) for the tapestry of one of the chambers of the Vatican. These tapestries were afterwards annually exhibited in the Vatican, on the festival of *Corpus Christi*, but have lately been dispersed. This is the more to be lamented, since they have often been preferred to the *stanze* of Raphael, in point of composition, loftiness of character, variety of expression, grouping, attitudes, &c. For painting the fourth *stanza* —the hall of Constantine, in oil—Raphael left only a few sketches, especially of the battle between Constantine and Maxentius, which were used by Giulio Romano and his other scholars, to whom the labour was eventually entrusted. The pictures, however, of Justice and Benignity, in this hall, were probably executed by his own hand. Several easel-pieces also seem to have been executed by him about this period; among others, John in the Desert (of which there exist several copies, namely, in Florence, in London, in the gallery of the king of the French, in Vienna, and in Darmstadt: the copies are so good, and so much alike, that the original cannot be distinguished, and is not known); his Madonna and Child, on whom an angel is strewing flowers, and a St Margaret. Raphael's last and unfinished painting—the Transfiguration of Christ—is in the Vatican. Although critics have objected to this painting that it contains two subjects, and consists of two pictures, every one must concede that it is the most perfect masterpiece which modern art has produced. The composition is so noble, the design so perfect, the expression so elevated and sublime, the characters so various, the colouring (as far as it proceeds from Raphael) so true and vigorous, that it surpasses all his other works in these points. The head of Christ, in which this combination is most admired, is said to have been his last labour. Attacked by a violent fever, which was increased by improper treatment, this great artist died at the age of thirty-seven years. His body was laid out in state in his study, before his Transfiguration, and consigned, with great pomp, to the church of Sta Maria Rotonda (formerly the Pantheon), where his bones still rest, with the exception of his skull, which was afterwards placed in the academy of St Luke. His tomb is indicated by his bust, executed by Naldini, and placed there by Carlo Maratti, and by the epitaph of cardinal Bembo;—

Ille hic est Raphael, timuit quo sospite vinci
Magna rerum parens, et moriente mori.

All contemporary authors describe Raphael as kind, obliging, modest, and amiable, equally respected and beloved by high and low. The beauty of his figure, and his noble countenance, which inspired confidence, prepossessed the beholder in his favour at first sight. He died unmarried, though by no means averse to women. In accordance with his last will, his property went to his favourite scholars, Giulio Romano and Francesco Penni. When we consider the number of Raphael's paintings, however severe we may be in judging of their genuineness, it seems hardly credible that the entire compass of a human life could be sufficient for their execution. They prove the wonderful fecundity of his genius, and the facility with which he executed It is moreover to be considered, that Raphael furnished the designs for a great number of pieces executed by his scholars; devoted much study to his most important paintings (as is shown by the numerous sketches of Madonnas, of the school of Athens, of the Dispute of the Fathers, &c.); and, in many cases, first drew all his figures naked, in order the better to adapt the drapery and its folds to their respective attitudes. And if we further reflect that the supervision of the building of St Peter's church, and the preparation of designs for the erection of other churches and palaces, with several other collateral tasks, were imposed on him, we must be struck with the highest admiration of his genius. At first, his design, conformably with the taste of the times, and the instruction which he had received, was somewhat stiff and dry. After studying with assiduity nature and the antiques, he formed for himself an ideal, which, by its harmony with nature, touches the feelings, while the Greek ideal rather overpowers by its loftiness. In his manhood, his pencil acquired greater freedom, and his figures became full of life and motion. His drapery, always simple and light, in his latest pieces generally forms large masses, and is excellently arranged so as not to conceal the parts intended to be shown. In foreshortening, and in perspective, he was imperfect. In colouring, he was at first dry; till, taught by Fra Bartolomeo, he consulted nature alone. Although, in this department of the art, he never reached the excellence of Correggio or Titian, his colours always appearing too heavy and dull, yet his St John in Florence, the Fornarina, and his Transfiguration, show how far he had advanced; and only from these pictures can we form a judgment; for his other works, of the best period, were generally executed by his scholars, or, at most, retouched by him. The distribution of light and shade Raphael understood very well; but, with respect to the *chiaro-scuro*, he is by no means to be compared with the above-mentioned great colourists. On the other hand, composition and expression must almost be considered as Raphael's exclusive property; and in these respects he has never found a rival. He always selected the moment of action which expressed most clearly the dispositions of the actors. Avoiding all unnecessary exertion of strength, all excess, occupied solely with the object to be represented, he endeavoured to give to his persons just so much motion as was requisite. Thence it is that we frequently find in his works straight, simple attitudes, which are, nevertheless, so beautiful in their place, and leave so much room for the expression of feeling. Unlike other artists, he first meditated on the whole of the scene to be represented, and the gen-

eral character of the expression; next proceeded to the figures, and lastly to the single parts of them. In this way, his figures possess a harmony which many other artists have aimed at in vain. The most distinguished of his scholars were Giulio Pipi Romano, Francesco Penni il Fattore, Polidoro Caldara di Caravaggio, Benvenuto Garofalo, John of Udine, Bartolomeo Ramenghi il Bagnacavallo. These, with their followers, and later imitators, constitute the Roman school, founded by Raphael, which has ever been distinguished above others for the excellences which belonged to its founder. The latest Lives of Raphael are those of Braun (Wiesbaden, 1815), of Fuseli (Zurich, 1815), and of Quatremere de Quincy (Paris, 1825). Marco Antonio (Ant. Raimondi) engraved Raphael's drawings, and Raphael himself is said to have etched the outlines of some of the plates. A *Catalogue des Estampes gravées d'après Rafael, par Tauriscus Eubanus* (count Lepell), appeared at Frankfort on the Maine, in 1819; and the *Etudes calquées et desinées d'après 5 Tableaux de Raph., accompagnées de la Gravure au Trait et de Notices hist. et crit.*, by Emer. David (Paris, 1822). These five pieces are the *Agnus Dei, La Perle, La Visitation* (since engraved by Desnoyers), *La Vierge au Poisson*, and *Lo Spasimo*, which were carried to France in 1813, were retouched there, and returned to Spain in 1815.

RAPIN DE THOYRAS, Paul, a historian, born at Castres, in Languedoc, in 1661, studied law under his father, who was an advocate, until the revocation of the edict of Nantes drove him to Britain, and subsequently to Holland, where he entered a company of French cadets. In 1689, he followed the prince of Orange into Britain, and distinguished himself at the battle of the Boyne. In 1707, he settled at Wesel, in the duchy of Cleves, and devoted himself to the composition of his History of England. He died at Wesel in 1725. His great work, *L'Histoire d'Angleterre* (Hague, 10 vols., 4to, 1725—1726), has been twice translated into English; and Tindal continued it up to 1760. It is prolix and unanimated, but impartial, and contains much solid information.

RAPP, John, count of, a French general during the revolutionary war, was born in Alsatia, in 1772. In 1788, he entered the military service. As aid of general Desaix, he accompanied him during the campaigns in Germany and Egypt. After Desaix had fallen at Marengo, Rapp became aid to Bonaparte, to whom he had carried information of Desaix's death. In 1802, he executed the commission which he had received from the first consul to exhort the Swiss to a cessation of hostilities, and to proffer the mediation of France in the conflict of parties, which had destroyed the tranquillity of the country since its occupation by the French armies. The Swiss submitted to Bonaparte's decision. In the following year, Rapp was despatched to the mouth of the Elbe to superintend the erection of works to protect the country against the landing of the British. On the breaking out of the war against Austria, in 1805, he accompanied Napoleon, and, after the battle of Austerlitz, where he threw the Russian guards into confusion by a bold attack with his cavalry, and took prince Repnin prisoner, he was made brigadier-general. In the war with Prussia and Russia, he also fought with reputation, and, in the summer of 1807, received the chief command in Dantsic, in the room of general Lefebvre. With the exception of a short interruption in 1812, when he distinguished himself in Russia, he remained seven years commander of Dantsic, which he defended after the retreat of the French army from Russia, till 1814, during a severe siege: which he displayed great talent and brilliant courage, and not till all means of defence were exhausted, and he was compelled by famine, did he capitulate. He was taken, as a prisoner of war, to [illegible]. Returning to France in 1814, he was received with distinction by the king, and, in March, 1815, intrusted with the command of the first *armée*, destined to retard the progress of Napoleon. But when the defection of the whole army rendered all resistance impossible, Rapp also went over to Napoleon, who made him commander of the army of the Rhine, which occupied the lines on the Lauter and from Weissenberg, and extended along the Rhine as far as Huningen. After several battles with an enemy of superior force, Rapp retired under the cannons of Strasburg. When Louis XVIII. returned a second time to Paris, Rapp retained the command of the fifth division, given him by Napoleon, till September of the same year, when the army was disbanded. He retired to his estates, but soon returned to Paris. When the news of Napoleon's death arrived, Rapp was with the person of the king. The information affected him so strongly, that he expressed his [illegible] aloud:—"I am not ungrateful," he said, and immediately withdrew. The king, informed of his conduct, sent for him, and thus addressed him:—"Rapp, I know that you are greatly afflicted at this information: this does honour to your heart, and I only love and esteem you the more for it." Rapp died in 1821, being at the time lieutenant-general of the cavalry. After his death appeared the interesting *Mémoires du Général Rapp — par lui-même* (Paris, 1823). See *Mém. des Contemporains*, 1st No.; these are genuine: the 2d edition was declared spurious by the widow of the general.

RAPPAHANNOCK; a river of Virginia, which rises in the Blue ridge, and runs east-south-east about 180 miles, and flows into Chesapeake bay twenty-five miles south of the Potomac. It passes the towns of Falmouth, Fredericsburg, Port Royal and Leeds, and is navigable for Fredericsburg 60 miles, for vessels of 130 or 140 tons.

RARITAN; a river of New Jersey, formed by two branches which unite twenty miles above Brunswick. It becomes navigable two miles above that city, at a place called *Brunswick landing*. It passes Amboy, and then widens into Raritan bay, which is immediately connected with the ocean.

RAS; Arabian for *head*, and prefixed to the names of promontories or capes.

RASCIANS, or RAITZEN; a Sclavonic race which formerly inhabited Servia and Illyria, and at present is spread through Sclavonia, Lower Hungary, Transylvania, Moldavia, and Walachia. They profess the Greek faith, but many of them have joined the Catholic church.

RASH (*exanthema*); an eruption of the skin, which consists of red patches on the skin, different particularly over the body. Portions of the cuticle are often elevated in a rash, but the elevations are not acuminated. The eruption is usually accompanied with a general disorder of the constitution, and terminates in a few days by cuticular exfoliation.

RASPBERRY. The common cultivated raspberry (*rubus idæus*) has a woody root, from which arise several upright stems, attaining the height of three or four feet, and rough with numerous prickles: the inferior leaves are pinnate, consisting of five oval acute toothed leaflets, green above, whitish and downy beneath; the superior are ternate; the flowers are white and rather

the Netherlands, Denmark, Sardinia, Naples, &c. Gentz drew up the protocol. The five powers which had concluded the peace of Paris, Austria, Prussia, Great Britain, Russia and France, under the presidency of prince Metternich, deliberated on the state of Europe: in some particular cases, Spain, Portugal and Sweden were admitted to their consultations. A committee for the affairs of Germany was formed by Austria, Prussia, Bavaria, Hanover and Würtemberg, to the deliberations of which also the plenipotentiaries of the other German sovereigns and free cities were subsequently admitted. The settlement of the great variety of interests would have been still more difficult than it was, had not one purpose united all, which was to deprive France of its power of making conquests for the future. Dissensions were several times on the point of breaking out; but Napoleon's return from Elba reunited the discordant powers, and suddenly induced Austria, Great Britain, Prussia, Russia, France, Spain, Portugal and Sweden to sign the act of the congress, consisting of 121 articles, on June 9, 1815. (See *Schöll.*) In these articles, the principle of legitimacy was, in general, adopted as the basis for the restoration of the European political system. Austria received the following territories, part of which had been taken from her:—the newly-created Lombardo-Venetian kingdom, with the Valteline, besides three *secundogenitures*; Tuscany, Modena, Parma, the new kingdom of Illyria, Venetian Dalmatia, with Ragusa and the Golfo di Cattaro; further, by treaties with Bavaria, Tyrol and Vorarlberg, Salzburg, as far as the Salza, with other territories which she had lost in 1809; from Russia, the part of East Galicia ceded, in 1809, to this power. (Respecting the restorations made to the other states, see the articles on them respectively.) We would only remark here, that Warsaw was given to Russia under the name of the kingdom of Poland; Cracow became a free city; Prussia, whose possessions could not be put on the same footing as before 1806, was indemnified by a part of Poland, the new grand duchy of Posen, half of the kingdom of Saxony, Swedish Pomerania, Cleves and Berg, and the greater part of the left bank of the Rhine as far as the Saar, in order to form a strong barrier against France. Denmark, which had ceded Norway to Sweden, received Saxe-Lauenburg, and, as the possessor of this country and of Holstein, became a member of the German diet. Bavaria received, as a compensation for her cessions to Austria, Würzburg, Aschaffenburg, the Rhenish circles, &c. Hanover received the rank of a kingdom, and several new provinces. Holland and Belgium were formed into the kingdom of the Netherlands, with a fortified frontier on the side of France. The Netherlandish province Luxemburg was made a grand duchy, and became a member of the German confederacy. Great Britain retained Malta, Heligoland, several conquered colonies (see *Britain*), and protective sovereignty over the restored republic of the Ionian Islands. In Switzerland, three more cantons were formed, and it was declared perpetually neutral. The restored kingdom of Sardinia received Genoa as a duchy, with the grant of a free port; and the succession to the throne was secured to the line of Carignan. Tuscany, the duchy of Modena, the States of the Church, and the kingdom of the Two Sicilies, were also restored. Lucca was given to the Spanish Infanta Maria Louisa, but was afterwards otherwise disposed of. (See *Parma* and *Lucca.*) It was intended that Spain should restore Olivenza to Portugal, which, however, did not take place, as Portuguese troops had occupied Monte Video. June 8, 1815, the act of the Germanic confederacy was signed. It is contained in the act of the congress. (See *Germanic Confederation.*) March 13, 1815, the congress declared Napoleon an outlaw; March 25, 1815, Austria, Russia, Great Britain and Prussia united anew against Napoleon. (See *Bonaparte*, and *Russian-German War.*) Sardinia, Portugal, Hanover, Bavaria, Saxony, Würtemberg, the Netherlands, Denmark, Hessia, Baden, &c., joined this alliance, but not Spain nor Sweden. This last war of 1815 decided particularly the Saxon question. Britain, and even Austria, had agreed that Prussia should have the whole kingdom of Saxony; but the objections of France, of the duke of Saxe-Coburg, the king of Saxony, and, perhaps, most of all, the force of public opinion, induced Metternich to propose the division of Saxony, in January, 1815. Metternich, Talleyrand and Wellington negotiated with the king of Saxony, who had been invited to Presburg. May 18, 1815, he signed the proposed division at Vienna. The abolition of the slave-trade was also a question before the congress (see *Slavery*), and the free navigation of the Elbe, Weser and Rhine, which, however, has been since the subject of long negotiations. (See *Rhine.*) The original of the act was deposited in the archives of the emperor. The founders of this new political system of Europe declared that it should be a free one. But as to a political equilibrium, it was clear that it could not exist whilst Russia, an absolute monarchy, received so dangerous an increase of power by the addition of Poland, and Great Britain was left without a rival on the seas; and as to the freedom of the political system, it may be observed that, in fact, a political aristocracy of the chief powers, originating in the treaty of Chaumont, was confirmed and developed by the congress of Vienna, and continued to operate, as far as respected the continental parties to it, until the French revolution of 1830. (See the articles *Troppau*, *Laybach*, *Verona*, &c., *Intervention*, and *Holy Alliance.*) The holy alliance, though Britain did not accede to it, and the king of France joined it only in his personal character, was the bold and open annunciation of this aristocracy. At present it has been obliged to give up many of its pretensions; but its activity is unabated. Time only can determine what success it will have in future. The political system, as established by the congress of Vienna, has suffered four most important changes, by the separation of Belgium from Holland, the annihilation of the kingdom of Poland, *de facto*, and the decree of the German diet of 1832, by which Prussia and Austria have established a complete dominion over the other states; lastly, in the annexation of Cracow to Austria, in Nov. 1846, by desire of Russia. The pope protested against those parts of the act of the congress of Vienna by which he remains deprived of Avignon and Venaissin. The German church was also not restored to her possessions; and the knights of St John sought for their re-establishment in vain.

Vienna, Peace of, or *Peace of Schönbrunn*, concluded October 14, 1809. The war between Austria and France, in 1809, had been ended by the battle of Wagram, and the armistice of Znaim. August 17, the negotiations began between Champagny and Metternich. The landing of the Bri-

tish on the island of Walcheren induced the Austrians to go on slowly. September 27, prince Lichtenstein went, with full powers, to Schönbrunn, where Napoleon resided, and, October 14, the peace was signed. Austria lost, 1. Salzburg (ceded, with other territories, to Bavaria); 2. Görz, Austrian Friuli, Trieste, Carniola, part of Carinthia, Croatia, on the right bank of the Save, and Dalmatia, of which Napoleon formed the government general of Illyria; 3. the lordship Räzuns, in the Grisons; 4. some Bohemian enclaves in Upper Lusatia, given to Saxony; 5. the duchy of Warsaw, Western Galicia, with Cracow and Zamosc, and her interest in the salt works of Wieliczka; 6. to Russia, the eastern part of East Galicia, with 400,000 souls. The peace also confirmed the abolition of the Teutonic order, pronounced by Napoleon, April 24. Austria lost, by this peace, her southern and western military frontier (45,600 square miles, with 3,505,000 inhabitants; see *Military Districts*), and her seaports; yet she was allowed the right of export and import trade in Fiume. She acknowledged Napoleon's arrangements in Spain, Portugal and Italy (where he had declared the papal dominions to be united to France, by a decree dated Schönbrunn, May 17, 1809), and joined the continental system against Britain. Austria now consisted of 198,000 square miles, with 20,738,000 inhabitants. This peace lasted till August, 1813.—Respecting the war of 1809, see also *Das Heer von Inneröstreich*, and general Pelet's *Mémoires sur la Guerre de* 1809 *en Allemagne*, &c. (Paris, 1824, 2 vols.).

VIENNE; the name of a department in France (see *Department*); also of a river and of some towns. Of the latter we mention only *Vienne*, the principal place of a district, in Isere; lon. 4° 54′ E.; lat. 45° 33′ N.; population, 12,300. It contains a fine Gothic cathedral, likewise fourteen churches, a high school, and a museum, and has various manufactures. It is situated on the left side of the Rhone, over which was formerly a stone bridge, built in the year 1265, now destroyed. A Roman colony was established here, and called *Vienna Allobrogum;* and there are still to be seen various remains of its ancient importance, as the ruins of a temple, a theatre, an amphitheatre, aqueducts, &c. In the fifth century, it was taken by the Burgundians, and the kings made it their place of residence. In the ninth century, it was the capital of the kingdom of Provence. It was afterwards erected into an archbishopric, and became the capital of a province called *Viennois*. In 1311, a council was held here under the pontificate of Clement V. by which the order of the Templars was abolished. See *Clement V.*

VIERWALDSTADTERSEE, (i. e. the *Lake of the Four Forest Towns;* called also the *Lake of the Four Cantons*); a romantic lake of Switzerland, lying in the cantons of Lucerne, Unterwalden, Uri and Schweitz, and deriving its name from this position. Its length is about twenty-five miles, and its breadth very unequal, as it consists of several detached parts, which form, in a manner, separate lakes, and take their names from the chief places on their banks; thus it is called, in different places, the *lake of Lucerne*, the *lake of Alpnach*, the *lake of Stanz*, and the *lake of Uri*. The waters are clear and of a light green. It contains only one island, called *Altstad*. The environs are among the most beautiful regions of Switzerland. In the neighbourhood of Lucerne (q. v.), which seems to rise with its spires out of the waves, the hills low, and adorned with pretty country seats, and orchards. To these succeed valleys, hamlets built on the sides of the mountains solitudes where the rocks sink plumb down lake. From its bosom may be counted twenty-five mountains, comprising some highest summits of the Alps, mount Pilate, and Furca.

VIGIL. This word is derived from the *vigiliæ*, which denoted the watches and among the Roman soldiers by night, in distinction to the *excubiæ*, who kept guard either in the camp, or at the gates ments. The proper *vigiliæ* were four, guard successively, three hours each. watches took their name from this custom. language of the church, *vigil* (in French, at first the evening, and afterwards the preceding a great festival. This name from the circumstance, that the first spent a part of the night preceding such prayer, to prepare themselves for the bration.

Vigil is further used to denote the existing among Catholics, to sing or church the evening before All-Souls day—also sometimes observed the day before formance of a mass for the dead.

Linnæus gave the name of vigils or watches the time of the day when certain flowers close their petals.

VIGNE. See *Vineis*.

VIKINGR, or SEA KINGS, among the or Normans; leaders of piratical squadrons passed their lives in roving the seas in spoil and adventures. The younger sons Scandinavian kings and jarls, having no but the ocean, naturally collected around standards the youth of inferior order, who equally destitute with themselves. These the same, who, in England and Scotland, name of *Danes*, and on the continent under *Normans*, at first desolated the maritime and afterwards penetrated into the interior tries, and formed permanent settlements conquests. See *Normans*.

VILLA signified, with the Romans, seat, with its appendages. To it belonged different kinds of houses: the *villa urbana*, the master lived, the real country seat; *villa rustica*, where the farmer or peasant lived; and *fructuaria*, the barns. Some of these wards the end of the republic, and under perors, were real palaces. By degrees, houses were built around them; and the *lages* originated. The word *villa* has passed various changes, into all the languages of Europe—*ville*, *village*, *weiler*, &c. As the ants of remote villages were not converted tianity till after those of cities (see *Pa* as the cultivators of the ground in the laboured under many legal disabilities, many modern languages words derived which express vileness or servitude, as *villain*. Besides, servitude and villany hand in hand (*cattivo*, in Italian, from prisoner, means *bad;* and the word for *fr* also signifies *beautiful*). The modern the season during which they live in *villeggiatura*. Some of the modern are yet splendid, e. g. the Borghese, Al

Estense, and Ludovisi villas, in the neighbourhood of Rome. In the times of the Carlovingians, the imperial country residences (see *Charlemagne*) were called *villæ regiæ;* and as many houses grew up around them, the word *ville* may have therefore come to signify, with the French, a *town*.

VILLAGE (see *Villa*), OR VILL in England, is taken sometimes for a manor, and sometimes for a parish, or part of it. In countries where there are peasants, with privileges and obligations distinct from those of the inhabitants of cities and towns, *village* has a legal meaning, denoting a place inhabited by peasants.

VILLANI. There are three Italian historians of this name:

Giovanni, a native of Florence, who, having been present at the celebration of the jubilee in Rome in 1300, was induced, by reflecting on the excellent writers who had adorned the history of that city, to contribute in the same manner to the honour of his native place. He accordingly wrote the history of the city of Florence, in twelve books, from its foundation to 1348, when he died of the plague. His narrative extends not only to the events occurring in the other provinces of Italy, but also to other countries through which he had travelled, and with the history of which he had become acquainted. This work is extremely valuable, although it abounds in errors: it deserves full credit wherever the author, whose veracity and honesty are every where visible, speaks as an eye-witness. It is simple and inartificial, but not without interest, on account of its *naïveté* and vigour.

After his death, his brother *Matteo* continued the work in a thirteenth book, to 1363, when he also died of the plague. This book treats of contemporaneous events, and is characterized by the same love of truth which is found in the work of Giovanni. In style and manner, Matteo is inferior to his brother, but he has the charm of simplicity and a certain grace of antiquity.

Filippo, the son of Matteo, a Florentine citizen, lawyer and judge, was for many years president of Perugia, but finally retired from public life, for the purpose of devoting himself to letters, and wrote, in Latin, a work entitled *De Origine Civitatis Florentinæ et ejusdem Civibus*. The first part is full of fables, and has never been printed. Mazzuchelli had the second part printed in 1747, in an old Italian version, which is superior to the original in elegance and purity of expression, but is inferior in point of accuracy. This work is the first specimen of a native literary history, since most of the persons whose lives are described by Villani are men of letters. His style is lively and vigorous, but sometimes too concise: he often sketches an admirable portrait with a few strokes.

VILLARET, CLAUDE, a French historian, born at Paris about 1715, was intended for the legal profession, but preferred the study of the belles-lettres, and published, in 1743, a novel called *Histoire du Cœur Humain*, and, in 1745, another, *La Belle Allemande*. The derangement of his affairs obliging him to leave Paris, he went, in 1748, to Rouen, where he appeared on the stage, and continued that mode of life till 1756. He then returned to Paris, and, having obtained a financial situation, relinquished his lighter studies, and applied himself to the investigation of the history of his native country. On the death of the abbé Velly in 1759, he was selected to continue the history of France, commenced by that writer, and was, at the same time, made secretary to the peerage. His portion of the work extends from 1329 to 1469, or from the reign of Philip de Valois to that of Louis XI. He also assisted in the *Cours d'Histoire Universelle;* undertaken by Luneau de Boisgermain. His death took place in February, 1766.

VILLARS, LOUIS HECTOR, first marquis, and afterwards duke of, peer and marshal of France, descended from a respectable, but reduced family, was born at Lyons, in 1653. At an early age, he served in the Low Countries, and distinguished himself at the siege of Maestricht (1673), where, as a subaltern officer of cavalry, he made a daring attack, with a detachment of grenadiers, upon an intrenchment, for which he was censured by Louis XIV., under whose eyes it happened, but in such a manner as to redound to his honour. In 1690, he was created *maréchal de camp;* and, in 1700, Louis XIV. sent him as ambassador to the imperial court of Vienna, to conduct the negotiations on the subject of the Spanish succession. Villars was, however, recalled in 1701, and, on the breaking out of the war for the Spanish succession, was attached to the army of Italy, where he added to his reputation. The chief command of an army in Germany was next intrusted to him, and, on the 14th of October, 1702, he defeated prince Louis of Baden, who commanded the Austrian forces, and wished to prevent his junction with the elector of Bavaria, at Friedlingen. For this achievement he received the marshal's baton, although, on account of the numerical superiority of the enemy, he did not succeed in effecting his object. In 1703, after a bold and sudden march, he captured Kehl (March 12), which was highly important to the French, on account of its position, and attacked the lines of the prince of Baden, at Stolhofen, though without success, but finally accomplished (May 12) the long-contemplated junction with the elector of Bavaria. An attack was then made by the united forces on the Austrian general count Styrum, near Hochstädt (September 20), and the allies were victorious. Villars was now recalled, at the request of the elector of Bavaria, and employed in reducing to submission the reformers of the Cevennes, known under the name of the *Camisards* (q. v.), in the execution of which charge he endeavoured to restore tranquillity by moderate measures, not less than by force of arms. The French arms having suffered many reverses in Germany, the chief command was again given to marshal Villars, who, by his activity, baffled the plans of the prince of Baden, to whom he was inferior in numbers, and compelled him to retreat across the Rhine. In 1707, he forced the lines of Stolhofen (May 23), which were occupied by the German forces, and extorted large sums of money from the inhabitants of Suabia. The finances of France were reduced so low by the expenses of the war, and other causes, that it became impossible to keep on foot an army equal to the allied forces; and marshal Villars was therefore prevented from attempting any great enterprise. In 1709, after some ineffectual attempts towards negotiation, the allies formed the design of laying siege to Mons; and the celebrated battle of Malplaquet was the result of the operations on this occasion (Sept. 11). Villars himself was wounded in the knee in this affair. In 1712, he defeated the Austrians at Denain, forced Eugene to raise the siege of Landrecy, and took several fortresses. In 1713, he penetrated into Germany, and took Landau (Aug. 20), and Freyburg, in the Breisgau

(Nov. 16). Louis was now very desirous of peace, and Villars and Eugene entered upon negotiations at Rastadt, which were conducted with the greatest secrecy, and terminated, March 6, 1714, in a peace between Austria and France. (See *Rastadt.*) On the death of Louis, marshal Villars was made member of the regency (1715), and minister of state, and was also admitted into the French academy. A new war between France and Austria, on the subject of the election to the Polish throne, broke out in 1733, and Villars was sent into Italy at the head of an army, with the title of *maréchal général.* Here, in conjunction with the king of Sardinia, he reduced Milan within three months, and died soon after, at Turin, when on the point of setting out on his return to France, June 17, 1734, at the age of eighty-two years. He was the last great French general of that period. Of the *Mémoires* published under his name, only the first part is from his pen.

VILLE (Latin *villa*), a French word, originally meaning a *country house*, appears in many French geographical names, as *Hauteville*, *Neuville*, &c. *Villaine*, *Villette*, *Vilotte*, &c., are diminutives of *ville*. As there is a great want of names for towns in the United States of America, and as *ville* readily admits of composition with other words, it has become common, particularly in the west and south, to make a name for a new settlement, by adding *ville* to some other word, as *Jacksonville*, *Fayetteville.*

VILLEGAS, Estevan Manuel de, a celebrated Anacreontic poet of Spain, was born at Naxera, in Old Castile, in 1595. He studied in Madrid and Salamanca, and not only translated Anacreon and Horace into Spanish verse, but continued to produce original poems in their spirit. In the twenty-third year of his age, he published a collection of his poems, dedicated to king Philip III., under the title of *Eroticas* (Naxera, 1617). He also translated Boëthius in prose and verse (Madrid, 1665), and died in 1699, having devoted his last years chiefly to philology. Villegas ranks among the best lyric poets of Spain. His versification is characterized by a charming ease; and one can only learn to estimate the beauty of the Spanish language from his poems. His *Eroticas* contains his translations from Anacreon and Horace, with forty-four *cantilenas*, elegies, idyls, sonnets, &c. Villegas, according to his own account, laboured his poems with the greatest care, having revised his *cantilenas* twenty times, and copied them fourteen times.

VILLEGGIATURA (*Italian*). See *Villa.*

VILLEHARDOUIN, Geoffroy de, an ancient French chronicler, born in 1167, was marshal of Champagne, an office held by his father and descendants. He acted a considerable part in the fourth crusade of 1198, which led to the capture of Constantinople by the French and Venetians, in 1204. Of this expedition, he wrote, or dictated, a narrative, which is extant, in the rude idiom of his age and country. It is interesting from its simplicity and apparent fidelity, and is much referred to by Gibbon in his account of the events which it describes. The best edition is that of Du Cange (folio, 1657).

VILLENAGE, VILLEINS, or SERFS. In every age and country, until comparatively recent times, personal servitude seems to have been the lot of a large portion of mankind. The free citizens of Greece and Rome were absolute masters of the life and property of large numbers of their fellow-beings; and the Germans, in their primitive settlements, were accustomed to the same slavery, incurred not only by captivity in war, but by crimes and by debt. (See *Slavery.*) When they invaded the Roman empire, they found the same condition established in its provinces; and this servitude, under various modifications, became common in modern Europe. There is much difficulty in ascertaining its varieties and stages. Villeins were not, properly speaking, slaves: their attachment to the soil, which was their characteristic distinction, might, indeed, be joined to many privileges, that freedom might be more descriptive of their state than servitude. Thus we find the mere slaves (*servi*) among the Anglo-Saxons, known by the names of *theow*, and *thrall*, distinguished in Domesday-book, from the villeins. One source of villenage was indeed slavery, the proprietors of large landed estates having accustomed to grant land to their slaves, on condition of their performing certain services. In later period, free peasants became the villeins powerful lords, or of the church, for the sake protection. The villein was not only prevented from selling the land upon which he dwelt, but his person was bound, and the lord might reclaim him if he attempted to stray. The villeins in England were incapable of property, and destitute of redress except against the most outrageous injuries. The lord could seize whatever they acquired, and even convey them, separately from the land, to strangers. Their tenure bound them to what were called *villein services*, ignoble in their nature and indeterminate in their degree (see *Tenure*)—the felling timber, the carrying of manure, the repairing roads, for their lords, who seem to have possessed an equally unbounded right over their labour and its fruits. This description of persons might, in more strict propriety, be called *serfs*, some of the villeins of France and Germany being bound only to fixed payments and duties towards their lords. The children of the villein could not, without permission of the lord, change the employment in which they were born: they could not marry without his consent, for which they were expected to pay. The children followed the mother's condition, except in England, where they followed the father's. Manumission was practised, as it ever was where there is slavery, and, as society advanced in Europe, became frequent. It also became usual to allow the villeins to hold property, though this was rather by indulgence than as a matter of right. Some instances of predial servitude occur in England as late as the reign of Elizabeth; but there were no villeins remaining at the time of the abolition of villenage, in 1661. It was not entirely abolished in France until the revolution. Some of the villeins in the royal domains were enfranchised in the fourteenth century. The greater part of the servile classes in some countries of Germany acquired their liberty before the end of the fifteenth century; but, in other parts, villenage was found in the nineteenth century, and is not yet entirely extinct. It has been recently abolished in Prussia, but still exists in its most servile form in some parts of Russia.

VILLERS, Charles François Dominique de, a French writer, was a native of Belchamp, in Lorraine, where he was born in 1764. In the early part of his life, he served in the French army as lieutenant of artillery, but, on the breaking out of the revolution, emigrated, and joined the

force under the prince of Condé. On the failure of the hopes of the party to which he had attached himself, he went to Lübeck, and devoted himself to literary pursuits. Villers, who was a man of considerable talent, and some reading, soon acquired a rising reputation in the republic of letters, which was much increased by his obtaining the prize given by the institute, for an Essay on the Influence of the Reformation, and was at length invited to fill the professor's chair of philosophy at the university of Göttingen. This situation, when the French influence predominated, he was compelled to resign, but received a pension in lieu of it. During the occupation of Hanover by the troops of France, under Davoust, the excesses committed by the soldiery induced him to address a letter to Fanny Beauharnais, with the hope of procuring, through her interest, some mitigation of the evils under which the unhappy country of his adoption then laboured. The work was printed; but the only effect it produced was to draw on its author the personal hatred of the French commander. He also addressed to the institute two reports on the state of ancient literature, and on the history of Germany. The honours which his own country denied him were accorded by the Swedish government, which made him a chevalier of the order of the polar star. M. de Villers died in the spring of 1815.

VILLIERS. See *Buckingham*.

VILLOISON, Jean Baptiste d'Ansse de, a distinguished Hellenist, born at Corbeil-sur-Seine, in 1750, early acquired reputation for his talents and attainments. In the nineteenth year of his age, he had read all the ancient Latin and many Greek authors; and, in a short time, he acquired the Arabic, Syriac and Hebrew without any assistance from others. In the twenty-third year of his age, he was admitted into the academy of inscriptions. In 1778, the government sent him to Venice to examine the manuscripts in the library of St Mark; and, while there, he enjoyed the society of the learned Morelli, to which intercourse we are indebted for Villoison's *Anecdota Græca e regia Parisiensi et e Veneta S. Marci Bibliothecis deprompta* (Venice, 1781, 2 vols., 4to.). In the library of St Mark, Villoison discovered an important codex, which contained the Iliad of Homer, with numerous scholia, and which was esteemed of great value by Wolf. This he published under the title *Homeri Ilias ad veteris Codicis Veneti Fidem recensita* (Venice, 1788, fol.). After his return from Italy, Villoison visited Germany, and, in 1785, accompanied the French ambassador Choiseul-Gouffier to Constantinople, and spent three years in travelling in Greece and the Grecian islands. This excursion, during which he became familiar with the Romaic, or modern Greek, led him to undertake the preparation of a complete description of Greece. For this purpose, he made excerpts from the Grecian authors, the church fathers, and the Byzantine writers; but the revolutionary agitations which ensued interrupted the execution of his plan, and he died in 1805, without having accomplished it. Besides the works already mentioned, Villoison published an excellent edition of Longus's *Pastoralia de Daphnide et Chloe* (2 vols., Paris, 1778), and contributed numerous valuable papers to the *Mémoires de l'Académie des Inscriptions*.

VIMEIRA; a town of Portuguese Estremadura, three miles from Torres Vedras, and twenty-eight north-west of Lisbon. It is remarkable for the battle between the British and the French (on the 21st of August, 1808), in which the French, under general Junot, were defeated by the British forces, under the command of Sir Arthur Wellesley, now duke of Wellington. This battle was followed by the famous convention of Cintra (Aug. 30), by the articles of which the French forces were to be transported to their own country, with their arms and property.

VINALIA (from the Latin); wine feasts among the Romans. The Etruscans, it is said, after a victory gained over the Latins, had made the surrender of all their wine by the latter a condition of peace. The Latins, enraged at this demand, once more determined to try the chance of war; but they promised their wine to Jupiter, if they should be victorious. They conquered; and, to fulfil their vow, they offered him the first cup from every cask. This custom was continued, and the feast was celebrated annually on the 23d of April, on which day the wine-casks were opened. A second wine feast was celebrated on the 21st of August, to pray for Jupiter's favour on the approaching vintage. Till after this festival, the wine of the previous year could not be sold, that of the coming season being consecrated by these festivities, and committed to the protection of Jupiter. At this second festival, the *flamen Dialis* commenced the vintage by gathering the first grape.

VINCENNES; a town of France, department of the Seine, about three miles east of Paris. It is remarkable for its castle, built in a remote age. It continued a palace during three centuries, but has since been used as a state prison. It is still of considerable strength. It was here that the unfortunate duke d'Enghien was shot on the 21st of March, 1804. Adjoining to the castle is a fine park and forest. Population, 2600.

VINCENT, St; an island in the West Indies, about forty miles in length and ten in breadth. This island was only inhabited by native Caribs, till, in the latter part of the seventeenth century, a ship from Guinea, with a cargo of slaves, was either wrecked or run ashore upon the island of St Vincent, into the woods and mountains of which great numbers of the negroes escaped, whom the Indians suffered to remain. Partly by the accession of runaway slaves from Barbadoes, and partly by the children they had by the Indian women, the Africans were so much strengthened, that, about the beginning of the eighteenth century, they constrained the Indians to retire into the north-west part of the island. The Indians applied to the French for assistance, and the consequence was a long war between them and the negroes. In 1763, the island being ceded to the British, the first measure of the British government was to dispose of the lands, without any regard to the claims of either race. A war took place, which ended in a compromise, by which the natives, after surrendering part of their lands, were permitted to enjoy the remainder unmolested. On the 19th of June, 1779, St Vincent was captured by a French force from Martinico. It was restored to Britain at the peace of 1783. St Vincent contains about 84,000 acres, which are well watered; but the country is generally mountainous and rugged. The valleys, however, are fertile in a high degree, the soil consisting chiefly of a fine mould, composed of sand and clay, well adapted for sugar. Its towns are Kingston, the capital, and Richmond: the others are villages or hamlets, at the several bays and landing-places.

Imports, in 1829, £99,891; exports, £414,548. In 1812, St Vincent was almost desolated by a most dreadful eruption of the Souffrier mountain, which had continued quiet for nearly a century, but from which now issued such a torrent of lava, and such clouds of ashes, as nearly covered the island, and injured the soil in such a manner that it has never recovered. Population before the late abolition of slavery, whites, 1301; free people of colour, 2824; slaves, 23,589; total, 27,714. Lon. 61° 15′ W.; lat. 13° 17′ N.

VINCENT, Cape St; the south-west point of Portugal, noted for the naval victory gained off it on the 14th of February, 1797, by Sir John Jervis, afterwards earl of St Vincent. See the following article. Lon. 8° 58′ 39″ W.; lat. 37° 2′ 54″ N.

VINCENT, John Jervis, earl of St, a distinguished naval commander, descended of a respectable family in Staffordshire, was born in 1734, and, at the age of fourteen, entered the navy. In 1760, he obtained the rank of post-captain, and commanded the Foudroyant, in the action between admiral Keppel and the French fleet, in July, 1778. In 1782, he took the Pegase, of seventy-four guns; for which exploit he received the red ribband. In 1794, he received the command of a squadron equipped for the West Indies, and reduced Martinico, Guadaloupe and St Lucia. On the 14th of February, 1797, being in command of the Mediterranean fleet of fifteen sail, he defeated twenty-seven Spanish ships of the line off cape St Vincent, the south-west point of Portugal, and was raised to the English peerage, by the titles of baron Jervis and earl of St Vincent, with a pension of £3000 a year. In 1799, he was created admiral, and, in 1801, became first lord of the admiralty, and, in 1821, admiral of the fleet. Lord St Vincent was a man of a strong mind, unbending in regard to discipline and reform, and of high gallantry and genius in his profession. He died in 1823, in his eighty-ninth year. His statue has been erected in St Paul's cathedral, by vote of parliament.

VINCENT, William, a distinguished critic and divine, born in London, in 1739, was educated at Cambridge, where he obtained a fellowship. In 1762, he became an usher at Westminster, and, nine years after, second master. He took the degree of doctor of divinity, and was appointed chaplain in ordinary to the king. In 1788, he became head master at Westminster, where he continued to preside till 1801, when he was made a prebend of Westminster; and, two years after, he succeeded to the deanery. Dean Vincent is principally known by his Commentary on Arrian's Voyage of Nearchus, and his Periplus of the Erythrean Sea, republished together, under the title of the Commerce and Navigation of the Ancients in the Indian Ocean (1807, 2 vols., 4to.). He died in December, 1815. A volume of his Discourses, with his life, was published posthumously.

VINCENT DE PAUL. See *Paul*.

VINCI, Leonardo da, the head of the Florentine school of painting, was born in the village of Vinci, near Florence, between 1444 and 1452. He was the natural son of a notary named Pietro. Even in his earliest youth, he devoted himself to a great variety of studies—painting, sculpture, anatomy, architecture, geometry, mechanics, poetry and music. He soon surpassed his master, the painter and sculptor Andrea del Varrochio; and, in 1482, the duke of Milan, Ludovico Maria Sforza, took him into his service. Leonardo founded an academy of design, which would have been of more beneficial in its results but for the fall of the house of Sforza. Amongst the paintings which executed by order of the duke, the first was a Head of Medusa; and the most famous was the Lord's Supper, in the refectory of the Dominicans of Sta-Maria delle Grazie. It is to be regretted that this beautiful fresco painting has been almost destroyed by neglect; but several old copies remain, from which the beauty of the groups and the whole composition and of the separate parts can be estimated. There is an excellent engraving of this painting by Raphael Morghen. Besides his paintings, Leonardo's active spirit undertook many important enterprises. He conducted the water of the Adda to Milan, and excavated a navigable canal from Morteasana to the valleys of Chiavenna and the Valteline, a distance of 200 Italian miles. In 1499, he returned to Florence, where he was employed to paint one of the walls of the great council room. On this occasion, having Michael Angelo for a competitor, he made a cartoon—which is one of his most celebrated works—commemorative of a victory of the Florentines, under their chief Niccolo Piccinio: a group of horsemen in the piece, struggling around a standard, was particularly admired. This cartoon also is known only by a copy. When Leo X. ascended the papal throne, in 1513, Leonardo went, in the suite of Julian, duke of Medici, to Rome, but left this city in 1515, and went to France, whither he had been invited by Francis. His reason for leaving Rome probably was, that the rivalry of Michael Angelo followed him even there, or that Raphael was already intrusted with the execution of the great works in the Vatican. On account of his advanced age, he did little or nothing in France, and, in 1519, he died in the arms of the king, when attempting to rise in his bed on the occasion of a visit from him. Leonardo da Vinci is distinguished as the man who strove to reduce the art of painting, which had been revived by Cimabue (1420), to principles. A few paintings are extant to which he had given the last touches. The reason of this was his constant striving for perfection, even in advanced age. Truth was his aim, and his motto *Vogli sempre che tu debbi* (Will always that which thou canst). So anxious was he at the beginning of a work that he would tremble like a stripling. His dissatisfaction with his productions increased with his progress, so that he generally gave them up before they were finished. Among his most distinguished works, besides those already mentioned, are the picture *Giocondo*, in Paris; the lovely picture known by the name of *La Vierge aux Rochers*; a Leda, in the collection of prince Kaunitz, in Vienna; a picture, in the palace Pamfili, in Rome, representing the interview of the child Jesus with the doctors in the temple; John the Baptist, formerly in the French museum; the portrait of duke Ludovico Maria Sforza, in the Dresden gallery; and others. Almost of equal value with the pictures of this immortal artist are his writings, of which, however, a part have unfortunately been lost, and others have remained in manuscript. His *Trattato della pittura* first appeared for the first time in 1651: the most complete edition of it was published by Manzi, in 1817. With a deep insight into nature, and into the art, Leonardo has treated, in this book, of both, of light and reflections, and particularly of back-ground, which he perfectly understood, and has explained in a

way, that, natural bodies being mostly bounded by curved lines, which have a certain softness, it is important to give this softness to the outlines; that this can be done only by means of the ground on which the object is represented; that the inner line of the surrounding ground, and the outer line of the object, are one and the same; nay, that the figure of the latter becomes visible only by means of that which surrounds it; that even the colours are dependent on the surrounding objects, and mutually weaken and heighten each other; that when subjects of the same colour are to be represented one before the other, different degrees of light must be used to separate them from each other, since the mass of air between the eye and the object lessens and softens the colour in proportion to the distance. Besides this treatise, and a *Fragment d'un Traité sur les Mouvements du Corps humain*, nothing has been printed of his writings; but the Ambrosian library, at Milan, possesses sixteen volumes of his manuscripts. Seven other volumes are said to have come into the possession of king Philip of Spain; but not even the nature of their contents is known. Leonardo always carried a little book with him, in which he drew interesting forms and faces which he had an opportunity to observe. Caylus published a collection of beautiful sketches and studies of Leonardo, under the title *Recueil de Têtes de Caractères et de Charges*, &c. (1730), of which there is also a German edition. We should mention, also, *Desseins de Leonardo da Vinci, gravés par Ch. T. Gerli* (Milan, 1784), and *Osservazioni sopra i Disegni di Leonardo dall' Abbate Amoretti* (Milan, 1784). Besides these, there appeared, in 1796, at London, engravings of the numerous sketches of Leonardo in the possession of the king of England, entitled Imitations of Original Designs by Leonardo da Vinci, published by J. Chamberlaine (1796, folio). See, also, the *Life of Leonardo da Vinci* (in German, Halle, 1819).

VINDELICIA; the country of the Vindelicians, a German tribe, which lived, in the time of Augustus, in the south of Germany. Hence Augsburg was called *Augusta Vindelicorum*. After their conquest by the Romans, Tiberius removed most of them from their country.

VINDICTA; revenge, punishment, complaint of injury received; also, with the Romans, the staff with which slaves were touched when they were set free. Hence, in the Pandects, the title *De manumissis vindicta*.

VINE (*vitis*). The common grape (*V. vinifera*) at present grows wild in many parts of the south of Europe, but its origin can be pretty clearly traced to Asia. Its culture has been known and practised from the most remote period of history, though it is certain that it had made little progress in Italy, at the time of the foundation of Rome. A temperate climate is most favourable to its growth. The extreme points at which it is successfully cultivated in the open air, are Schiras, in Persia, in lat. 25°, and Coblentz, in lat. 52°. In northern climates, a south exposure is preferable, unless the summer heats are too powerful; and the reverse in the south. It is not difficult as to the nature of the soil, but succeeds best if it be light, and rather dry than humid. Most of the vineyards in France are in a soil both clayey and calcareous; but excellent wines are produced in granitic and also in volcanic districts, though this does not hold good always. There are about twenty-one species of vines, which are subdivided into innumerable varieties. The French government, being desirous to bring the cultivation of the plant to the highest degree of perfection, formed a nursery at the Luxembourg a few years ago, which was placed under the superintendence of a scientific man, who collected not fewer than 1400 varieties, and he was then far from possessing all the varieties known in France, so much had the varieties been increased by the influence of soil, climate, and culture. In planting the varieties known to produce the best wine, it is of importance to select such as arrive at maturity at the same period, otherwise much inconvenience will be experienced. The vine is universally propagated by cuttings, either a foot or more long, with a portion of two years old wood, or short, with only one bud, or one bud and half a joint, &c. New varieties, however, can only be obtained from seed; and a seedling, carefully treated, will show blossoms in its fourth or fifth year. The diversity of wines, however, appears to depend more on soil, climate, and exposure, than on the particular variety, though this has its influence. The Burgundy, however, may be considered the most general vineyard grape of France, from Champagne to Marseilles and Bordeaux. The best wine in Italy and Spain is also made from grapes of this description; but in both countries, many of the larger-berried sorts are raised, as being more productive of liquor. The sweet wines are made from sweet-berried grapes, allowed to remain on the plants till over ripe. That wine is the strongest, and has most flavour, in which both the skins and stones are bruised and fermented. As a general rule, the varieties most esteemed for wine-making have small berries and bunches, with an austere taste. In certain localities, the vine lives only twenty or thirty years; but under favourable circumstances, it may last several hundred. The time of flowering is a critical moment: heavy rains, drought, or a sudden fall of temperature, at this period, may produce the partial or even total destruction of the vintage. Hail often does great injury, even when the stones are of small size. Most varieties bear only once in the season, some oftener, especially in warm climates.

Grapes, when fresh and perfectly ripe, are wholesome, refreshing, and very agreeable to the taste; they are sometimes employed as the sole article of diet. They contain sugar, mucilage and a little acid. It is remarkable that better dessert grapes are produced in England than in any other part of Europe. The varieties on the continent are few; and the best, as the Muscats and Frontignacs, have been obtained from England. The Chasselas or Muscadine is almost the only eating grape known in the Paris fruit market. England has not only produced the finest varieties, but they acquire a higher flavour here than elsewhere, owing to the perfection of the artificial climates, and the great attention paid to soil and subsoil, and other points of culture.

Loudon, in his 'Encyclopædia of Gardening,' recommends the following varieties for planting in this country, either against a garden-wall or house-side:—the July black, white muscadine, white and black sweet water, small and large black, white cluster, esperione, &c. In favourable seasons, he adds, the fruit of the more hardy early sorts of vine attains a tolerable degree of maturity and flavour, but it is of little value when compared with the produce of the hot-house.

There can be little doubt but that the cultivation of the vine was introduced into this country by the Romans. Vineyards are mentioned in

'Domesday Book;' and it is known that the abbeys and religious houses usually possessed a vineyard. The inmates of these institutions were many of them foreigners, and they contributed to render the cultivation of the vine tolerably successful. The names of several places in Kent are supposed to be derived from their having been the site of vineyards. It was in the south of England that vineyards were most numerous, but there is evidence of a vineyard as far north as Derbyshire. In the reign of Henry II., the cultivation of the vine in England began to be neglected. Our intimate connexion with France—our actual possession indeed of a portion of the wine-growing districts of that country—contributed to produce this circumstance. But though the making of wine was no longer carried on in so extensive a manner, yet there is the testimony of Dr Plot, Barnaby Googe, Samuel Hartlib, and others, to the fact, that during the sixteenth and seventeenth centuries a considerable quantity of native wine was still made in England from the produce of the grape.

Artificial heat was not applied to the production of grapes before the beginning of the last century. In Lawrence's 'Fruit Calendar,' 1718, it is stated, that at the Duke of Rutland's, at Belvoir Castle, fires were constantly kept up, from Lady Day to Michaelmas, behind the slope-walls on which the plants were trained. The vinery of the duke of Portland, at Welbeck, near Worksop, was the most celebrated in the country a little after the middle of the century. It was under the direction of Speechley, an horticulturist of great merit, and contained seventy different varieties of the vine, all of which were raised to the highest state of perfection. It was at Welbeck that a bunch of Syrian grapes was produced, weighing 19½ lbs.

In the south of Europe, grapes are often dried either by the sun or in a furnace, and are known in commerce by the name of *raisins*. Of these there are several sorts, the smallest of which are the raisins of Corinth, more generally known under the name of *currants*. Raisins are sweeter than the fresh fruit, and are served up at desserts throughout the year. A wine may be obtained by fermenting them—a business which is carried on extensively in England. Red wines are made exclusively from red or black grapes, while red or white are used indifferently for white wines. For the manufacture of wines, see *Wines*.

VINEGAR (*acetic acid*). This acid is found combined with potash in the juices of a great many plants; particularly the *sambucus nigra*, *galium verum*, and *rhus typhinus*. Sweat, urine, and even fresh milk, contain it. It is frequently generated in the stomachs of dyspeptic patients. Almost all dry vegetable substances, and some animal, subjected in close vessels to a red heat, yield it copiously. It is the result, likewise, of a spontaneous fermentation, to which liquid vegetable and animal matters are subject. Strong acids, as the sulphuric and nitric, develope the acetic by their action on vegetables. It was long supposed that the fermentation which forms vinegar is uniformly preceded by the vinous; but this is now known to be a mistake. Cabbages sour in water, making sour-crout; starch, also, in starch-maker's sour water; and dough itself, without any previous production of wine.

The varieties of acetic acids known in commerce are five: 1. wine vinegar; 2. malt vinegar; 3. cider vinegar; 4. sugar vinegar; 5. wood vinegar. We shall describe, first, the mode of making these commercial articles, and then that of extracting absolute acetic acid of the chemist, either from vinegars, or directly from chemical compounds of which it is a constituent.

The following is the French method of making vinegar: The wine destined for vinegar is mixed in a large tun, with a quantity of wine lees; and the whole being transferred into cloth sacks placed within a large iron-bound vat, the liquid matter is forced through the sacks by superincumbent pressure. What passes through is put into large casks, set upright, having a small opening at their top. In these it is exposed to the heat of the sun in summer, or to that of a stove in winter. Fermentation supervenes in a few days. If the heat should then rise too high, it is lowered by air, and the addition of fresh wine. In the skilful regulation of the fermentative temperature consists the art of making good wine vinegar. In summer the process is generally completed in a fortnight; in winter, double the time is requisite. The vinegar is then run off into barrels, which contain several chips of birch wood. In about a fortnight it is found to be clarified, and is then fit for the market. It must be kept in close casks.

In Great Britain, vinegar is usually made from malt. By mashing with hot water, one hundred gallons of wort are extracted, in less than two hours, from one boll of malt. When the wort has fallen to the temperature of 75° Fahr., two gallons of the barm of beer are added. After about six hours, it is racked off into casks, which are laid on their sides, and exposed, with their bungholes loosely covered, to the influence of the sun in summer; but in winter, they are arranged in a warm room. In three months, this vinegar is ready for the manufacture of sugar of lead. To make vinegar for domestic use, however, the process is somewhat different. The above liquor is racked off into casks placed upright, having a false bottom pierced with holes, fixed at about a foot from the bottom. On this a considerable quantity of raisins, or the refuse from the makers of British wine, or otherwise a quantity of low-priced raisins, is put. The liquor is turned into another barrel every twenty-four hours, in which time it has begun to grow warm. Sometimes the vinegar is fermented, as above, without the raisins, which are added towards the end, to communicate flavour.

Cider is the principal source of vinegar in the Northern States of North America. The common family method is as follows: the vinegar barrel in summer, is placed in the garret, or on the north side of a building, and in winter in a room where it does not freeze. The refuse cider, already sour, the daily remnants of the family table, are added, some good vinegar in the barrel, or to the mother of vinegar, as it is called. This mother of vinegar is a white or yellowish ropy coagulum, of a mucilaginous appearance, which is formed in the vinegar and acts as a ferment upon cider not yet thoroughly acidified. The fermentation is often excited by putting into it a piece of dough or lean animal flesh, or by adding molasses, or the sugar will ferment spontaneously from molasses. In a few weeks vinegar will be formed. The vinegar from sugar is made as follows: Ten pounds of sugar are boiled in eight gallons of water, with yeast and a few grape cuttings; for the sake of flavour, and to assist in the fermentation, twelve pounds of bruised gooseberries, or other fruits, are added. It by a process similar to that for cider, a good

gar is produced in the course of the summer. Vinegar obtained by the preceding method has more or less of a brown colour, and a peculiar, but rather grateful smell. By distillation in glass vessels, the colouring matter, which resides in a mucilage, is separated; but the fragrant odour is generally replaced by an empyreumatic one. Its specific gravity varies from 1·005 to 1·015.

A crude vinegar has long been obtained from wood, for the use of the calico printers. It is sometimes known under the name of *pyroligneous acid*. The following arrangement of apparatus is found to answer very well in its preparation. A series of cast iron cylinders, about four feet diameter and six feet long, are built horizontally in brick work, so that the flame of one furnace may play round about two cylinders. Both ends project a little from the brick work. One of them has a disc of cast iron well fitted and firmly bolted to it, from the centre of which disc an iron tube, about six inches in diameter, proceeds and enters at a right angle, the main tube of refrigeration. The diameter of this tube may be from nine to fourteen inches, according to the number of cylinders. The other end of the cylinder is called the mouth of the retort. This is closed by a disc of iron, smeared round its edge with clay lute, and secured in its place by wedges. The charge of wood for such a cylinder is about 800 pounds. The hard woods, oak, ash, birch, and beech are alone used. The heat is kept up during the day time, and the furnace is allowed to cool during the night. Next morning the door is opened, the charcoal removed, and a new charge of wood is introduced. The average product of crude vinegar or pyroligneous acid is thirty-five gallons. It is much contaminated with tar, is of a deep brown colour, and has a specific gravity of 1·025. Its total weight is therefore about 300 pounds. But the residuary charcoal is found to weigh no more than one-fifth of the wood employed. Hence, nearly one half of the ponderable matter of wood is dissipated in incondensable gases. The crude acid is rectified by a second distillation, in a copper still, in a body of which about two gallons of viscid tarry matter are left from every hundred. After this treatment, it presents the appearance of a transparent, brown vinegar, having a considerable empyreumatic smell, and a specific gravity of 1·013. Its acid powers are superior to those of the best household vinegar, in the proportion of three to two. By redistillation, saturation with quick-lime, evaporation of the liquid acetate to dryness, and gentle torrefaction, the empyreumatic matter is so completely dissipated, that, on decomposing the calcareous salt by sulphuric acid, a pure, perfectly colourless, and grateful vinegar arises in distillation. Its strength will be proportional to the concentration of the decomposing acid.

The acetic acid of the chemist may be prepared as follows: 1. Two parts of fused acetate of potash, with one of the strongest oil of vitriol, yield, by slow distillation from a glass retort into a refrigerated receiver, concentrated acetate acid. A small portion of sulphureous acid, which contaminates it, may be removed by redistillation from a little acetate of lead. 2. Or four parts of good sugar of lead, with one part of sulphuric acid, treated in the same way, afford a slightly weaker acetic acid. Or, without distillation, if one hundred parts of well dried acetate of lime be cautiously added to sixty parts of strong sulphuric acid, diluted with five parts of water, and digested for twenty-four hours, and strained, a good acetic acid, sufficiently strong for every ordinary purpose, will be obtained. Acetic acid is composed of

Carbon,	46·83
Hydrogen,	6·33
Oxygen,	46·82

Acetic acid dissolves resins, gum-resins, camphor, and essential oils. Its odour is employed in medicine to relieve nervous headache, fainting fits, or sickness occasioned by crowded rooms. In a slightly dilute state, its application has been found to check hemorrhage from the nostrils. Its anti-contagious powers are now little trusted to. It is very largely used in calico printing. Moderately rectified pyroligneous acid is much employed for the preservation of animal food. Sulphuric acid is sometimes fraudulently mixed with acetic acid and common vinegar, to increase their acidity. This adulteration may be detected by the addition of a little chalk. With pure vinegar, the lime forms a limpid solution, but with sulphuric acid, a white insoluble gypsum. Muriate of barytes is a still nicer test. British fermented vinegars are allowed by law to contain a little sulphuric acid; but the quantity is frequently exceeded. Copper is discovered in vinegars by supersaturating them with ammonia, when a fine blue colour is produced; and lead, by sulphate of soda, hydrosulphurets, and sulphureted hydrogen. None of these should produce any change on genuine vinegar. Salts consisting of the several bases, united in definite proportions to acetic acid, are called *acetates*. They are characterized by the pungent smell of vinegar, which they exhale on the affusion of sulphuric acid, and by their yielding, on distillation in a moderate red heat, a very light odorous and combustible liquid, called *pyro-acetic spirit*. They are all soluble in water; many of them so much so as to be uncrystallizable. About thirty different acetates have been formed, of which only a very few have been applied to the uses of life.

VINEIS, PETRUS DE, OR PIETRO DELLE VIGNE, one of the most distinguished jurists and politicians of the 13th century, a native of Capua, the son of poor parents, studied in Bologna. Chance made him known to the emperor Frederic II. who soon raised him to the highest offices. He at last became the emperor's chancellor, and as such defended his master, orally and in writing, against the monstrous assumptions of the popes Gregory IX. and Innocent IV. The libels of the former were refuted by Vineis with learning and wit; and it was owing in no small degree to his efforts, that the excommunication fulminated against the emperor remained without effect. When Innocent IV. in 1245, cited the emperor before the council of Lyons, Vineis defended his absent master with great ability. Yet, notwithstanding all these services, his enemies succeeded in making the emperor suspect that Vineis had tried to poison him; and he ordered his chancellor to be blinded and thrown into a prison in Pisa, where the unfortunate man put an end to his life, in 1429, by dashing his head against a pillar; on account of which we find him in Dante's Hell among the suicides, relating his mournful story. (*Canto* xiii, *Inferno*.) This is a dark spot in the history of this otherwise great emperor. The writings of Vineis, yet extant, are a treatise *De Potestate imperiali*, and six books of letters on the deeds of Frederic II. mostly in the name of the emperor, and written in bad Latin, which is to be attributed to the low state of learn-

ing at that time. They are considered important, as sources of the history of Frederic, and have been several times published.

VINIFICATEUR (*French*); a contrivance recently invented, and used in France and Spain, to improve the spirituous fermentation of wine. During the fermentation, a portion of the ethereal parts of the wine escapes from the open vats. The *vinificateur* is intended to collect these parts, and to convey them back to the must. It is a cap, put on the vat, and surrounded by cold water in a vessel, in order to condense these vapours. The cap is provided with a tube to admit of the escape of the gaseous parts which do not condense.

VINO TINTO. See *Alicant*.

VIOL, or VIOLA; the generic term of a number of stringed instruments, most of which have gone entirely out of use. The most important viols were, 1. *Viola di gamba* (literally *leg viol*), so called because held between the legs during the performance. It had six strings, tuned thus:—D, G, c, e, a, d. The notes were written on a system of six lines. 2. *Viola d'amore* (*viole d'amour*), love viol; a kind of triple viol or violin, having seven strings. Originally it had twelve to fourteen strings; six or seven were of catgut, the others of brass. By degrees they were reduced to seven of catgut, tuned thus:—G, e, g, c, e, g, e, or G, c, e, a, d, g, c. 3. *Viola di braccio, violetta, viola alta* (in French, *taille*), arm viol; an instrument answering to our counter-tenor, treble and fifth violin. It is constructed like the violin, but larger. The notes for this instrument are not written in the G key, but in the alto key. The G or violin key is used in this instrument only for the higher tones, which (e. g. in solos) rise above e and f. It has four strings, of which the two lowest are covered with brass, and the tuning of all is a fifth lower than that of the violin, that is, c, g, d, a; hence the same with that of the violoncello, only one octave higher. It corresponds to alto and tenor in vocal music.

VIOLET (*viola*). These are favourite flowers in all northern and temperate climates, and many of them are among the first to make their appearance in the spring. The corolla is composed of five unequal petals, of which the inferior one is the largest, and is more or less prolonged into a spur at the base. The roots are mostly perennial; the stem almost wanting in some species, and distinct in others; the leaves are alternate, provided with stipules at the base, and the flowers are disposed on axillary peduncles. More than a hundred species are known.

Although this favourite little flower has given its name to one of the primitive colours, we must not imagine that the violet is always of a violet hue; it is often blue, purple, lilac, or white. The *viola tricolor* indeed is partly yellow, but then in common life this is called a heart's-ease; botanically speaking, however, it is a violet. The flowers were formerly considered pectoral; *i. e.* useful in diseases of the chest; but the supposed virtues of the whole class of pectoral medicines have vanished before the severe medical criticism of the last fifty years; and at the present day the petals of the violet are never prescribed by educated practitioners. The root of the violet, however, is an emetic, and may be useful as a domestic remedy in country practice. The dose is forty grains. The infusion of violets is one of the most delicate tests of the presence of acids and alkalies; the former change its colour to red, the latter to green. According to Lightfoot, the Highland ladies of former times used the violet as a cosmetic, the old Gaelic receipt being "Anoint thy face with goat's milk in which violets have been infused, and there is not a jealous prince upon earth who will not be charmed with thy beauty."

VIOLIN (Italian, *violino*; French, *violon*) is the most perfect, most agreeable, and most common of all stringed instruments played with the bow. Of its origin little is known; but it seems that it grew out of the ancient *viola*. Some place its invention in the times of the crusades. Probably it was first perfected in Italy, in which country, and in the neighbouring Tyrol, the finest violins are still produced. Those of Amati, Guarneri and Stradivari are from the former country; those of Stainer, Klotz, &c., from the latter. The violin now common consists of three chief parts—the neck, the table, and the sound-board. At the sides are two apertures, and sometimes a third towards the neck. Its bridge, which is below the aperture, bears the strings, which are fastened to the two extremities of the instrument—at one of them by screws which stretch or loosen them at pleasure. The arrangement is nearly the same, only on different scales, in the viol, violoncello and the double bass. The violin has four catgut strings, of different sizes, which the largest is wound round with wire. They are tuned thus:—g, d, a, e. The e is also called simply the *quinta*, or *fifth* (in French, *chanterelle*). This string should be about half the thickness of g. The nearer the finger is placed towards the bridge, the quicker become the vibrations, and the higher the tone. Music for the violin is always set in the G key, which, on that account, is called violin key. The compass of the good tones of the violin extends from g to about a. It is only in our days, however, that performers have ascended to this height. Formerly, the highest note was g or a; and, in the seventeenth century, they hardly rose to c. All the tones comprised in the above compass, and the most delicate enharmonic relations, are produced merely by the playing of the finger on the string; hence the violin, as well for this reason as for its delightful and penetrating sound, is one of the most perfect and most agreeable instruments. The excellence of a violin consists in its purity and distinctness, strength, and fulness of tone. The art of playing on the violin has been carried to a perfection which it is not probable will be much surpassed, as it already often degenerates into mere artifices. The most esteemed instructions for playing on the violin are those of Löhlein (with additions by Reichardt), Leopold, Mozart, Gerber, Rode, Kreutzer and Baillot (adopted by the Conservatory, of Paris), Campagnoli, and others. The most celebrated violin players of our time are Paganini, Rode, Spohr, Lafont, Kreutzer, Polledro, Lipinski, Maurer, Fränzel, Mayseder, Rovelli, Molique, Rolla, De Beriot, Ole Bull.

VIOLONCELLO comes between the violin, *braccio* and the double bass, both as to size and tone. It is constructed entirely on the same principle with the violin. The player holds it between his knees. It has four strings of catgut, the deepest-toned are covered with wire. Their tuning is C, G, d, a; hence like that of the violin

sio, only an octave deeper. Its notes are written in the F or bass clef; and it generally accompanies the double bass; but modern composers, as Cherubini, Beethoven, Weber and Spontini, often let the violoncello take an independent part. For tones above d and e, the tenor clef is generally used, or the violin clef, the latter especially for the highest notes in concertos, &c. But in this case the notes must always be written an octave higher, as the violoncello is a whole octave lower than the violin. The violoncello, properly, is but a modification of the old *viola di gamba* (see *Viola*), and has but lately been used as a solo instrument. The inventor of it was Tardieu, a clergyman of Tarascon, at the beginning of the eighteenth century. At first it had five strings, viz. C, G, d, a, d. In 1725, the d was omitted as superfluous. The most distinguished modern violoncello players are Romberg (in Berlin), Kraft (in Stuttgart), Merk (in Vienna), Knoop (in Meiningen), Bohrer (in Paris), Dotzauer (Dresden), who have also written for this instrument. Instructions for playing on the violoncello have been written by Baillot, Levasseur, Catel, Baudiot, Alexander, and others. Before the double bass came into use, the violoncello was called *violono*, which name was afterwards given to the former instrument.

VIOLONO (*Italian*; the English *double bass*; in French, *contrebasse*; *violon* signifying, in that language, the violin) is the largest of the bow instruments, and is principally used to sustain the harmony. Some performers, of late, have played solos on it (for example, Hindle, of Vienna, and Dall' Occa, an Italian), but not without some changes, which diminish the strength of its tones. In the Italian orchestra, it still has generally but three strings, by which, however, its compass is too much limited. In Germany, it has generally four, in some places five, strings. The four strings are tuned thus:—E, A, d, g; and all are an octave deeper than the corresponding ones of the violoncello. As there is necessarily much difficulty in managing this instrument, composers ought not to load it with passages which can be but imperfectly executed.

VIOTTI, Giovanni Battista, the first violinist of his age, was a Piedmontese, born near Crescentino, in 1755, studied under Pugnani, and, in his twenty-first year, was made first violinist at the royal chapel in Turin. He afterwards visited Berlin and Paris. On the breaking out of the revolution, he took refuge in England, and, from the year 1794 till 1798, had a share in the management of the king's theatre, himself leading in the orchestra. Having received an order from the alien office to quit the country, he retired to Holland, and thence to Hamburg. In 1801, he returned to London, engaged in the wine trade, and lost the whole of his property. After the restoration of the Bourbons, Louis XVIII. invited him to preside over the *académie royale de musique* at Paris, which situation he accepted, but did not retain it long, owing to his increasing age and bodily infirmities. In 1822, he settled finally in London, and there remained till his death in the spring of 1824. He was the author of a great variety of music for the violin; but the only two vocal compositions are the polacca *Che Gioja*, and *Consola*, *Amato Bene*, both masterpieces in their way.

VIPER. See *Serpent*.

VIRGIL. Publius Virgilius Maro, the most distinguished epic, didactic and pastoral poet of ancient Rome, was born at Andes (now *Petiola*), a little village near Mantua, in the year 70 B. C. His father possessed a small estate there, which he cultivated himself. Virgil travelled to Cremona, Milan and Naples for the purpose of improvement, and studied the Epicurean philosophy under a certain Syro. Varus, to whom the sixth eclogue is addressed, was probably his fellow pupil. It has been generally supposed that the poems which bear the inscription *Catalecta Virgilii*, were composed by him at an early age; but modern criticism has shown that some of them are evidently not his, and that others are of uncertain date. If we are to suppose that Virgil describes himself under the character of Tityrus in his first eclogue, he was thirty years of age when he went to Rome for the first time, to obtain the restoration of his farm, which had been taken possession of by the soldiers of Octavius and Antony, after the close of the war against the republicans. He was here presented, by Pollio or some other friend, to Augustus, and gained the favour of Mæcenas, through whose intercession he obtained the restitution of his property. But on his attempting to take possession of it, the new occupants resisted him, and threatened his life; and it was not until after a second journey to Rome, and repeated efforts, that he finally succeeded in his object. About this time, he wrote several eclogues, the tenth and last of which is ascribed to the thirty-third or thirty-fourth year of his age. His Georgics (poem on agriculture), which he undertook at the suggestion of Mæcenas, are said, by grammarians, to have been begun in his thirty-fourth year. He is said to have spent seven years upon this work, which was principally composed at Naples; but these accounts of him are not well authenticated. It is certain that the Æneid is his last work. Virgil was now in high favour with Augustus, with whom he kept up a familiar correspondence. After completing the plan of his great epic, he retired to Greece, with the design of accomplishing it there at his leisure. But Augustus having arrived at Athens, on his return from the East, Virgil determined to accompany him home. At Megara, however, he fell sick; and, his disease becoming aggravated on the journey, he died at Brundusium, or, according to some, at Tarentum, in the fifty-second year of his age, B. C. 19. His body was carried to Naples, in compliance with his directions, and there interred in the Puteolan way. (See *Naples*.) According to well-authenticated accounts, the poet, on his death-bed, ordered the Æneid to be burnt, as an unfinished and defective work; but it was preserved by his friends, in disobedience to his wishes. This circumstance is characteristic of the modesty of Virgil. He was likewise of a mild and gentle disposition, without pretensions in his manners, and constant in his friendship. As a poet, the first place must be assigned to him among the many distinguished authors of his age. If he had not the inventive talent in its highest degree—for in his Eclogues he imitated Theocritus, in his Georgics, Hesiod, and in his Æneid, Homer—yet he deserves our admiration for his command of language, which he displays in all gradations, from the simplest and sweetest strains of the pastoral, to the most splendid and lofty descriptions of the epic; for the beauty of his versification, in which, particularly in georgic poetry, he is unrivalled; and for the taste and skill with which he manages all the materials of poetry,

These qualities have always procured him numerous and zealous admirers; and he has found many imitators, both in ancient and modern times. The popular traditions of the middle ages in Italy, represented him as a magician; and his verses were referred to as of prophetic power, in the well-known *sortes Virgilianæ*. Of the editions of Virgil, the most complete is that of Burmann (Amsterdam, 1746, 4 vols. 4to.); the most esteemed for its commentaries and critical appendices, that of Heyne (8 vols., 8vo., 1793). The most celebrated of the ancient commentators is Servius (A. D. 400), whose commentaries have been published separately, and in the principal editions of the works of Virgil. Of his English translators, the most popular are Dryden, Pitt, Warton and Sotheby. The Bucolics and Georgics have been published separately by professor Martyn, of Cambridge, with an English version in prose, and valuable notes illustrative of the botany, &c. Voss has translated the Georgics into German hexameters, and Delille the Æneid and the Georgics into French verse.

VIRGIL, Polydore, a historical writer of the sixteenth century, was born at Urbino, in Italy. One of his first productions was a collection of Latin poems, which was followed, in 1499, by his work *De Rerum Inventoribus*, which has often been republished. Pope Alexander VI. sent him to England, as collector of the tribute called Peter's pence; and he was the last person who held that office in that country previously to the reformation under Henry VIII. That prince bestowed on him the archdeaconry of Wells, and several other benefices in the church; and, at the request of Henry, he composed a general History of England, from the earliest ages to his own time. This work, which is written in Latin, considered as the production of a foreigner, is highly creditable to his talents; but his reputation has suffered in some degree from the charge of having destroyed memoirs and records which he made use of in his undertaking. The History of Polydore has passed through several editions. He quitted England in the reign of Edward VI., and, going to Italy, died at Urbino in 1555. Besides the works noticed, he was the author of a treatise on Prodigies.

VIRGIN ISLANDS; a cluster of islands in the West Indies, situated to the east of Porto Rico. They are upwards of twenty in number, but for the most part desert and barren, and extend sixty miles in length, and upwards of thirty-six in breadth; but they are every way dangerous to navigators, though there is a basin in the midst of them of eighteen or twenty miles in length, and nine or twelve in breadth, in which ships may anchor, and be sheltered and landlocked from all winds, and called the *Bay of Sir Francis Drake*, from his having passed through it to St Domingo. The British and Danes divide most of them; but the Spaniards claim those near Porto Rico. Virgin Gorda, Tortola, &c., belong to the British. The Danes possess the islands of St Thomas, St Croix, &c.

VIRGIN MARY. The belief in a god, appearing in a human form, and born of a virgin, is common to several religions of Asia. That Christ was born of a virgin appears from the Old and New Testament; and it was early maintained by theologians, that, in order to become the Saviour of the world, he must have been born of a virgin, as he would otherwise have had the stain of original sin. Justin Martyr treats of this necessity (*Dialog.* i, *Tryphone* i, 100). In the fourth century A. D., the doctrine was started, that Mary not only had conceived the Saviour in a state of virginity, but had also retained this virgin state during and after his birth, as she had given birth to him *utero clauso*. Jovianus and others opposed this opinion. In the fifth century, this dispute was renewed in the struggle with Eutyches. At last the continued virginity of Mary, the mother of God, became a doctrine of the orthodox church. Protestants believe in the virginity of Mary, as regards the conception of Christ, because it is explicitly stated in the Bible; but it is not thought irreconcilable with the New Testament, to suppose that after the birth of Christ, she had several children by Joseph, who are meant by the brothers of Jesus mentioned in the New Testament. Some sects, however, understand by this phrase merely relations of Christ. The belief in the virgin Mary, as mother of God, exercised a most important influence during the middle ages. The traces of its worship, of the legends connected with her, and of the deep impression which her idea had made on the minds of men, are visible every where, and particularly in the productions of the fine arts. The adoration of a virgin comported well with the romantic exaltation of the female sex during the age of chivalry. (See the article *Chivalry*.) This adoration lent a glowing fervour to the religion of the middle ages: it afforded an opportunity not only to refine the most romantic feelings of love into acts of religion, but to make the adored being the immediate subject of amatory feelings and expressions. Innumerable poems afford proofs of this; but the modern Catholics consider expressions of this kind, which are still retained in religious compositions, as indecorous. Without entering into a discussion respecting the good and the evil which have resulted from the adoration of the Virgin, we may only state the fact, that the feelings with which it inspired the knights, the artists, the poets and the religious of the middle ages, led to the highest exhibitions of prowess, genius and devotion; and the historian will find in it one of the most important keys to the right understanding of the middle ages.

VIRGINIA. See *Appius Claudius*.

VIRGINIA, one of the thirteen original states of the American Union, is situated between 36° 31′ and 40° 39′ N. lat., and 6° 35′ W., and 4° 40′ E. lon. from Washington city. It is bounded on the north and north-east by Pennsylvania and Maryland, east by Maryland and the Atlantic, south by North Carolina and Tennessee, and west by Kentucky and the Ohio river, or state of Ohio. According to Mr Boyes's map, published by authority, its mean length, from east to west, is 355 miles; its mean breadth, from north to south, 185 miles; and its horizontal area, 65,624 square miles. The state is divided into one hundred and ten counties, whereof sixty-five are situated to the east, and forty-five on the west of the Blue ridge mountains. Adopting the classification under the new constitution, these two great sections may be further subdivided into, 1. the district extending from the sea-coast to the head of tide-water, comprehending thirty-six counties and three towns entitled to representation; 2. the territory extending from the head of tide-water to the Blue ridge, containing twenty-nine counties; 3. the valley of Virginia, embracing fifteen counties, between the Blue ridge and Alleghany; 4. the trans-Alleghany region, containing thirty in number. The principal towns are Richmond, the seat of government, delightfully situated

at the falls of James river, containing 16,000 inhabitants; Norfolk, on Elizabeth river, which flows into Hampton roads, population in 1840, 20,158; Petersburg and Fredericksburg, at the falls of the Appomattox and Rappahannock rivers, the first containing 8300, and the last 3400 inhabitants; Lynchburg, on James river, 120 miles above the falls, population 4157; and Wheeling, on the Ohio, which, though only the fourth in size and population, containing 5000 inhabitants, is, perhaps, the most flourishing town in the state. Besides these, Winchester, Shepherdstown, Martinsburg, Staunton, Lexington and Fincastle, in the valley, and Charlestown and Abingdon, in the trans-Alleghany district, deserve to be noticed. Williamsburg, in the eastern section, and the ancient seat of government, is on the decline; but Charlottesville, where the state university is situated, has rapidly improved within a few years. The principal rivers flowing into the Chesapeake bay are the Potomac, Rappahannock, York and James, all of which are large and navigable. The Shenandoah traces its quiet course down the valley, at the base of the Blue ridge, and unites with the Potomac at Harper's Ferry. The Roanoke rises in the mountains, and, passing into North Carolina, empties its waters into Albemarle sound; and the Great Kenawha and Monongahela are both tributaries to the Ohio. Besides these, there are numerous streams which intersect the country in every direction, and which render it inferior to few in the facilities of water communication. The Chesapeake bay, one of the finest on the continent, extends 190 miles, from its entrance, through the states of Virginia and Maryland. It is from seven to twenty miles broad, and generally nine fathoms deep.

The scenery of Virginia is in general highly picturesque. The James river valley offers, at many points in the bold outline of its hills, and its broad and fertile lowlands, images which remind the traveller of the rich scenery of the Loire and the Garonne; and the mountains of the state are strikingly distinguished, not only by an ever-varying succession of hill and vale, but by the beauty of their covering, their cheerful growth of oak, chestnut and lynn, contrasting advantageously with that of the mountainous districts of the Northern and Eastern States. The curiosities of Virginia form, to the traveller, objects of still more interest than its scenery. Among them may be enumerated the passage of the Potomac through the Blue ridge, and that of the James river through the same mountain; the cliffs of New river, which present, for a distance of twenty miles, a succession of sublime scenery, rivalled, only by that of the Niagara, between the falls and Queenstown; the celebrated natural rock-bridge formed by some great convulsion of nature, which appears to have rent a mountain asunder by a mighty chasm, and joined it at the top by a mass of rock; the Warm and Hot springs; the Burning springs of Kenawha; and the extensive and beautiful caverns in the limestone districts of the state. The most noted cataract in the state is that of the Falling spring, in the county of Alleghany. About a mile below its source, it has a perpendicular descent of 200 feet, down a precipice of calcareous rock. Before it reaches the bottom, it is almost converted into vapour, and the temperature is much reduced. The stream unites with Jackson's river, about two miles below the cataract. The lake in Giles county presents the curious spectacle of a beautiful sheet of water, a mile and a half in circumference, and a hundred fathoms deep, on the summit of a lofty mountain. This lake is 3700 feet above the level of the ocean.

The agriculture of this state is various, but, for the most part, badly conducted. The old practice of clearing and cultivating land every year until exhausted, then turning it out to recover from its own resources, still continues in many places. In others, the *three shift* system prevails; that is, 1. a crop of Indian corn; 2. wheat, rye or oats; 3. the year of *rest*, as it is called, in which the spontaneous vegetation furnishes a scanty subsistence to stock; after which the soil is again subjected to the scourging process of cropping, while little attention is paid to the application of manures, or the culture of artificial grasses. On both sides of the Blue ridge, maize, or Indian corn, wheat, rye, oats and buckwheat are the principal grain crops. Tobacco is extensively cultivated in Eastern Virginia, but sparingly in the Valley, and that chiefly in its southern portion. The grass-seeds common to both regions are red clover (*trifolium pratense*), orchard grass (*dactylis glomerata*), timothy (*phleum pratense*) and herd-grass (*alopecurus pratensis*), the two former on dry, the latter on moist soils. In the eastern and southern districts, cotton is planted to some extent. On the shores of the Chesapeake, barley and the castor-oil bean (*ricinus communis*) are cultivated; and, on some of the best lands above tide-water, hemp is raised to advantage. The trans-Alleghany country, being exceedingly mountainous and remote from market, is chiefly devoted to the raising of live stock. Very little more grain is raised than is necessary to supply the country itself, and the travellers and stock-drovers who pass through it. The climate and soil being favourable, the pastures are excellent. The green-sward (*poa viridis*) and white clover (*trifolium repens*) spring up spontaneously wherever the timber is removed or deadened, and, on rich ground, are very luxuriant. Of the profits of agriculture in Virginia, it is difficult to speak with precision. In very many instances, it yields a bare subsistence to the cultivator; in others, a net income of two or three per cent. But, where the land is in good heart, the convertible husbandry practised, and wheat and tobacco are the chief products, there is no doubt that, with slave labour, a profit of from six to eight per cent. may be annually derived from the capital invested. For this result, however, great activity and attention are necessary on the part of the owner. Lands in the Valley, where there are comparatively few slaves, sell higher than on the eastern side of the Blue ridge; and the general appearance of the country is more prosperous, although the soil is, for the most part, inferior; the climate decidedly so; running streams less frequent; and communication with markets more difficult and expensive. In 1831, according to official returns, 44,529 hogsheads of tobacco were delivered from the several warehouses in the state for export and manufacture; and, during the year which ended in June, 1832, upwards of 544,000 barrels of flour passed the various inspections. The quantity of flour inspected is, however, a very uncertain index to the total product. Some of the Virginia flour, and especially the Richmond brand, has acquired great celebrity in South America and elsewhere. Most of the vegetable productions found in the Middle and some of the Southern States are common also to Virginia. West of the Alleghany, the sugar maple grows in abundance

There are some excellent native grapes, the culture of which will claim greater attention, since the winters have been found too severe for the foreign vine. Few countries possess greater facilities for manufacturing: the raw material of almost every kind, labour sufficiently cheap and abundant, inexhaustible supplies of fuel, and water power without limit. Yet, with all these advantages, planting and farming will long be the favourite pursuits. In the northern and north-western parts of the state, and in some of the principal towns, valuable manufactories are established of cotton and woollen cloths, glass, iron, &c. The Kenawha salt-works produce annually about 1,000,000 bushels, and those of the Holston about 100,000.

By the census of 1830, the free white population amounted to		694,300
" "	free coloured,	47,348
" "	slaves,	469,787
	Total,	1,211,405
In 1800, the free white males numbered	514,280	
" free coloured,	20,124	
" slaves,	354,796	— 880,360
Increase in thirty years,		331,205
Or thirty-seven and a half per cent.		

In the same period, the free whites increased 180,020, or 35 per cent.; the free coloured persons 27,224, or 135 per cent.; and the slaves, 123,961, or 36 per cent. For the ten years preceding the census of 1830, the rate of increase of the whole population diminished considerably, and the relative increase of the several classes varied from the foregoing results. On the whole population, the rate was reduced from 37½ to 13½ per cent.; on the free white, from 35 to 15 per cent.; on the free coloured, from 135 to 28½ per cent.; and on the slaves from 36 to 10¼ per cent. It is to be observed, however, that while the black population of the whole state has been diminishing, when compared with the white, the reverse is true in respect to Eastern Virginia, which is peculiarly the slave region; for, while, in 1790, there was in that district a majority of 25,000 whites, the slaves and free coloured population outnumbered them at every successive census, until, in 1830, the excess was upwards of 81,000. The facts thus exhibited show that Western Virginia, which contains comparatively few slaves, has rapidly increased its white population in the last ten years, the rate of increase amounting to 25 per cent; while on the eastern side of the mountains, the increase of the whites, in the same period, did not exceed 7½ per cent.

In 1831, the number of Episcopalian ministers in the state, including two bishops, was fifty-nine, churches, fifty-eight, and 2840 communicants. In the same year, the Presbyterians numbered ninety-four ministers, of whom fourteen were licentiates; 105 churches, and 7950 communicants: the Methodists, 131 ministers, and 39,058 communicants, of whom 4731 were coloured people: the Baptists, 236 ministers, including twenty licentiates, 370 churches, or congregations, and 45,703 communicants, of whom it is conjectured that one half are blacks: the Catholics, five ministers, and ten congregations; but the number of lay members is not ascertained. It will be perceived that the Baptists and Methodists are the most numerous sects in the state; and the estimate does not include a considerable number of separatists from both communions. Besides these there are Friends, Lutherans, Dunkers, Unitarians, Jews, &c. &c., scattered through the state, whose numbers are not accurately known.

The presbyterians have a theological semin[ary] Prince Edward, and the episcopalians [at] Alexandria, both of which institutions [have] ished by private liberality.

According to the official return for 183[1] fective military force of the state was [as] follows:

General staff,	[illegible]
Cavalry,	[illegible]
Artillery,	[illegible]
Grenadiers, infantry of the line, &c.	[illegible]
Making, in the aggregate,	[illegible]

being about one out of every seven of the population.

History. The earliest settlement in [North] America was made in Virginia, by Sir Walter Raleigh, in 1587; and Virginia, named in honour of the so called Virgin Queen, Elizabeth, was the appellation by which the whole of the [country] was known. About the beginning of the seventeenth century, the colonists were involved in deadly contests with the natives. (See the following cut for a representation of the costume of an aboriginal Virginian.) Captain Smith, the

efficient leader of the colony, was taken prisoner and about to be put to death by king Powhatan, when his daughter Pocahontas (q. v.) interposed and obtained for him life and liberty. The departure of captain Smith from the colony was followed by the disasters which always [follow] even the temporary absence of that extraordinary man. Riot and insubordination terminated in famine and extreme suffering, insomuch that of the colonists of Gates, Somers, and Newport, who were despatched from England about six months after Smith's return to that country, only sixty remained out of a flourishing colony of [five] hundred. Discouraged by misfortune, this miserable remnant determined to abandon the scene of their sufferings, and had actually embarked for England when they were met by Lord Delawar, who persuaded them to return, and recommenced their settlement at Jamestown. For ten years after this event the colony continued to advance in prosperity, and considerably extended its limits. Its stability and domestic happiness were greatly increased by the introduction, in 1620 and 1621, of 100 females of humble fortunes and spotless character, who became wives to the planters, at the moderate price of 150 pounds each, by the London company, of 150 pounds. About the same time, another event occurred, the ultimate consequences of which it is difficult

tell: a Dutch vessel entered James river, and sold to the colonists twenty African slaves, thereby giving rise to that peculiar condition of society which distinguishes the Southern States. As the colony continued to grow in extent and population, inferior courts were established for the cheap and convenient administration of justice. Hence sprung the ancient county court system which now exists. The colony did not long enjoy unmixed prosperity. Various causes had conspired to lull all suspicion of Indian treachery and vengeance; but, in 1622, the savages made a sudden and secret irruption, in which 347 whites, including women and children, were horribly massacred. The gratitude of a domesticated Indian alone saved the whole from extermination. A vindictive war followed this act of aggression: public improvements were abandoned; the settlements were reduced in number, and scarcity once more prevailed to an alarming degree. Relief was generously despatched from England; but, the king's jealousy being about that time awakened by the freedom of discussion which prevailed in corporate bodies, and availing himself further of the frequent reverses of the colony, he dissolved the Virginia company, and revested its privileges in the crown. The entire direction of the colony was confided to a governor and twelve counsellors, appointed by special commission. Charles I. adopted his father's policy, with such hateful additions, that, in a fit of popular rage, the colonists seized their governor, Sir John Harvey, and sent him a prisoner to England, attended by deputies to represent their wrongs. The critical condition of the monarch, rather than his sense of justice, procured a redress of grievances. Harvey was displaced, and Sir William Berkeley sent as his successor. This act of the crown, together with the call of an assembly, converted the Virginians into loyal subjects. Force only compelled them to yield to Cromwell's government; and, after the death of Matthews, the usurper's vicegerent, they proclaimed Charles II. as king, before intelligence of his restoration had been received from England. Sir William Berkeley was reinstated as governor; but, during the despotic reign of Charles, so many causes of discontent accumulated, that they finally ripened into an actual rebellion, headed by Nathaniel Bacon, a member of the governor's council, and a young gentleman of fine education and talents. After various outrages and calamities incident to civil war, including the destruction of Jamestown by the insurgents, the death of Bacon delivered the colony from the evils which threatened its existence. Berkeley resumed the government, but shortly afterwards returned to England, leaving Herbert Jeffries his successor. A long period of prosperous tranquillity succeeded. The settlement of the country extended beyond the mountains, and it was not until 1753, that the hostile encroachments of the French kindled a war, and involved the colony again in its calamities. The events of that period, during which the courage and conduct of the youthful Washington afforded a presage of his future renown,—as well as the causes which led to the overthrow of the British power,—belong rather to the general department of American history. Virginia gave birth to several illustrious men, (Washington, Jefferson, Maddison, &c.,) who took a decided part against the mother country, and shared in the common sacrifices, toils and triumphs of the revolutionary struggle.

VIRGINS, Eleven Thousand. See *Ursula, St.*

VIRIATHUS, or VIRIATHES; a brave Lusitanian, who maintained a long struggle against the Romans in defence of his country. The Roman prætor, Servius Galba, had driven the Lusitanians, by his cruelties, to a revolt, when Viriathus, who had originally been a huntsman, and afterwards a robber, placed himself at the head of his countrymen, and defeated the Romans with such decisive success, that but few of those who were engaged in the battle escaped. New forces were repeatedly sent against him; but the Romans experienced several additional defeats, and Metellus alone was more fortunate. It was finally thought expedient, therefore, to acknowledge Virathus as the independent sovereign of Lusitania (Portugal), and to conclude an alliance with him. But the Romans soon perfidiously broke the treaty, and Servilius Cæpio, the Roman commander, had this formidable enemy put out of his way by an act of treachery. Thus fell Viriathus, by the hands of assassins, after a fourteen years' victorious contest, in the year of Rome 612.

VISCONTI; an old Milanese family, celebrated, during the middle ages and in modern times, by its political consequence and by its patronage of science. Of the origin of the family and the name, we have no certain accounts; but some derive the former from the old Lombard kings, and the latter from the pretended right of its members to put the crown upon the head of the kings of Italy. History makes mention of the Visconti in the eleventh century; but they disappear from the time of the destruction of Milan by Frederic Barbarossa, when, with some other noble families, they were obliged to yield to the superior power of the opposite party, the Torriani, or family Della Torre. The first of the Visconti, who laid the foundation of their greatness, was *Otho*, archbishop of Milan (died 1258), who gained the ascendency over his enemies, and bequeathed his power to his nephew, *Matteo* (died 1322). The latter was, however, driven into banishment by the Torriani, but, after living in exile seven years, had the address to obtain the title of imperial governor, which he soon exchanged for that of prince of Milan. Matteo transmitted the supreme power to his eldest son, *Galeazzo*, who was overpowered by his enemies, among whom were his own brothers, and thrown into prison by Louis of Bavaria, in 1327. He died, soon after his release from confinement, at Brescia. His son *Azzo*, who succeeded him, and increased the extent of his dominions, was not less distinguished for his pacific virtues than for his military talents, and died in 1329, in the thirty-seventh year of his age, regretted by his subjects. As he left no son, his uncle *Lucchino* succeeded him. The latter extended still farther the dominions of the family, and was the first of the name who was distinguished as a patron of science and art. He maintained a correspondence with Petrarch, whom he knew how to appreciate, and was not ashamed to sacrifice to the muses himself, as is proved by a sonnet of his composition, which has been preserved by Crescimbeni. After his death, in 1349, his brother *Giovanni* (died 1354), archbishop of Milan, assumed the reins of government. He reduced Genoa, and was a zealous patron of letters. He appointed a commission of six learned men to compose a commentary on Dante, fostered the university of Bologna, and received Petrarch, on his arrival at Milan, with the highest marks of distinction. Giovanni was succeeded by his nephews *Matteo II.*

Bernabò, and *Galeazzo II.* Matteo died within a year; and his two brothers, though eminent for their warlike talents, rendered themselves obnoxious by their cruelty and other vices. Galeazzo, however, deserves praise for his encouragement of letters. He continued to treat Petrarch with the same respect that his predecessors had shown him, and employed him in several negotiations. The poet always mentioned him with esteem and gratitude, and is said to have induced him to found the university of Pavia. He was succeeded, in 1378, by his son *Gian Galeazzo*, who imprisoned his uncle Bernabò in the castle of Trezzo, and took upon himself the sole government. In him the Visconti family reached the summit of its grandeur and splendour. In 1395, he received, from the emperor Wenceslaus, the ducal dignity; and his territories were more extensive than those of any of his predecessors. Pisa, Sienna, Perugia, Padua and Bologna were subject to his sceptre; and he had already shown a disposition to assume the title of king of Italy, when his ambitious projects were cut short by his death, of the plague (in 1402). With elevated views, he fostered science and art, collected the most distinguished scholars at his court, restored the university of Piacenza, connected that of Pavia with it, and founded a large library. During his reign, also, some great architectural works were executed; among them, the celebrated bridge over the Tessino, at Pavia, and the magnificent cathedral at Milan (1386—97). Gian Galeazzo left three sons, *Giammaria*, *Filippo Maria*, and an illegitimate child, *Gabriel*, among whom his dominions were divided. Their mutual dissensions and youthful indiscretions soon undermined their power. In most of the Lombard cities, single powerful citizens raised themselves to the head of their respective towns, and the neighbouring states took advantage of the favourable opportunity to extend their limits at the expense of the Visconti. The Florentines took Pisa, and the Venetians gradually obtained possession of Padua, Vicenza, Verona, Brescia, and other towns. Giammaria was hated for his cruelty, and in 1412, fell a victim to a conspiracy. Filippo Maria now reigned alone, and, during the remaining thirty-five years of his life, was alternately at the summit of happiness and in the depths of misery. As often as he had the fortune to recover any of the lost cities, so often had he the grief to witness their renewed loss; and his last years were embittered by the hostilities of the Venetians, who repeatedly advanced to the walls of Milan, and devastated the surrounding territory. He died in 1447, leaving no male heirs. His natural daughter, *Bianca*, had been married to Francesco Sforza, one of the most distinguished generals of the time. The Milanese were desirous to regain their ancient freedom; but they were unable to defend themselves against the attacks of the rival princes, who were eager to gain possession of so rich and beautiful a country; and they found themselves obliged to put themselves under the government of Sforza, who was named duke of Milan in 1450. See *Sforza*, and *Milan*.

VISCONTI, John Baptist Anthony; an Italian antiquary, born at Vernazza in Genoa, in 1722, and educated at Rome by an uncle, who was a painter, and who designed his nephew for the same profession. But the latter preferred the study of antiquities, and that he might be at liberty to follow his inclination, purchased the office of apostolic notary. He became connected with the celebrated Winckelmann, whom he succeeded, in 1768, a station of prefect or commissary of antiquities Rome; and Clement XIV. on his elevation pontifical throne, the following year, having the design of founding a new museum in the can, the execution of the plan was intrust Visconti, who superintended the researches ancient monuments carried on at Rome under Clement XIV. and Pius VI. Among the former ages brought to light, was the tomb Scipios, relative to which Visconti published ters and Notices in the Roman Anthology; was the author of some other archæologi moirs. His death took place Sept. 2, 1 was appointed editor of the *Museum Pio-Clementinum*; but the text accompanying the engrav of that work was written by his son.

VISCONTI, Ennius Quirinus, son of the ceding, and one of the most celebrated arch gists and antiquaries, was born at Rome, While a child, he knew how to distinguish heads of the emperors upon medals, at an ag he could hardly pronounce their names. In tenth year of his age, he underwent a publ amination in Roman and biblical history, ma matics, chronology, geography, geometry; and his twelfth year, he was able to solve the difficult problems of trigonometry and anal geometry. The next year, he published a ne version of the *Hecuba* of Euripides, with an of his method of studying languages, and soon undertook a metrical translation of Pindar father had performed the plan for a descript the Pio-Clementinum museum, and executed articles of it; and the first volume, which a in 1782, bears his name; but the son had the chief part of it, and he continued the work, which appeared under the title *Il Mu Pio-Clementino descritto*, in the following two volumes, 1784; third, 1788; fourth, fifth, 1792; sixth, 1796; and seventh, 18 eighth volume, entitled *Il Museo Chiaram* by Philip Aurelius Visconti and Gaetan labour alone would be sufficient to immortali and he likewise published numerous archæol treatises in different Italian journals. Wh treasures of ancient art were removed fro cities of Italy to Paris, Visconti followed that place, and arranged and wrote a descr catalogue of the antiques in the museum. last edition of this catalogue, which abou ingenious and learned remarks, appeared i under the title *Notices des Statues, Bustes reliefs de la Galerie des Antiques du Musée Napoléon*. In 1817, he published *Description des tiques du Musée royal*; and his description rich collection known by the name of the *Français* is still more complete. Visconti ha chosen a member of the institute in 1800; continued, after his arrival in France, to re learned and valuable papers to different and other literary publications. Nothing time, was in a more confused state than graphy: there were innumerable portraits great men of antiquity in existence, but ar gists were at a loss in determining the re individuals. Visconti undertook the task ing a complete Grecian and Roman icono The former was published in three volumes (*Iconographie Grecque*), Paris, 1811, and first parts of the latter, containing the em Romans, in 1818, leaving only the iconogra

the emperors, which was rendered an easier task by the number of medals, and has been executed by Monges. Visconti's services were also sought in foreign countries. Lord Worsley engaged him to describe the collection of works of art which he had procured in Greece; and the description was published at London, under the title *Il Museo Worsleyano*. Parliament also sent for him, to consult on the purchase of the Elgin marbles; and he prepared an excellent catalogue of those celebrated antiques. Visconti died in 1818. Few inquirers into antiquity have possessed such various and extensive knowledge of all departments illustrative of its study. His complete works appeared at Milan, in 1824 seq., in Italian and French (*Opere tutte, divise in tre Classi*: 1st division, 8 vols.; 2d, 5 vols.; and 3d, 8 vols.), with numerous engravings.

VISCOUNT, in England; a title of nobility, indicating a rank between an earl and a baron. (See *Earl*, and *Nobility*.) The first viscounts in England were created in the reign of Henry VI.; and they have never been numerous.

VISHNU; the second person of the Hindoo *trimourti*, or trinity, consisting of Brama, the creator, Vishnu, the preserver, and Siva, the destroyer. See *Avatar*, and *Indian Mythology*.

VISIGOTHS. The powerful confederacy of nations under the name of *Goths*, was, at an early period, geographically divided into *Ostrogoths*, who had their seats on the Pontus, and *Visigoths*, who inhabited Dacia. About the middle of the fourth century, the two nations separated into distinct political bodies. The Ostrogoths, weakened by this separation, having submitted to the Huns, the Visigoths fled to the mountains, and soon after obtained from the Romans permission to settle in the desolated Thrace. The relation of the nations to each other was by this means essentially changed. Under the name of allies, the Goths formed a chief part of the Roman army; but they became hostile whenever the promises made them were violated; and scarcely was Theodosius dead, and the empire divided, when the Visigoths, under Alaric, broke forth upon Italy, and Rome fell, in 410, into the power of the Visigoths. Alaric, had he not been overtaken by death, when on the point of conquering Africa, would have founded a Germanic empire in Italy. His brother-in-law Athaulf (Ataulphus), who was placed at the head of the nation, abandoned Alaric's projects, and turned towards Gaul, to make new conquests on both sides of the Pyrenees. He reached Barcelona, where he was murdered, in 415; but his successors, in the midst of perpetual conflicts with the previous occupants and with the Romans, founded in the south of France and in Spain the kingdom of the Visigoths. The unnatural extension of this kingdom to the north of the Pyrenees, where even the capital, and the residence of the king, Toulouse, was situated, while the Suevi still maintained their independence on the Peninsula, was one of the causes of its internal weakness. Another cause was the difference in the religious doctrines of the conquerors and the conquered, the former professing the Arian doctrines (see *Arians*), which were detestable to the Catholic descendants of the Roman settlers. This circumstance gave rise to a strict separation between the Goths and Romans, and caused the Catholic clergy to become more firmly attached to each other and to Rome. Notwithstanding this, and notwithstanding the convulsions produced by frequent changes of government, and by factions, the kingdom of the Visigoths, in the fifth century of its existence, continued to extend itself even beyond the Pyrenees, and, by political regulations, obtained internal consistency. Euric, the fifth king, who, from 466 to 483, during the total decline of the Roman empire, made great conquests in Spain and Gaul, gave the Visigoths, who had previously been governed by customary laws, written statutes, which were extended by his successors, and reduced to a system (see Lindenbrog's *Codex Legum Antiquarum*, and Canciani's *Barbarorum Leges Antiquæ*), which is the most complete of all the German codes, and exhibits jurisprudence in a state of great advancement. His successor, Alaric, gave also to his Roman subjects in Gaul a system of laws, which he caused to be compiled, by persons well versed in jurisprudence, from the Theodosian code, from the enactments of the later emperors, and other sources, in order that the provinces might retain their ancient laws, but that the obligatory force of the law might proceed from his own authority. This code was not abolished till about the middle of the seventh century, till which time the laws of the Visigoths and Romans continued different. But the weakness of the Visigoths became manifest as soon as they came in contact with the Franks on the Loire, when the Catholic Clovis, on pretence that it was unjust to let the heretic Visigoths possess the fairest portion of Gaul, attacked the peaceful Alaric, and defeated him at Rouglé, in 507. The Franks obtained possession, without resistance, of most of the cities in southern Gaul, and the kingdom of the Visigoths would have been in great danger, had not Theodoric, king of the Ostrogoths, undertaken its defence. While guardian of the Visigothic prince, his grandson, he embraced the favourable opportunity to make himself master of a part of the territories still belonging to the Visigoths in southern Gaul; and, after a long separation of the two nations, there existed, for a time, an intimate connexion of the Ostrogoths and Visigoths. After his death, dissensions soon arose among the Visigoths, and the pernicious influence of the difference of religion between the Arian Visigoths and the Catholic provincials, who were sometimes tolerated, and sometimes persecuted, became more and more evident. The kingdom of the Visigoths arose again with new energy, under the bold and intelligent Leovigild (568—586), who totally subdued the Suevi, improved the laws, limited the power of the nobles, made Toledo the royal residence, and tried to render the regal power hereditary. His equally celebrated son, Reccared, became a convert, in 589, to the Catholic faith; upon which the divisions of the people ceased, and Goths and Spaniards became one nation. His conversion had the most important influence on the character of the government. Scarcely had the Catholic faith become the established religion, when the clergy, who had become accustomed, during their former state of oppression, to adhere firmly together, acquired a predominant influence, such as they obtained in no other Germanic nation, and constituted a hierarchy, totally independent of the Roman papal authority. The Arian bishops had lived quietly in their dioceses, and had no influence on the public administration; but the Catholic bishops strove after an active participation in public affairs, in order to render secure the authority which their church had obtained. The grandees of the kingdom, the secular public ministers and

officers of the court (called *viri illustres officii palatini*), who formed a kind of nobility, and as the constitutional counsellors of the king, usurped the rights of popular representatives, remained no longer the first class in the state: the old mode of choosing the king, which had thrown the election into their hands, was altered in favour of the bishops; and under weak kings, who often attained the crown by artifices of the priests, or solicited absolution and justification from the clergy, on account of the usurpation which they had committed, or the oaths which they had violated, they found it easy to place themselves at the head of the state, and to procure exemption from all public burdens. This prevailing influence was especially visible in the ecclesiastical councils, which, in previous times, had discussed merely matters of doctrine or church discipline, but, immediately after the conversion of the sovereign, began to mingle with spiritual affairs matters of a political character. When the clergy had once established their political influence, they could, without reluctance, allow the secular grandees, who came with the king to the councils, to take part in the deliberations, the more particularly as they could always be sure of outvoting them; and, as early as 633, the regulation was made, that those secular grandees alone should be admitted, who should be pronounced worthy of the honour, by the bishops. The internal disturbances, which the excessive power of the clergy produced or favoured, facilitated the conquest of the country by the Saracens, who were settled on the north coast of Africa. As early as the year 675, the Mohammedans began their attempts to settle in Spain, encouraged by the factions which convulsed the Visigoths, and which, during the reign of the weak Roderic, enabled them to execute their project. The Goths were defeated, in 711, at Xeres de la Frontera; the king was slain, and the Saracens spread themselves over the greatest part of the country. (See *Spain*.) The remainder of the Goths, who, after the downfall of the empire, had fled to the mountains of Asturia and Galicia, founded there new kingdoms, in which the constitutions of the Visigoths were in part retained, and which, when the descendants of the Goths broke forth from their fastnesses, and wrested from the Moorish settlers one tract after another, finally gave rise to the kingdoms of Spain and Portugal. The traces of the public institutions of the Visigoths were preserved longest in the laws, as the Christians, on leaving the mountains, brought with them those by which they had been governed. The most ancient collection of Spanish laws, the *Fuero juzgo*, or *Forum Judicum*, is drawn from the ancient laws of the Visigoths; and many of them have been retained to the present day in the provincial law of Castile and Catalonia.

The liturgy of the Visigoths, which was established by the assembly of Toledo, in 633, for the purpose of introducing into all the churches a uniform mode of worship, long survived the downfall of the kingdom. This *officium Gothicum*, as it was termed, which contained many rites and forms that had been used in the Spanish church from the earliest period of Christianity, maintained itself in spite of all the efforts of the popes to introduce the Roman liturgy; and so violent were the disputes to which this gave rise, that an attempt was made to adjust the quarrel by duel and fire ordeal. Even after the Roman liturgy had been introduced into Castile, as it had previously been into Arragon, several churches in Toledo nevertheless retained their old usages. The Spanish Christians under the dominion of the Moors, and styled *Mozarabians*, adhered still longer to the Gothic, which was therefore called *officium Mozarabicum*. Cardinal Ximenes caused the missal and breviary this liturgy to be printed. The Spanish language also still preserves, in some words, the remains the Gothic, although the Visigoths, after the conquest of the peninsula of the Pyrenees, adopted language of the Romans. There is a Gothic *der Westgothen*, by John Aschbach (Frankfort 1827).

VISION. See *Optics*.

VISIONS. Ghosts, phantoms, apparitions, spectres, spirits,—for the vocabulary of superstition is rich in terms,—or, in philosophical language, spectral illusions, have, in some ages, played an important part in the machinery of society; nor can it be said that they have yet been laid by the wand of that great exorciser, knowledge. The human conscience still invokes the avenging spirits, and the disordered action of the physical functions is sometimes mistaken for the operation of external objects upon the senses. All appearances of this nature may be classed under the two heads of *mental illusions*, and *optical illusions*, the former comprising those cases in which the spectral appearances are produced by the disordered state of the mind, and the latter, those occasioned by the presence of some external object, under such circumstances as to deceive the senses. Thus, as to the first, it may be remarked that, in cases of an extraordinary impression upon the mind through the medium of the circulation of the blood, sensations are greatly increased in intensity, ideas in vividness, and that emotions are produced corresponding, in intensity, to the acuteness of sensations, and the vividness of the ideas. Thus again, the effect of a disordered state of the mental functions is to disturb the order of the succession of ideas, or to influence the velocity of the succession (producing indistinctness of perception, confusion of thought, inaccuracy of judgment, and of course, a disregard to incongruities), or to increase the vivacity of ideas. The same effects may be produced by a diseased state of the body, or by violent mental excitements, influencing the physical functions, which, in turn, react upon the mind. These principles will be found to account for many spectral illusions of which we have authentic accounts. In some instances, it is insanity or insanity madness; in others, a permanent state of mind, the influence of which the patient labours. In general, it will be observed that the images which constitute the subject of spectral illusions are of the form of figures which have been familiar to the mind, and which have made impressions upon it. The sights seen bear a relation to the character of the seer, and to the superstitions of the age and country in which he lived. Thus the intelligent and philosophic Nicolai saw nothing but men and women, dogs and birds in their natural forms. The illusions of the superstitious consist of devils, angels, and all sorts of fantastic shapes, benign or malignant, according to the peculiar character or state of mind of the seer. "Ghosts," says Nicolai, "commonly appear in the same dress they wore when living, though they are sometimes clothed in white; but that is chiefly the church-ghosts, who have no particular business, but seem

pear *pro bono publico*, or to scare drunken rustics from tumbling over their graves. Dragging chains is not the fashion of English ghosts, chains and black vestments being chiefly the accoutrements of foreign spectres seen in arbitrary government: dead or alive, English spirits are free." Doctor Abercrombie (Inquiries concerning the Intellectual Powers, 2d ed., Edinburgh, 1831), in treating of spectral illusions, refers them to the following heads: —1. False perceptions, or impressions made upon the senses only, in which the mind does not participate. 2. Real dreams, though the person was not, at the time, sensible of having slept, nor consequently, of having dreamed. A person under the influence of some strong mental impression, drops asleep for a few seconds, perhaps without being sensible of it; some scene or person connected with the impression appears in a dream, and he starts up under the conviction that it was a spectral appearance. 3. Intense mental conceptions, so strongly impressed upon the mind as, for the moment, to be believed to have a real existence. This takes place when, along with the mental emotion, the individual is placed in circumstances in which external impressions are very slight, as solitude, faint light, and quiescence of body. It is a state bordering closely upon dreaming, though the vision occurs while the person is in the waking state. 4. Erroneous impressions, connected with bodily disease, generally disease in the brain. The illusions, in these cases, arise in a manner strictly analogous to dreaming, and consist of some former circumstances recalled to the mind, and believed, for a time, to have a real and present existence. The diseases, in connexion with which they arise, are generally of an apoplectic or inflammatory character, sometimes epileptic; and they are very frequent in the affection called *delirium tremens*, produced by a continued use of intoxicating liquors. Under each of these heads, the author states a number of interesting facts, illustrative of the general theory.—The second species of illusions, or optical illusions, are occasioned by the state of the atmosphere, producing a reflection or unequal refraction of light, such as the famous gigantic figure called the spectre of the Brocken, aërial troops of horsemen, spectre ships, &c. (see *Optics*), of which phenomena the reader will find descriptions and explanations in Brewster's Natural Magic (London, 1832). Illusions are often also produced by the appearance of objects imperfectly seen in a dim light, and by electric phenomena, when the credulous and terrified observer "sees, or thinks he sees," monstrous shapes flitting around and glaring upon him.—For further information on this interesting chapter in the history of human weakness, see Scott's *Letters on Demonology and Witchcraft*; Thacher's *Essay on Demonology* (1831); and particularly Hibbert's *Philosophy of Apparitions* (Edinburgh, 1824).

VISTULA (Polish, *Visla*; German *Weichsel*), a river about 500 miles long, navigable from Cracow, which rises in the principality of Teschen, in Austrian Silesia, on the northern declivity of the Carpathian mountains, flows round the territory of Cracow and Gallicia, through the kingdom of Poland, towards the north-west, passes through West Prussia, and divides into two branches, of which the eastern, the Nogat, empties, about two and a half miles from Elbing, into the Frische Haff; the western divides again, about nine miles above Dantsic, into two branches, of which the western flows into the Baltic at Weichselmunde, near Dantsic; the eastern, by many small channels, into the Frische Haff. The Vistula contains numerous and excellent fish: its navigation is very important, as the products of Poland—wood, grain, &c.—are transported on it to Dantsic, on the Baltic. The canal of Bromberg connects the Vistula with the Oder. Several navigable rivers empty into the Vistula.

VITALIANS. See *Apollinarians*.

VITELLIUS, AULUS, a Roman, raised by his vices to the throne, was descended from one of the most illustrious families of Rome. The greatest part of his youth was spent at Capreæ, where he laboured to gratify the vicious propensities of Tiberius. He passed through all the offices of the state, and gained the soldiery by donations and liberal promises. He was at the head of the Roman legions in Germany when Otho was proclaimed emperor, and was likewise invested with the purple by his soldiers. He accepted the office, and instantly marched against Otho. After losing three battles, he was successful in the plains between Mantua and Cremona. He now gave himself up to luxury and debauchery. He feasted four or five times a day, and was often seen to make himself vomit, to begin his repast afresh. Above thirty million dollars were spent in maintaining his table in the space of four months. This extravagance soon raised the indignation of the people. Vespasian was proclaimed emperor by the army, and his minister Primus was sent to destroy the imperial glutton. Vitellius concealed himself under the bed of the porter of his palace; but he was discovered, and dragged naked through the streets, with his hands tied behind his back. After suffering the greatest insults from the populace, his head was cut off and fixed to a pole, and his mutilated body dragged with a hook and thrown into the Tiber, A. D. 69, after a reign of one year, except twelve days.

VITERBO (anciently *Volturna*); a town of Italy, in the States of the Church, capital of a delegation, formerly capital of the Patrimonio; thirty-four miles north-west of Rome; lon. 12° 6′ E.; lat. 42° 25′ N.; population, 12,600. This city is a bishop's see, and lies in a beautiful and fertile valley: the streets, for the greater part, are broad and well paved, the houses good, but thinly peopled, though the number of churches, convents and hospitals is not less than sixty-nine. Four popes lie interred in the cathedral. Not far from the city is a warm mineral spring.

VITRIOL, GREEN. See *Copperas*.

VITRIOL, OIL OF; the old name for sulphuric acid. See *Sulphur*.

VITRUVIUS POLLIO, MARCUS; a celebrated writer on architecture, who is supposed to have flourished in the time of Julius Cæsar and Augustus, and of whose parentage and place of nativity no certain knowledge can be obtained. The most probable opinion is, that he was born at Formia, a city of Campania, now called Mola di Gaeta. He plainly appears to have been liberally educated; and that he travelled for information and improvement, we learn from his writings. The only public edifice which he mentions as being constructed from his designs, is a basilica at Fano. He wrote, at an advanced age, his work *De Architectura Lib. X.*, which he dedicated to Augustus, under whose reign he had held the office of inspector of the military machines. This treatise was first printed at Venice, 1497, folio; and, among modern editions, the most valuable are those of Schneider (Leipsic, 1808, 4 vols., 8vo.), and of Stratico (Œttingen, 1828, 4

vols.). An English translation of the work of Vitruvius, with a commentary, by William Newton, appeared in 1771, folio, republished 1791, 2 vols., folio; and a new translation, by W. Wilkins, with an Introduction, containing an Historical View of the Rise and Progress of Architecture among the Greeks, was published in 1812, folio.

VITTORIA, Battle of, was fought on June 21, 1813. In the middle of February, 1813, the disastrous state of the French army in Russia was made known to the French troops in Spain, with orders to send whatever forces could be spared to Germany. 30,000 troops set off immediately for that country. Their departure, and Marmont's defeat in the year previous, obliged the French to give up Madrid, and to retire behind the Ebro. Wellington followed, and passed the Ebro, June 15. At last, the armies met on the great plain of Vittoria (a town in Alava, lon. 2° 41′ W., lat. 42° 47′ N., with a population of 6500, much occupied in the manufacture of sword-blades). The French were commanded by king Joseph and Jourdan. They had on their left a chain of gentle hills, on their right Vittoria, in front the rivulet of Zadora. On the 20th, Wellington united all his columns, and ordered general Hill, on the 21st, to pass over the Zadora at day-break, and to attack the centre of the French. He was repulsed, but the struggle was obstinate; and general Graham, in the mean time, turned the right wing of the French, and came upon their rear, so that they were cut off from the road to Bilboa, and forced to retreat towards Pampeluna, which they did in the greatest disorder. They had been so certain of victory, that little provision had been made for the case of defeat; and many of the wives of the officers, the whole of Joseph's baggage, &c., fell into the hands of the British. 15,000 dead and wounded lay on the field of battle; 3000 French were taken prisoners. The British took 151 cannons, and 400 wagons with military stores, and the military chest. Their booty was immense. General Clauzel arrived the day after the battle, with two divisions, at Vittoria, and, with great skill, retreated towards Saragossa, so that the pursuit was less destructive than it would otherwise have been, and the remains of the French army were enabled to rally at the foot of the Pyrenees, where Soult put them again in order, and strove to oppose Wellington, who was prevented also, by other circumstances, from following up his victory as he could have wished; since Suchet, after the unsuccessful attempt of general Murray on Tarragona, kept possession of Valencia, and general Maurice Matthieu of Barcelona.

VITUS'S DANCE, St, or CHOREA SANCTI VITI (from χορεια, a dance), is a spasmodic or convulsive disease, in which the muscles of the extremities and other parts are thrown into various involuntary motions, and perform, in an irregular manner, those motions which are dictated by the will. The approach of the disease is commonly slow, and is indicated by a loss of the usual vivacity, by a variable and often ravenous appetite, a swelling and hardness in the lower belly, in most cases, but, in some, a lank and soft belly, and, in general, a constipated state of the bowels. Slight, irregular, involuntary motions are soon observed, especially of the muscles of the face, which after a while become more violent. These convulsive motions vary considerably. The muscles of the extremities, and of the face, those moving the lower jaw, the head and the trunk of the body, are at different times and in different instances, affected by it. In this state, the pati does not walk steadily: his gait resembles ja or starting: he sometimes cannot walk, and palsied; nor can he perform the common with the arms. In a word, when he wishes at rest, the muscles are perpetually moving distorting the limbs, face and trunk; and wh motion is attempted by the will, it is perfo irregularly and with difficulty, after several The convulsive motions sometimes continue in sleep. In the progress of the disease, artic tion becomes impeded, and is frequently com suspended. Deglutition is also occasionally formed with difficulty. The eye loses its and intelligence; the countenance is pale an pressive of languor. This disease attacks b sexes, but chiefly those who are of a weak con tion, or whose health and vigour have been im by confinement, or by the want of sufficient proper nourishment. It appears most common the eighth to the fourteenth year. Many ca have been assigned for this disorder, such as worms in the alimentary canal, and the repulsion of up of cutaneous eruptions; also rheumatism, fevers, diseases of the stomach, the use of mer terror, and other strong mental impressions. remedies which have been adopted belong to two classes of tonics and evacuants. The conn ion of the name of St Vitus with this disease is to have originated, during the days of fana and superstition, in the seventeenth century gorius Horsius and Juncker relate that a p prevailed among the people of Germany, the presenting gifts, and dancing before the image Vitus, on his festival, in May, they should health and safety during the ensuing year; and for this purpose, they repaired to a chapel dedic to their saint, where they danced night and until they were seized with delirium, and fell in a sort of trance.

VIVES, Giovanni Ludovico, one of the re of literature, was born at Valentia, in Spa 1492, and studied at Paris and Louvain. He visited England, having previously become one the first fellows of Corpus Christi college, Ox He was patronised by Catharine of Arragon, a in 1522, dedicated his Commentary upon St Au tine's *De Civitate Dei* to king Henry VIII. was also appointed to instruct the princess Ma polite literature and the Latin language. his residence at Oxford, he was admitted to laws, and acquired much favour with Henry but, venturing to write against his divorce Catharine, he was disgraced and imprisoned. regaining his liberty, he repaired to Bruges, he married, and remained, for the rest of as a teacher of the belles-lettres. He died His works were printed at Basle in 1555, in folio; but this collection does not include mentary on St Augustine, which was esteem bold and free by the Louvain doctors. works are *De prima Philosophia; De Ex Essentiarum; De Censura Veri; De Initi et Laudibus Philosophiæ;* and *De corrupt et tradendis Disciplinis.*

VIVIANI, Vincent, a celebrated Italian matician, was born at Florence, in 162 the sixteenth year of his age, he pursued of geometry with such diligence and su the great Galilei gave him the advantage instructions, and treated him as a son. lei's death, he undertook the restoration o

books of Aristæus, a celebrated Grecian mathematician, entitled *De Locis solidis*, which were lost, with the exception of the names of the propositions. This labour he, however, discontinued, in order to restore the lost fifth book of the Conic Sections of Apollonius. This work he published in 1659, in folio, under the title *De Maximis et Minimis Geometrica Divinatio in quintum Conicorum Apollonii Pergæi*, which was esteemed superior to Apollonius himself. In 1664, he was honoured with a pension from Louis XIV., and, in 1666, the grand duke of Tuscany, who employed him both in public works and in negotiation, gave him the title of his first mathematician. In 1669, he was chosen to fill a chair in the royal academy of sciences of Paris, which honour induced him to finish three books of his Divination of Aristæus, and address them to the king of France (*Divinatio in Aristæum*, 1701). He died in 1703, in the eighty-first or eighty-second year of his age. Fontenelle speaks warmly of the integrity and simplicity of manners of Viviani, who composed several mathematical treatises in the Latin and Italian languages, besides those already alluded to, the principal of which is entitled *Enodatio Problematum* (1677), comprising the solution of three problems which had been submitted to all the mathematicians of Europe.

VIVIANITE. See *Iron*.

VIZIER is a title of honour with the Turks, belonging to all the pachas of three tails (i. e. the highest pachas). Besides these, there are at Constantinople six viziers, called viziers of the bench (i. e. of the council of state), because they have seats in the divan. Men acquainted with the laws, and such as have already held offices of importance, are chosen for this station; but they have no decisive voice in this council, and cannot give their opinion until the grand vizier asks it. They have small salaries, but are privileged to wear a turban like that of the grand viziers, this being a mark of high distinction with the Turks. They can also affix the name of the sultan to the orders sent into the provinces. The grand vizier (*vizier azem*) stands high above these. He is the representative of the sultan, conducts the deliberations of the divan, and decides alone. He receives a seal at the time of his appointment, on which the sultan's name is engraved, and which he must always wear on his bosom. By this seal, he is authorized to rule, with absolute power, in the name of the grand sultan.

VLIESSINGEN. See *Flushing*.

VOCAL MUSIC; music produced by the human voice alone, or accompanied by instruments. It is contradistinguished from instrumental music, which is produced by instruments alone. The composer of such music must have a thorough knowledge of voices, and their musical effect, their power, and the peculiarities by which the human voice differs so decidedly from instruments. Vocal music has many advantages over instrumental, in the fine blending of the tones, in its endless variety of intonation and expression, and in the support which it derives from its connexion with words. The different forms of vocal music are, the air, arietta, cavatina, and the like; recitativo, duetto, terzetto, quartetto, &c.; the chorus, the song, hymn, &c.: the opera, oratorio, cantata, &c. See *Music* and *Voice*.

VOGLER, GEORGE JOSEPH, a distinguished practical and theoretical musician, was born at Würsburg, in 1749. He studied law, but early showed great talent for playing on the organ, and for composing. The elector of the Palatinate, Charles Theodore, sent him to Italy, about 1773, to study music. In about three years, he returned to Manheim, the residence of his princely patron. In the year 1780, and the following years, he travelled in Germany, France, Holland, Sweden, England, Spain, and (as Gerber says) even in Africa and Greece. In 1786, he was appointed chapel-master to the king of Sweden. In 1790, he was in London, where his performance on the organ was heard with great pleasure. He delivered lectures on music in Stockholm, and in Prague. In 1807, he was appointed chapel-master to the grand duke of Hesse-Darmstadt, and remained in Darmstadt until his death, in 1814. He invented a new instrument, called *orchestrion*, in which the tone was determined in quite a new way, by the increase and diminution of the wind; and the sound was increased by a suspended copper vessel. He also invented a mode of simplifying the construction of organs. He wrote various works on music, and likewise composed several pieces for the theatre, symphonies, &c.

VOICE is the body of sounds produced by the organs of respiration, especially the larynx of men or animals. It can, therefore, only be found in animals in which the system of respiration is developed, and the lungs and larynx actually exist. Many insects intentionally produce a noise by the motion of their wings, which takes the place of a voice, but cannot be called by this name. The fishes, being deprived of lungs, and breathing through gills, are dumb; but the amphibious animals, which have the lungs and larynx in an imperfect state, have, therefore, a limited voice. In birds, however, in which the lungs are so predominant, and the larynx is double, and some of which (the singing birds) have lamellæ in the bronchiæ, capable of vibration, the voice is fitted for the most varied sounds. The mammalia possess but one larynx; and with them the sound is formed by a strong expiration, whilst the ligaments of the glottis (according to the opinion of Ferrein) vibrate like the strings of an instrument, and produce various sounds, as they are more or less tense; or (according to the opinion of Dodart and Cuvier) form certain cavities, in which the tones are produced, as in wind instruments; or, perhaps, operate in both ways at the same time. But the length of the windpipe, which can be increased or shortened, and the magnitude of the lungs in proportion to the width of the glottis, also contribute much at least to the strength of the tone. The voice, however, is more influenced by the epiglot is, by the greater or less length of the canal which extends from the glottis to the opening of the mouth, and by all the voluntary modifications which can be there given to the tone. The influence of the nerves of the voice is also to be remarked; if the nerve is cut on one side, the voice becomes weaker, and if cut on both sides, ceases entirely. The positive pole of the galvanic battery affecting the nerve produces high, the negative pole deep, hoarse tones. Liscovius, in his Theory of the Voice (in German, Leipsic, 1814), maintains that the voice is produced by the pressure of the breath through the narrow opening of the windpipe, in a similar way as the tones are produced by the mouth in whistling. According to Gottfried Weber (*Cæcilia*, vol. i, p. 92), the organ of voice, as a sounding membrane, or lamella, acts like the tongue-work in the organ. The uvula has, of course, considerable influence in producing the tones, and is subject to

diseases in singers, orators, and others accustomed to great exertion of the vocal organs.* The voice of men and animals is a very interesting subject of inquiry. The tones by which animals express their feelings, the sweet and powerful melodies of the small birds, the tones which convey the ideas and emotions of rational man, and furnish his noblest music, are well fitted to awaken the curiosity of the naturalist, physiologist and philosopher.—For some remarks on the organs of the voice in animals and men, we refer the reader to Blumenbach's *Manual of Comparative Anatomy* (translated by W. Lawrence, revised by Coulson, London, 1827).

Respecting the sounds of human language, by the various combinations of which such a variety of words is produced, we will add a few remarks. Besides the lungs, the windpipe, &c., the finely-arched roof the mouth, and the pliability of the lips (enabling us to give a great variety of forms to the mouth, which are almost the sole means of giving their peculiar character to the different vowels), are of the greatest importance. Under the articles on the separate letters the reader will find an account of the way in which the sounds represented by them respectively are produced. "The modifications of voice, easily made (says Mr Arnott, in his Elements of Physics), and easily distinguishable by the ear, and, therefore, fit elements of language, are about fifty in number; but no single language contains more than about half of them. They are divisible into two very distinct and nearly equal classes, called *vowels* and *consonants*." In the article *Consonant*, the natural division of words is shown to cease with syllables: they are one sound, and the division into vowels and consonants, ingenious and useful as it is, does not, in fact, exist to the degree which we usually take for granted, from the circumstance of considering them as totally distinct from early childhood. Consonants are, generally speaking, only the beginning or end of vowels; i. e. the mouth must in some way be opened to produce a vowel sound, and closed to conclude the vowel sounds; and this mode of opening or closing gives rise to that which we call a consonant. The circumstance that consonants cannot be pronounced without the aid of vowels, shows, that the strict division into vowels and consonants is one which nature has not made. Mr Arnott says: "To explain the second class of the modifications of sound, called *consonants*, we remark, that while any continued or vowel sound is passing through the mouth, if it be interrupted, whether by a complete closure of the mouth, or only by an approximation of parts, the effect on the ear of a listener is so exceedingly different, according to the situation in the mouth where the interruption occurs, and to the manner in which it occurs, that many most distinct modifications thence arise. Thus any continued sound, as *a*, if arrested by a closure of the mouth at the external confine or lips, is heard to terminate with the modification expressed by the letter *p*; that is, the syllable *ap* has been pronounced: but if, under similar circumstances, the closure be made at the back of the mouth, by the tongue rising against the palate, we hear the modification expressed by the letter *k*, and the syllable *ak* has been pronounced; and if the closure be made in the middle of the mouth, by the tip of the tongue rising against the roof, the sound expressed by *t* is produced, and the syllable *at* is heard: and so of others. It is to be remarked also that the ear is equally sensible of the peculiarity whether the closure precedes the continued vowel or follows it; that is to say, whether the syllables pronounced are *ap*, *at*, *ak*, or *pa*, *ta*, *ka*. The modifications of which we are now speaking are then, not to be really sounds, but only manners of beginning and ending sounds; and it is because they can thus be perceived only in connection with vocal sounds, that they are called consonants."—We refer the reader to Mr Arnott's work for further remarks on the pronunciation of the various vowels and consonants, and add here only his table of articulations, in which, if we consider the vertical line on the left as the opening of the mouth, and the line on the right as the back part of the mouth, the four divisions indicate the parts where the letters are pronounced.—See the article on the letters and on writing.

Labial.	*Palatal.*	*Guttural.*		
P	T	K		*Mute.*
B	D L	G		*Semi-mute.*
M	N	ng	en	*Semi-vowel or nasal.*
F	th S sh	ch	H	*Aspirate.*
V	th Z J	gh		*Vocal aspirate.*
pr	R	ghr		*Vibratory.*

The effect of the sexual functions on the voice is well known; but the mode in which this effect takes place is not explained. This influence is observable even in birds, which delight us with their amorous melodies at the season of pairing. In woman, whose voice acquires its metallic tone and its fulness at the age of puberty; and particularly in man, who does not possess, till that period, the "voices" peculiar to him, the bass or tenor, and in whom the change of voice, as every one knows, is prevented by previous emasculation. But many other causes, affecting especially the nervous system, produce considerable changes in the voice, which afford important symptoms in disease. Thus it may be wanting altogether in a certain state (this is called *aphonia*), or it may be affected morbidly (*paraphonia*, *cacophonia*). In the latter case, it is either too strong or too weak, too full (*vox clangosa*, if it is at the same time too strong, and *raucitas gravis*, if it is at the same time too weak), or too high (*oxyphonia*, which again is divided into *vox cucuriens* or *rudens*, which is at the same time too strong, and *raucitas acuta*, if at the same time too weak). Most of these affections appear as symptoms, but are seldom considered as primary disease. They often enable the practitioner to draw conclusions respecting the true nature of the disease. The entire loss of voice arising from cramp, weakness or paralysis. If it arise by paralysis, it is almost always a fatal symptom. If it is connected with an excitable constitution, it indicates violent congestions and approaching apoplexy; occurring after delivery, it indicates convulsions; in the croup, suffocation and mortification. An unnaturally strong voice is very common in madness. The *vox clangosa*, sounding like a person was speaking in an empty pot, is a dangerous disease symptom. This kind of hoarseness, in a deep, indicates danger in a country-

* See Magendie's *Report on Doctor Bennati's* (physician to the Italian opera in Paris) *Memoir on the Diseases of the Uvula*, read March 7, 1831, in the French academy.

dropsy of the chest. It is not a symptom of disease when caused merely by the arrival of the age of puberty, by catarrh, or by dust which has been inspired. The *vox cucuriens, seu rudens, seu pipiens* (sounding similar to the crowing of a cock, or the braying of an ass) is pathognomic in the hooping cough and croup, and is also sometimes found in dropsy in the head and small-pox, and is a bad symptom. The *raucitas acuta* originates partly from the same causes as the *raucitas gravis*. With hysterical persons it indicates an approaching fit.

Voice, in music. A good musical voice depends chiefly upon the soundness and power of the organs of utterance and of hearing, and the necessary musical disposition, and is distinguished by clearness of intonation, ease, strength, duration, equality, harmoniousness and fullness of the sounds; whilst natural defects or diseases in those organs (for instance, narrowness of the chest, weak lungs) give rise to imperfections in the voice. As weakness of lungs necessarily affects the voice, so frequent singing developes and strengthens the lungs which are strong enough to support it; and instruction in singing is, therefore, in a medical respect, of great importance. The rarity of consumption in most parts of Germany, compared to other countries, is ascribed by some, in a great measure, to the general instruction and frequent practice in singing. Practice in singing for several generations must undoubtedly have a decided influence in giving strength to the lungs, which may also be much promoted by gymnastic exercises that expand the chest. A fine voice requires a long, regular and strong breath. Some faults in singing, however, originate from a bad use of a good voice; as the singing through the nose, teeth, &c. A voice which has by nature the requisite properties, acquires compass and strength, correctness and pliability, by exercise. Thorough methodical practice in singing should not, in most cases, be begun before the ninth or tenth year, though the ear ought to be early exercised. The variety of voices is as great as that of individuals. In respect to depth and height, there are four principal classes of voices: discant, alto, tenor and bass. Discant, or soprano, moreover, is distinguished from lower, or mezzo soprano, tenor from counter tenor, and between tenor and bass comes the proper baritono. A good bass voice generally extends from F or G, below G gamut, to C or D, above the bass-clef note; the baritono from about G gamut to F, above the bass-clef note; the tenor from C, above G gamut, to G, the treble-clef note, or A above it; the counter-tenor from E or F, above G gamut, to B or C, above the treble-clef note; the mezzo soprano from A or B, above the bass-clef note, to E or F, above the treble-clef note; and the soprano from C, above the bass-clef note, to A, B or C, in alt, and something higher. Female voices are, by nature, treble and alto; those of boys, even if they have the compass of high treble, are usually alto. When the boy arrives at the age of puberty, the alto changes into tenor or bass.

Voice is also the name given to a part assigned to a human voice or an instrument in a composition.

VOIGTLAND (in law Latin, *Terra Advocatorum*); in a wider sense, all that part of Germany which formerly belonged to the imperial bailiffs (in German, *Voigte*, Latin, *advocati*), the ancestors of the present princes and counts of Reuss. It comprised the Saxon circle of Voigtland, the bailiwic of Weida and Ziegenrück, in the grand duchy of Saxe-Weimar, territories of the princes and counts of Reuss, the district of Hof, now included in the Bavarian circle of the Upper Maine, and the Saxe-Altenburg bailiwic of Ronneburg. From the eleventh century there were imperial officers, in the above described region, who bore the name of bailiffs (*advocati, voigte*) of the holy Roman empire, and who managed the affairs of the emperor. In a narrow sense, the term is applied particularly to a circle of Saxony, consisting of a part of the former Voigtland. It has 102,891 inhabitants on 680 square miles, and is also called the circle of Neustadt. The chief town is Plauen. It contains some mountainous and woody districts, and in some parts is well adapted for pasturage and tillage. The most remarkable peculiarity is the pearl-fishery in the river Elster (see *Pearl*), which is sometimes very productive, and has yielded some pearls of much beauty.

VOITURE, VINCENT, a celebrated French wit, was born at Amiens, in 1598. His agreeable manners and conversation introduced him to good company; and he was a visitor at the Hôtel de Rambouillet, and was also well received at court, and by Gaston, duke of Orleans, who made him his master of the ceremonies. In 1634, he was admitted into the French academy, and was subsequently sent on a mission to Spain, where he composed some verses in such pure and natural Spanish, that every body ascribed them to Lope de Vega. He also visited Rome and England, and died in 1648. Voiture was one of the first persons in France distinguished by the title of *bel esprit*. He wrote verses in French, Spanish and Italian. The former are occasionally easy and sprightly, but have much strained wit and affected sentiment. His letters place him high in the class of epistolary writers, though they often degenerate into affectation, insipid pleasantries, and far-fetched allusions.

VOLATILE OILS. See *Essential Oils*.

VOLATILITY, in chemistry; the quality of a substance, to evaporate in a certain degree of heat: it is the opposite to fixidity. It is very probable, that all substances are capable of being volatilized, and that we should be able to dissolve every one of them by fire, but for the want of a sufficient degree of heat.

VOLCANOES. The volcano and the earthquake might, perhaps, with no impropriety, have been treated of together, since both are undoubtedly effects of the same subterranean process; but we have preferred to devote to each a separate article, as the phenomena on the earth's surface, to which they give rise, are considerably different. The present article will, however, embrace several particulars relating to earthquakes, which were omitted in the article under that title, on account of their close connexion with the subject of volcanoes. There are certain regions to which volcanic eruptions, and the movements of great earthquakes, are confined: over the whole of vast tracts active volcanic vents are distributed at intervals and most commonly arranged in a linear direction. Throughout the intermediate spaces there is abundant evidence that the subterranean fire is continually at work; for the ground is convulsed, from time to time, by earthquakes: gaseous vapours, especially carbonic acid gas, are disengaged plentifully from the soil; springs often issue at a very high temperature, and their waters are very commonly impregnated with the same mineral matters which are discharged by volcanoes during eruptions.

Of these great regions, that of the Andes is one of the best defined. Commencing southward, at least in Chile, at the forty-sixth degree of south latitude, it proceeds north-ward to the twenty-seventh degree, forming an uninterrupted line of volcanoes. The Chilean volcanoes rise up through granitic mountains. Villarica, one of the principal, continues burning without intermission, and is so high, that it may be distinguished at the distance of 150 miles. A year never passes in this province without some slight shocks of earthquakes; and about once in a century, or oftener, tremendous convulsions occur, by which the land has been shaken from one extremity to the other, and continuous tracts, together with the bed of the Pacific, have been raised permanently from one to twenty feet above their former level. Hot springs are numerous in this district, and mineral waters of various kinds. Pursuing our course northward, we find in Peru only one active volcano as yet known; but the province is so subject to earthquakes, that scarcely a week passes without a shock; and many of these have been so violent as to create great changes of the surface. Farther north, we find, in the middle of Quito, where the Andes attain their greatest elevation, Tunguragua, Cotopaxi, Antisana and Pichincha, the three former of which not unfrequently emit flames. From the first of these, a deluge of mud descended in 1797, and filled valleys, 1000 feet wide, to the depth of 600 feet, forming barriers, whereby rivers were dammed up, and lakes occasioned. Earthquakes have, in the same province, caused great revolutions in the physical features of the surface. There are three volcanoes farther north, in the province of Pasto, and three others in that of Popayan. In the provinces of Guatimala and Nicaragua, which lie between the isthmus of Panama and Mexico, there are no less than twenty-one active volcanoes. This great volcanic chain, after having pursued its course for several thousand miles from south to north, turns off in a side direction in Mexico, and is prolonged in a great plateau, between the eighteenth and twenty-second degrees of south latitude. The plateau in question owes its present form to the circumstance of an ancient system of valleys, in a chain of primary mountains, having been filled up, to the depth of many thousand feet, with various volcanic products. Five active volcanoes traverse Mexico from west to east; viz. Tuxtla, Orizaba, Popocatepetl, Jorullo and Colima. Jorullo, which is in the centre of the great plateau, is no less than forty leagues from the ocean, which shows that the proximity of the sea is not a necessary condition, although certainly a very general characteristic, of the position of active volcanoes. The extraordinary eruption of this mountain in 1759 will be described in the sequel. To the north of Mexico there are three, or according to some, five volcanoes, in the peninsula of California. In the year 1812, violent earthquakes convulsed the valley of the Mississippi at New Madrid, for the space of three hundred miles in length. As this happened exactly at the same time as the great earthquake of Caracas, it is probable that these two points are parts of one continuous volcanic region; for the whole circumference of the intervening Caribbean sea must be considered as a theatre of earthquakes and volcanoes. On the north lies the island of Jamaica, which, with a tract of the contiguous sea, has often experienced tremendous shocks; and these are frequent along a line extending from Jamaica to St Domingo and Porto Rico. On the south of the same basin, the shores and mountains of Caracas are perpetually convulsed. On the west is the volcanic chain of Guatimala and Mexico, and on the east, the West Indian isles, where, in St Vincent and Guadaloupe, are active vents. Thus it will be seen that volcanoes and earthquakes occur, uninterruptedly, from Chile to the north of Mexico, and it seems probable, that they will hereafter be found to extend, at least, from cape Horn to California. In regard to the eastern limits of the region, they lie deep beneath the waves of the Pacific, and must therefore continue unknown to us. On the west they do not appear, except where they include the West Indian islands, to be prolonged to a great distance; for there seem to be no indications of volcanic disturbances in Guiana, Brasil and Buenos Ayres. On an equal, if not a still grander scale, is another continuous line of volcanic action, which commences on the north, with the Aleutian isles, Russian America, and extends first in an easterly direction for nearly two hundred miles, and southward, without interruption, throughout a space of between sixty and seventy degrees of latitude, to the Moluccas, and then branches off in different directions both towards the east and north-west. The northern extremity of this volcanic region is the peninsula of Alaska, in about the fifty-first degree of latitude. Thence the line is continued through the Aleutian or Fox islands, to Kamchatka, in the southern extremity of which there are seven active volcanoes, which, in some eruptions, have scattered ashes to immense distances. The Kurile chain of isles constitutes the prolongation of the range in a southern direction; the line is then continued to the south-west in the island of Jesso, where there are active vents. Between the Japanese and Philippine islands, the communication is preserved by several small active vents. The line is then prolonged through Sumatra and the north-eastern extremity of Celebes, to the Moluccas. Here a great transverse line may be said to run from east to west. On the west it passes through the whole of Java, where there are thirty-eight large volcanic mountains. In the volcanoes of Sumatra, the same linear arrangement is preserved. In another direction, the volcanic line is prolonged through Borneo, Celebes, Banda, New Guinea; and farther eastward in New Britain, New Ireland, and various parts of the Polynesian archipelago. The Pacific ocean, indeed, seems, in equatorial latitudes, to be one vast theatre of igneous action, and its innumerable archipelagoes, such as the New Hebrides, Friendly islands, and Georgian islands, are all composed either of coralline limestone or volcanic rocks, with active vents here and there interspersed. In the old world, the volcanic region extends from east to west for the distance of about 1000 miles, from the Caspian sea to the Atlantic, including within its limits the greater part of the Mediterranean and its most prominent peninsulas. From south to north, it reaches from about the thirty-fifth to the forty-fifth degree of latitude. Its northern boundaries are Caucasus, the Black sea, the mountains of Thrace, Transylvania, Hungary,—the Austrian, Tyrolian and Swiss Alps—the Cevennes and Pyrenees, with the mountains which branch off from the Pyrenees westward on the north side of the Tagus. Its western limits are the ocean; but it is impossible to determine how far it may be prolonged in that direction, neither can we assign with precision its exact

eastern limit, since the country beyond the Caspian and sea of Aral is scarcely known. The southern boundaries of the region include the most northern parts of Africa, and part of the desert of Arabia. We may trace, through the whole of the area comprehended within these extensive limits, numerous points of volcanic eruptions, hot springs, gaseous emanations, and other signs of igneous agency; while few tracts of any extent have been entirely exempt from earthquakes throughout the last 3000 years. Besides the continuous spaces of subterranean disturbance, of which the outline has been given above, there are other disconnected volcanic groups, of which the geographical extent is, as yet, imperfectly known. Among these may be mentioned Iceland, which belongs, perhaps, to the same region as the volcano in Jan Mayen's island. With these, also, part of the nearest coast of Greenland, which is sometimes shaken by earthquakes, may be connected. The island of Bourbon belongs to another theatre of volcanic action, of which Madagascar probably forms a part, if the alleged existence of burning volcanoes in that island shall be substantiated. Respecting the volcanic system of Southern Europe, it may be observed, that there is a central tract, where the greatest earthquakes prevail, in which rocks are shattered and cities laid in ruins. On each side of this line of greatest commotion, there are parallel bands of country where the shocks are less violent. At a still greater distance, as in Northern Italy, there are spaces where the shocks are much rarer and more feeble. Beyond these limits, again, all countries are liable to slight tremors at distant intervals of time, when some great crisis of subterranean movement agitates an adjoining volcanic region; but these may be considered as mere vibrations, propagated mechanically through the external crust of the globe, as sounds travel almost to indefinite distances through the air. Shocks of this kind have been felt in England, Scotland, Northern France and Germany, particularly during the Lisbon earthquake.

We shall now give some account of a few of the principal volcanic vents, dispersed through the great regions before described, and consider the composition and arrangement of their lavas and ejected matter. From the first colonization of Southern Italy by the Greeks, Vesuvius afforded no other indication of its volcanic character than such as the naturalist might infer from the analogy of its structure to other volcanoes. These were recognised by Strabo. The ancient cone was of a very regular form, terminating, not, as at present, in two peaks, but with a flattish summit, where the remains of an ancient crater, nearly filled up, had left a slight depression, covered in its interior by wild vines, and with a sterile plain at the bottom. On the exterior, the sides of the mountains were covered with fertile fields, richly cultivated, and at its base were the populous cities of Herculaneum and Pompeii. But the scene of repose was at length doomed to cease, and the volcanic fire was recalled to the main channel, which, at some former, unknown period, had given passage to repeated streams of melted lava, sand and scoriæ. The first symptom of the revival of the energies of this volcano was the occurrence

of an earthquake, A. D. 63, which did considerable injury to the cities in its vicinity. From that time to the year 79, slight shocks were frequent; and in the month of August of that year, they became more numerous and violent, till they ended at length in an eruption. The elder Pliny, who commanded the Roman fleet, was then stationed at Misenum; and, in his anxiety to obtain a near view of the phenomena, he lost his life, being suffocated with sulphureous vapours. His nephew, the younger Pliny, remained at Misenum, and has given us, in his Letters, a lively description of the awful scene. A dense column of vapour was first seen rising vertically from Vesuvius, and then spreading itself out laterally, so that its upper portion resembled the head, and its lower, the trunk or the pine, which characterizes the Italian landscape. This black cloud was pierced, occasionally, by flashes of fire as vivid as lightning, succeeded by darkness more profound than night. Ashes fell even upon the ships at Misenum, and caused a shoal in one part of the sea. The ground rocked, and the sea receded from the shores, so that many marine animals were seen on the dry sand. The appearances above described agree perfectly with those witnessed in more recent eruptions, especially those of Monte Nuovo, in 1538, and of Vesuvius, in 1822. In all times and countries, indeed, there is a striking uniformity in the volcanic phenomena; but it is most singular that Pliny, although giving a circumstantial detail of so many physical facts, and enlarging upon the manner of his uncle's death, and the ashes which fell when he was at Stabiæ, makes no allusion whatever to the sudden overwhelming of two large and populous cities, Herculaneum and Pompeii. Tacitus, the friend and contemporary of Pliny, when adverting, in general terms, to the convulsion, says merely, that "cities were swallowed up or buried" (*haustæ aut obrutæ urbes*. Hist. lib. i.). It does not appear that, in the year 79, any lava flowed from Vesuvius: the ejected substances appear to have consisted entirely of sand and fragments of older lava. In 1036, the first eruption of flowing lava occurred. A second happened in 1049, and a third in 1138; after which a great pause ensued of 168 years. During part of 1301, earthquakes had succeeded one another with fearful rapidity; and they terminated at last with the discharge of a lava stream from a point named the Campo del Arso, not far from the town of Ischia. This lava ran quite down to th sea—a distance of about two miles. Its surface is of a reddish-black colour; and it is almost as sterile, after a period of five centuries, as if it had cooled down yesterday. The next eruption occurred in 1306; between which era and 1631, there was only one other (in 1500), and that a slight one. During this interval, a memorable event occurred in the Phlegræan fields—the sudden formation of a new mountain in 1538. Frequent earthquakes for two years preceding disturbed the neighbourhood of Pozzuoli; but it was not until the twenty-seventh and twenty-eighth of September, 1538, that they became alarming, when not less than twenty shocks were experienced in twenty-four hours. At length, on the night of the twenty-ninth, two hours after sunset, a gulf opened between the little town of Tripergola, which once existed on the site of the Monte Nuovo, and the baths in its suburbs, which were much frequented. A large fissure approached the town with a tremendous noise, and began to discharge pumice-stones, blocks of unmelted lava, and ashes mixed with

water, and, occasionally flames. The ashes fell in immense quantities, even at Naples. The sea retired suddenly for 200 yards, and a portion of its bed was left dry; and the whole coast from Monte Nuovo to beyond Pozzuoli was upraised to the height of many feet above the bed of the Mediterranean, and has ever since remained permanently elevated. On the third of October, the eruption ceased, so that the hill Monte Nuovo, which is 440 feet above the level of the bay, and a mile and a half in circumference at its base, and which was chiefly thrown up in a day and a night, was accessible. The depth of its crater is 421 feet from the summit of the hill, so that its bottom is only nineteen feet above the level of the sea. For nearly a century after the birth of Monte Nuovo, Vesuvius still continued in a state of tranquillity. Braccini, who visited Vesuvius not long before the eruption of 1631, gives the following description of its interior. The crater was five miles in circumference, and about 1000 paces deep. Its sides were covered with brush wood, and at the bottom there was a plain on which cattle grazed. In the woody parts, wild boars frequently harboured. But at length these forests and grassy plains were suddenly consumed—blown into the air, and their ashes scattered to the winds. In December, 1631, seven streams of lava poured at once from the crater, and overflowed several villages on the sides and at the foot of the mountain. Great floods of mud were as destructive as the lava itself; for such (as often happens during these catastrophes) was the violence of the rains produced by the evolution of aqueous vapour, that torrents of water descended the cone, and, becoming charged with impalpable volcanic dust, rolled along loose ashes, acquiring such consistency as to deserve the appellation of aqueous lava. A brief period of repose ensued, which lasted only until the year 1666, from which time to the present, there has been a constant series of eruptions, with rarely an interval of rest exceeding ten years. The modern lavas of Vesuvius are characterized by a large proportion of augite. When they are composed of this mineral and feldspar, they differ in composition but slightly from many of the trap-rocks. (See *Trap.*) They are often porphyritic, containing disseminated crystals of augite, leucite, or some other mineral, imbedded in a more earthy base. These porphyritic lavas are often extremely compact. In the lava currents of central France (those of Viverais), the uppermost portion, often forty feet or more in thickness, is an amorphous mass passing downwards into lava, irregularly prismatic; and under this there is a foundation of regular and vertical columns, in that part of the current which must have cooled most slowly. A great variety of minerals are found in the lavas of Vesuvius and Somma. Augite, leucite, feldspar, mica, olivine, specular iron, idocrase, garnet and sulphur are most abundant. It is an extraordinary fact, that, in an area of three square miles round Vesuvius, a greater number of mineral species have been found than in any spot, of the same dimensions, on the surface of the globe. Many of these are peculiar to this locality. A small part of the ejected matter, however, remains so near to the volcanic orifice. A large portion of sand and scoriæ is borne by the winds and scattered over the surrounding plains, or falls into the sea; and much more is swept down by torrents into the deep during the intervals, often protracted for many centuries, between eruptions. These horizontal deposits of tufaceous matter become intermixed with sediment of other kinds, and with shells and other, and, when afterwards raised, form rocks of a mixed character, such as tufas, peperinos and volcanic conglomerates. Besides the ejections which fall on the cone, and that much greater mass which finds its way gradually to the neighbouring sea, there is a third portion, often of no inconsiderable thickness, composed of alluvions, spread over the valleys and plains, at small distances from the volcano. Immense volumes of aqueous vapour are evolved from a crater during eruptions, and often for a long time subsequently to the discharge of scoriæ and lava. These vapours are condensed in the cold atmosphere surrounding the high volcanic peak; and heavy rains are caused sometimes even in countries where, under other circumstances, such a phenomenon is entirely unknown. The floods thus occasioned sweep along impalpable dust or light scoriæ, till a current of mud is produced, which is often more dreaded than an igneous stream, for the greater velocity with which it moves.

After Vesuvius, the most authentic records refer to Ætna, which rises, near the sea, in solitary grandeur, to the height of nearly 15,000 feet, the base consisting chiefly of volcanic matter ejected above the surface of the water. The base of the cone is eighty-seven miles. Ætna appears to have been in activity from the earliest times of tradition. Thucydides informs us that between the colonization of Sicily by the Greeks and the commencement of the Peloponnesian war (B. C. 431), three eruptions had occurred. A great eruption occurred in the year 1669. The lava, after having overflowed several towns and villages, some having a population between 3000 and 4000 inhabitants, arrived, at length, at the walls of Catania. These had been purposely raised to protect the city; but the rising flood accumulated till it rose to the top of the rampart, which was sixty feet in height, and fell in a fiery cascade, and overwhelmed part of the city. The wall, however, was not thrown down, but was discovered long afterwards by excavations made in the rock by the prince of Biscari; and the traveller may now see the solid lava rolling over the top of the rampart, as if still in the act of falling. This great current had performed a course of fifteen miles, before it entered the sea, where it was still 600 yards broad and 40 feet deep. A gentleman of Catania, named Pappalardo, seeing to secure the city from the approach of the threatening torrent, went out with a party of men, whom he had dressed in skins to protect them from the heat, and armed them with iron crows and hooks. They broke open one of the solid walls which flanked the current near Belpasso, and immediately forth issued a rivulet of melted matter which took the direction of Paterno; but the inhabitants of that town being alarmed for their safety took up arms, and put a stop to further operations. In 1811, the great crater testified, by its detonations, that the lava had ascended to the summit of the mountain, by its central tube.

violent shock was then felt, and a stream broke out from the side of the cone, at no great distance from its apex. Shortly after, other streams, to the number of six, broke out in succession, still lower down the mountain, but all in the same straight line. In 1819, three large mouths opened very near those which were formed in the eruptions of 1811, from which flames, red-hot cinders and sand were thrown up, with loud explosions. A few minutes afterwards, another mouth opened below, from which flames and smoke issued; and finally, a fifth, lower still, whence a torrent of lava flowed, which spread itself with great velocity over the valley Del Bove. This stream flowed two miles in the first twenty-four hours, and nearly as far in the succeeding day and night.

As the last example of modern volcanic eruptions, we shall mention that of Jorullo, in Mexico, in 1759. The plain, which was the site of the eruption, is thirty-six leagues from the sea, and, at the time of the eruption, was occupied by fertile fields of sugar-cane and indigo. In the month of June, hollow sounds, of an alarming nature, were heard, and earthquakes succeeded each other for two months, until, in September, flames issued from the ground, and fragments of burning rocks were thrown to prodigious heights. Six volcanic cones, composed of scoriæ and fragmentary lava were formed on the line of a chasm which ran in the direction from north-north-east to south-south-west. The least of these cones was 300 feet in height; and Jorullo, the central one, was elevated 1600 feet above the level of the sea. A subsequent eruption of Jorullo happened in 1819, accompanied by an earthquake. The city of Guanaxuato, distant about 140 miles from Jorullo, was covered with ashes, to the depth of six inches, from this eruption.

During the last century, about fifty eruptions are recorded of the five European volcanoes, Vesuvius, Ætna, Volcano, Santorin, and Iceland; but many beneath the sea, in the Grecian Archipelago, and near Iceland, may, doubtless, have passed unnoticed. If some of them produced no lava, others on the contrary, like that of Skoptar Jokul, in 1783, poured out melted matter for five or six years consecutively. Now, if we consider the active volcanoes of Europe to constitute about a fortieth part of those already known on the globe, and calculate that, one with another, they are about equal in activity to the burning mountains in other districts, we may then compute that there happen on the earth about 2000 eruptions in the course of a century, or about twenty every year, or one in eighteen days. However inconsiderable, therefore, may be the superficial rocks, which the operations of fire produce on the surface, we must suppose the subterranean changes now constantly in progress to be on the grandest scale. The loftiest volcanic cones must be insignificant when contrasted with the products of fire in the nether regions.

One of the earliest hypotheses to account for volcanic eruptions is that which attributes them to the eructations of a perpetual central fire, to which, however, the nature of the lava, the method of its projection, and, above all, the known laws of the communication of heat, are insurmountably opposed. The sudden evolution of steam has also frequently been resorted to. They have also been referred to the ignition of beds of coal; and Werner supposes that the fire thus produced fused the circumjacent rocks, and formed lava. Others have called sulphur, pyrites, petroleum, and bitumen to their aid, but have sought in vain for the necessary supply of oxygen, without which these combustibles could not perform their required part; and, indeed, if we grant an unlimited supply of that element, the projectile force—the vapour—still remains to be accounted for. Others have imagined a great depot of electric matter pent up in certain submarine and subterranean caverns, and occasionally sallying forth to fuse and blow up the surrounding materials. The most plausible theory of volcanoes is that suggested by Sir H. Davy, soon after he had discovered the nature of the earthy and alkaline bodies. Indeed, it enables us, in most cases, upon just principles of sound analogy, to explain their origin; for lava consists of earthy and alkaline bodies, ejected in intense ignition; and it is associated with vapour, with explosions of hydrogen gas, with the production of nitrogen; and, in short, there is every concomitant circumstance to lead to the conclusion that there exist in the bowels of the earth, masses of those highly inflammable metallic bodies, constituting the bases of the earths and alkalies; and these and water are essential requisites for the production of the phenomena that precede, accompany, and follow the eruption of volcanoes; they may be referred to, as accounting for the earthquakes, the explosions and the gaseous products; and they are the only agents, with which we are acquainted, capable of fulfilling all the requisites. How or where these bodies exist, at what depths, in what quantity, and how accessible to water, are questions that we cannot solve; but it is a curious fact, that water is always found connected with volcanoes. Vesuvius, Ætna, and Hecla are upon the verge of the sea; and in the vicinity of the burning mountains of the Cordilleras there are lakes; and it has been observed, that springs and lakes suddenly dry up previous to the active eruption of a volcano.

VOLGA. See *Wolga*.

VOLHYNIA; a government of the Russian empire, between the governments of Grodno and Podolia; square miles, 29,300; population, about 1,000,500. While Poland was independent, Volhynia formed a province of that kingdom, which bordered with the Ukraine on the south-east. The soil is fertile, producing wheat and rye, and its pasture lands are extensive; but a great part of the surface is forest. From its frontier situation, it has often been exposed to the evils of invasion. Since 1793, it has been in the possession of Russia. Volhynia was in insurrection in 1831, but shared the fate of Poland, when that unfortunate country was again trampled under foot by the victorious barbarians. See *Poland*, and *Russia*.

VOLITION. See *Will*.

VOLNEY, Constantine Francis Chassebœuf, count de, peer of France, a celebrated French writer, was born at Craon, in Brittany, in 1757. Inspired, at an early age, with a desire to visit foreign countries in search of knowledge, he no sooner became master of a small patrimonial estate, than he converted it into money, and embarked for the Levant, travelled through several parts of Egypt and Syria, and, after a residence for some time in a Maronite convent on mount Libanus, for the purpose of studying the Oriental languages, returned to France, whence he had been absent more than two years. The fruits of his inquiries appeared in his *Voyage en Syrie et en Egypte* (2 vols., 8vo), which was translated into English, Dutch and German. This work procured him much re-

putation; and, taking up his residence at Auteuil, near Paris, he became intimately connected with some of the most eminent among his literary contemporaries. On the convocation of the states-general, in 1789, Volney was elected a deputy from the *tiers état* of Anjou, when he embraced the cause of liberty, and frequently appeared with advantage as a public speaker. In 1791, he published his deistical work, entitled *Les Ruines, ou Méditations sur les Révolutions des Empires*. After the conclusion of the sessions of the national assembly, he accompanied M. Pozzo di Borgo to Corsica, where he had projected some agricultural improvements. He made attempts to establish in that island the cultivation of the sugar-cane, indigo, and other tropical plants; but he was unsuccessful. Returning to Paris, he suffered persecution under the reign of terror; and, after ten months' imprisonment, the fall of Robespierre restored him to liberty. In November, 1794, he was appointed professor of history at the normal school; and the course of lectures on the philosophy of history which he delivered, and which was published and translated into English, added considerably to his reputation. In 1795, he made a voyage to the United States of America; and he would probably have settled in America, had not the prospect of a war with France induced him to return home in the spring of 1798. After the revolution which elevated Bonaparte to the consulship, he was nominated a senator; and it is said the office of second consul was designed for him, but his political opinions prevented the appointment from taking place. In the senate, he co-operated with Lanjuinais, Cabanis, Destutt de Tracy, Collaud, Garat, and others, whose influence was constantly exerted in the cause of freedom. After the restoration, Volney, by a decree of the fourth of June, 1814, was designated a member of the chamber of peers, where he remained faithful to his principles, always appearing among the ardent defenders of the rights of the nation. His death took place at Paris, in 1820. Besides the works already mentioned, he published *Simplification des Langues Orientales, ou Méthode nouvelle et facile d'apprendre les Langues Arabe, Persane et Turque, avec les Caractères Européens* (1795, 8vo.); *Tableau du Climat et du Sol des Etats Unis d'Amérique* (1803, 2 vols., 8vo.), with a Vocabulary of the Language of the Miamis; *Cronologie d'Herodote conformé à son Texte* (1808, 2 vols., 8vo.); *Recherches nouvelles sur l'Histoire Ancienne* (1814—1815, 3 vols., 8vo.). His *Œuvres complètes*, with his Life, appeared at Paris, in 1821, in 8 vols.

VOLPATO, Giovanni, an engraver, born at Bassano, in 1733, spent his early years in executing drawings for embroidery. Having acquired the use of the burin, without any instruction, he afterwards went to Venice, where he executed engravings, in connexion with Bartolozzi, for Wagner, a picture dealer, and finally left Venice for Rome. Here a society of amateurs, at the head of whom was Ercole Bonajuti, had been formed for the purpose of procuring engravings of Raphael's works in the Vatican. The drawings of the Spanish painter La Veja, in eighty sheets, which had been prepared by a labour of three years for cardinal Silvio Valenti, and which had been bequeathed by the cardinal Luigi Valenti to the Vatican library, were made the basis of this work. Volpato was employed in its execution, and soon became distinguished among the artists connected with him. The six sheets executed by him are of the highest merit. They reproduce, as far as is possible in a small space, the impression of the original, and prove how highly the artist appreciated the pictorial merits of those great paintings, by his masterly distribution of light and shade. The most skilful union of the burin and the dry-point could alone have enabled him to accomplish this difficult task in a work of such extent. The publication of Raphael's *loggie* and *arabesques* placed Volpato at the head of a school of design, and gave him the honour of having restored the productions of that great master more generally known, and of having awakened a purer taste among engravers. Accuracy of execution, and attention to the pictorial effect, so far as it depends not on colouring, but upon light and shade, are the distinguishing merits of his school, from which proceeded Raphael Morghen, at first the pupil, afterwards the friend, and finally the son-in-law of Volpato, Mr. Hamilton, the companion of his Socratic supper at which Canova also used to be present, was not without influence upon the taste of the artist. Volpato died in 1803, and Canova honoured the memory of his friend and benefactor by a tomb which is placed in the hall of the church of the Apostles in Rome.

VOLSCI; an Ausonian tribe, which existed before the foundation of Rome, in the ancient Latium (now *Campagna di Roma*). They had a republican government. Livy calls them the constant enemies of Rome. Their principal city was Antium, the ruins of which are to be seen in the neighbourhood of cape Angio. Corioli, from which Coriolanus derived his surname, was another of theirs. After having several times endangered the Roman state, they were conquered, and disappeared from history, like the other tribes of Latium.

VOLTA, Alessandro, descended from a respectable family of Como, was born in that city in 1745, and died there in 1827. While pursuing his studies at Como, he displayed not less attention for the poetic art than for the severe sciences, and composed a fine Latin poem upon physics. But he soon after devoted himself entirely to physical inquiries, and laid the foundation of his fame by two treatises, published in 1769 and 1771, in which he gave a description of a new electrical machine. In 1774, Volta became rector of the gymnasium at Como, and professor of physics, and, in 1779, was transferred to Pavia. Here he occupied himself entirely with electrical researches. He had previously (1777) invented the electrophorus. His invention of the electroscope was also an important improvement. (See *Electricity*.) His observations upon the bubbles which arise from stagnant water led him also to some valuable discoveries in regard to gases. The electrical pistol, the eudiometer, the lamp with inflammable air, the electrical condenser, and other inventions, are among his claims to renown. He next turned his attention to the study of the atmospherical phenomena, as the aurora, hail, &c., and subsequently increased his reputation by the discovery of the Voltaic pile (see *Galvanism*). He then, in 1782, made a tour through France, Germany, England and Holland, on which occasion he was treated with great respect by Haller, Joseph II., Voltaire. On his return to Italy, he introduced the cultivation of the potato into Lombardy. In 1794, he received the Copleian medal from the royal society of London, on account of his labours upon the condenser; and, in 1801, his electrical apparatus attracted so much notice in France,

the first consul made him a present of 6000 francs. He was subsequently deputy from the university of Pavia to the consulta held at Lyons, and Napoleon conferred upon him the cross of the legion of honour, and the order of the iron crown. In 1815, the emperor Francis appointed him director of the philosophical faculty in the university of Pavia. As a man, Volta was simple, modest and religious, a good father and citizen. Antinori edited a collection of his works (*Opere di Volta*, Florence, 1816, 5 vols.), and professor Zuccala published a eulogy upon him (*Elogi di Volta*) in 1827.

VOLTAIC PILE. See *Galvanism*.

VOLTAIRE, Francis Marie Arouet de. If any man ever showed the natural sovereignty of the intellect, and its superiority to all earthly splendour, it was this distinguished man, who, in a nation, and at a time, when the learned and scientific were considered in the light of upper domestics of the great, undertook to secure for them an independent station. His influence was felt throughout Europe; and never did a man, by the force of his writings, obtain such power over his nation. Voltaire was born at Chatenay, near Paris, February, 20, 1694. His father, Francis Arouet, notary of the Châtelet, and finally treasurer of the chamber of accounts, possessed considerable property, so that he was enabled to give his son an excellent education. Voltaire received his first instruction in the Jesuits' college of Louis XIV., under Porée and Le Jay. Here he displayed talents which warranted the highest expectations. In his third year he was able to repeat the fables of La Fontaine, and, somewhat later, recited, from memory, a poem of Rousseau (*La Moïsade*), before the celebrated Ninon de l'Enclos, who was so much pleased with the talent of the boy, that she left him a legacy of 2000 livres to purchase a library. According to the custom of the time, he was obliged to leave the family name to the eldest son, and therefore assumed that name which has since become so famous. His father wished to see him a lawyer and advocate; but his love of literature and general study did not allow him long to devote himself to the law. He wrote poetry continually, and cultivated his talents in the company of men of much accomplishment and wit, but of little principle; such as Chaulieu, the marquis de la Fare, marshal Villars, the grand prior of Vendome, the prince of Conti, and others. Here he caught the tone of polished society which distinguishes his writings, and which greatly contributed to his influence. His father was displeased with his mode of life, and entreated the marquis of Chateauneuf, French minister to Holland, to take the young Voltaire with him as a page. He consented; but Voltaire fell in love with the daughter of madame Noyer, a refugee in Holland, and was therefore sent back to his family. His father would receive him into favour again only on condition of his resuming the study of the law. A friend of his father, monsieur Caumartin, at length released him from the necessity of pursuing his study, by offering him a quiet residence on his estate, where Voltaire became intimate with the elder Caumartin, who awakened in him a great admiration of Henry IV. and of Sully, and gave him a lively idea of the court of Louis XIV. Hence originated the *Henriade* and the *Siècle de Louis XIV*. In 1716, he was imprisoned in the Bastile, on the charge of having written a satire against the government. He remained in confinement a year and a half, and, in this situation, planned a poem upon the league, the result of which was the *Henriade*. He likewise improved his tragedy *Œdipus*, which was brought upon the stage in 1718, and was performed forty-five times in one year. Meanwhile, the poet had been released from prison in consequence of the real author of the satire having disclosed himself, but had been banished from Paris. Now, however, in consequence of the regent, the duke of Orleans, being delighted with the *Œdipus*, he was allowed to return. His father himself was so much pleased with the representation of this play, that he embraced his son with tears in his eyes, and from this time left him to his own inclination. Voltaire now fell passionately in love with the marchioness of Villars, so that his attention was withdrawn, for a time, from poetry; but, having recovered from this passion, he wrote the play of *Artémire*, which was unsuccessful. It was afterwards brought upon the stage, in 1725, under the name of *Marianne*, when it met with much applause, and was often repeated. In 1722, he accompanied madame de Rupelmonde to Brussels, where he became acquainted with Jean Baptiste Rousseau; but the characters of the two were so different, that their acquaintance terminated in a complete separation. In 1723, Voltaire was engaged in completing the *Henriade*, which, about this period, appeared for the first time in London, under the name of the League, but without the consent of Voltaire, and in a very imperfect state. The president Hénault, and other friends, disturbed him so much by their criticisms upon this production, that he threw it into the fire. Hénault snatched it out, with these words: "Your poem is like your hero: notwithstanding his faults, he was a great king, and the best of men." In 1726, Voltaire was again imprisoned, at the age of thirty-two years, in the Bastile. He had offended the chevalier de Rohan, a proud young nobleman, who, in consequence, caused him to be beaten by his servant. Voltaire now learned to fence, and challenged the chevalier, whose relations thereupon procured an order for his imprisonment. At the end of six months, he was released at the intercession of the marchioness de Prie, the favourite of the regent, who admired his poetical talents; but he was obliged to leave the kingdom. He went to England, where his *Henriade* was published by subscription, at the request of king George I. and the princess of Wales. From this he obtained considerable emolument. He became acquainted with many men of rank, and distinguished scholars, but gave such license to his wit, that it is said Pope's mother was sometimes driven away, by his conversation, from her son's table. In 1728, he received permission to return to France, where he put his acquisitions into a lottery. By this, as well as by other fortunate speculations (he traded under the name of Du Moulin, and sent ships to Africa), he obtained great wealth, so that, after he came into possession of the estates of his father and brother, his income amounted to nearly 130,000 livres, which he employed in a praiseworthy manner: he particularly aided youthful literary talent. In 1730, he brought the tragedy of Brutus upon the stage; but, notwithstanding much merit, it did not please universally. His talent for dramatic poetry was even doubted; and Fontenelle and La Motte advised him not to employ his genius any more in this manner. His answer was the *Zaïre*, a play, which produced a deep and universal impression, and is still a favourite on the French stage. He afterwards attacked the pretensions of

the church with such vehemence, in his *Lettres philosophiques*, that the parliament of Paris condemned the book to be burnt; and an order was issued for the arrest of the author. He therefore passed some years in concealment at Cirey, near Vassi, in Champagne, where he was treated with the greatest kindness by the mistress of the estate, the marchioness du Chatelet and wrote his *Eléments de la Philosophie de Newton*, to make his countrymen acquainted with the great discoveries of the English philosopher. He wished, as he expressed it, to exhibit the Briareus in miniature. But scientific labours were by no means so well adapted to his powers as the culture of the *belles-lettres*. He soon returned to poetry, and wrote, in 1736, his *Alzire*, and, in 1741, his *Mohammed*. The attacks in the last upon fanaticism displeased the clergy, and, by the advice of the minister, cardinal Fleury, he withdrew the piece; yet it was afterwards taken under the protection of the pope himself (Benedict XIV.), and has remained upon the stage with the reputation of one of the best French productions of its kind. His *Mérope* (1743) was the first French drama which produced a strong effect without the aid of love. On the representation of this piece, the custom was introduced of calling for the appearance of the writer. Before this time, Voltaire had gained the favour of the court by a political service. He corresponded with the crown-prince of Prussia, afterwards Frederic the Great, who had a great fondness for French literature. When Frederic ascended the throne, in 1740, an alliance with him was considered desirable. Voltaire was sent to Berlin, and discovered the ground upon which Frederic had declined the advances which had been made him. The alliance was concluded as soon as France had declared herself against Austria. Voltaire now desired, as the reward of his services, some marks of favour from the court, to facilitate his admission to the academy, which had been opposed by his numerous enemies. He was therefore invited to compose a piece for the celebration of the nuptials of the dauphin, and wrote the Princess of Navarre. The piece was approved, if not by the public, at least by the court; and his reward was the place of *gentilhomme ordinaire*, and historian of France. As such, he planned a history of the then existing war of 1741. It was not however, until 1746 that he received a place in the academy. In the meantime, he was persecuted with lampoons of all kinds, so that he withdrew, with madame du Chatelet, to the court of king Stanislaus, at Luneville. During this time were produced his tragedies *Sémiramis*, *Orestes*, and *Rome Sauvée*, the subject of which was the conspiracy of Catiline. After the death of madame du Chatelet, in 1749, Voltaire returned to Paris, where he contributed much to form the celebrated actor Lekain. Frederic the Great had hitherto vainly invited him to Potsdam; but being told that Frederic had called Arnaud the *rising* and him the *setting sun*, his self-love was so much touched that he sprang out of bed, and exclaimed, "Frederic may judge of affairs of state, but not of me! Yes; I will go and show him that I am not setting yet." He went to Potsdam in June, 1750. Frederic treated him with the greatest distinction: in a moment of enthusiasm, he even kissed his hand. Voltaire occupied an apartment under that of the king, with permission to visit him at certain hours, and had a table and equipage at his command. He spent every day two hours with the king, and revised his literary productions, when as he himself said, he never failed to praise the good and quietly to strike out the bad. But this friendship continued hardly a year. A quarrel between Maupertuis, president of the Berlin academy, and a mathematician named König, in which Voltaire took part, drew upon him the displeasure of Frederic, who caused his *Akakia*, a satire upon Maupertuis, to be burnt in the presence of the writer, and sent him his dismission. Voltaire returned to the king the chamberlain's key and the cross of the order which had been conferred on him with some verses, in which he compared himself to a lover who sends back the portrait of his mistress but the king soon restored them. Voltaire now made a visit to the duchess of Gotha. During his absence, Maupertuis succeeded in depriving him of the favour of the king, and he concluded to return to France. When he reached Frankfort on the Maine, he was stopped by order of Frederic, because he had with him various productions of the king, who feared that he would use them to his prejudice. He was likewise compelled to resign the chamberlain's key, his order, and his promise of a pension of 22,000 livres. The breach between Frederic and Voltaire was now irreparable. Voltaire wished to reside in Paris; but his *Pucelle d'Orléans* had excited so much displeasure, that he was not allowed to remain in the capital. He now resided for some years at Colmar, where he wrote the Orphan of China, and bought a country seat in the neighbourhood of Geneva. Jean Jacques Rousseau sent him his well-known treatise which had gained the prize of the academy of Dijon. Voltaire returned him an answer which, among many laughing remarks, contained the following sentence "When I read your treatise, I desire to creep on all-fours." This ridicule made the author of *Emile* his irreconcilable enemy. Soon after, Voltaire took part in the political contentions then prevailing in Geneva; and, having become involved in disputes with many of the principal people, he thought it best to leave the place. He therefore purchased the estate of Ferney, in the Pays de Gex, where he resided the rest of his life, with his niece madame Denis. He drew manufacturers, and other settlers, into his district, obtained for them, through his influence, important advantages, and reigned like a petty prince among his subjects. He erected a new and elegant church, with the inscription *Deo erexit Voltaire*. A decided enemy to tyranny and oppression, he afforded aid and protection to many persecuted persons; among others to the family of Jean Calas, who had fallen a victim to fanaticism. At that time, he wrote his immortal treatise upon toleration. The grand-daughter of the great Corneille also experienced his bounty. The numerous writings which he composed in his retreat, his free spirit employed the weapons of ridicule, and the boldest eloquence, against all which contravened his ideas of freedom and independence. To the clergy he was particularly hostile, on account of their intolerance and persecuting spirit. But he often injured the cause of religion itself while he attacked its servants. His motives, moreover, were not always of the purest kind. In 1757, the first edition of his works appeared, prepared under his own eye. It renewed him with Frederic the Great. This monarch renewed his correspondence with Voltaire, and sent him his own bust, of porcelain, with the words *Viro immortali*. The empress Catharine of Russia

sent him, likewise, splendid presents, accompanied by the most flattering letters. In return for an ivory box, made by herself, and for her instructions (prepared for the direction of a law commission which she had instituted), he sent her a bracelet netted by his own hands. In 1769, a medal was stamped in honour of him, the inscription on which was a verse taken from the *Henriade*: *Il ôte aux nations le bandeau de l'erreur*. Some French literati, together with Frederic, erected a statue to him, with the inscription *Statue erigée à Voltaire par les hommes de lettres ses compatriotes;* and Louis XV. said, "He deserves it." All strangers of distinction who passed by Ferney stopped to testify their esteem for this remarkable man. Joseph II. only did not visit him. Nevertheless, Voltaire was by no means happy. Too much accustomed to the constant admiration of the world, he soon became weary of his quiet life, and went, even in his advanced age (February, 1778), once more to Paris. Here he found many admirers, who adored him, and many bitter enemies. He was sensible of the dislike entertained towards him; and, therefore, when stopped by the officers of the customs, with the inquiry if he had any contraband goods with him, he replied, "No, no; there is nothing contraband here but myself." The inquiry of the king, on his arrival, if the decree of the parliament was still in force against him, made him anxious; but nothing further was done to molest him. The French academy sent three of their members to welcome him, though, in similar cases, it was customary to send but one. The actors waited upon him in a body: "We have come," said they, "to beseech you to inspire us with your odes." "I live only for you and through you," was his answer —a proof that he considered his dramas as his chief productions; and, in truth, dramatic works were his last labours. He wrote his *Tancrède* in the sixty-sixth year of his age. The calls upon him were so constant that he felt himself oppressed by them. "I am suffocated," said he, "but it is with roses." Franklin came, with his grandson, to see Voltaire: "My son," said he, "fall upon your knees before this great man." Voltaire gave the boy his blessing, with the words "God and freedom." He had brought with him a new tragedy, *Irène*, which was performed on the 16th of May. The royal family was present, and the piece was received with unbounded applause. The French academy sent him their gratulations on this occasion, and placed his bust by the side of Corneille's. At the sixth representation, he came into the theatre; and, when he had sat down in his box, a player entered, and presented him with a laurel wreath; and, at the conclusion of the piece, his bust was also crowned in the theatre. All these excitements, together with incessant literary labours, and the change from his accustomed manner of life, affected his health so much that it seemed as if he could not live much longer. He perceived this plainly: "I have come to Paris," he said, "to find my glory and my grave." He could not sleep; and a large dose of opium, which he took without the advice of his physician, is thought to have hastened his death. When his tenants heard of his sickness, they wished to go to Paris, and carry him in a litter, to Ferney. He resided in Paris with the marquis de Villette. The latter sent to the principal clergyman of St Sulpice, to induce him to beg Voltaire to submit to the ceremony which Catholic Christians undergo on leaving the world. The circumstances of the case have been related differently; but it is certain that Voltaire died without receiving the sacrament, in the eighty-fifth year of his age, May 30, 1778. The archbishop of Paris is said to have denied the corpse Christian burial; and it was therefore interred secretly at Scellières, a Bernardine abbey, between Nogent and Troyes. By a decree of the national assembly (1791), his remains were placed in the Pantheon, in Paris, near those of J. J. Rousseau and other great men.

The exterior of Voltaire was quite characteristic. In his countenance, as has been said, there was a mixture of the eagle and the monkey; and, in character, he united the boldness of the one with something of the malice of the other. He was impetuous, irritable, sensitive, but also mild, compassionate, benevolent, cheerful, and lively from principle. With noble views and principles, his actions were not always the most praiseworthy; and many of his good deeds did not flow from the purest sources. He had something vacillating in his character; and, notwithstanding his hatred of prejudice, he frequently bowed to it in a manner which did him little honour. From vanity he flattered the great, and often sought their company for the same reason. His fame did not become great till after his retirement from court. He was too selfish to inspire love, and avarice is said to have had much ascendency over him. Yet he was, in his latter years, the friend of the poor, and the protector of the oppressed. Notwithstanding all his admirers, he gained no friend. He had great talents, but not an elevated character; and his writings want the charm which only a great soul can give. Nevertheless, he often acted nobly. The abbé Desfontaines, to whom he had shown much kindness, published, without any authority, an edition of the *Henriade* from a very imperfect manuscript. Desfontaines became unfortunate, repented of what he had done, and Voltaire became again his benefactor. Being arrested on account of a dishonourable accusation, the abbé owed to Voltaire's influence with madame de Prie his freedom, his honour, and perhaps his life. Desfontaines recompensed this favour by a severe criticism and a bitter lampoon. To a peasant, deprived, by an unjust sentence, of his land, who applied to Voltaire for assistance, he gave 3000 livres, and invited him to settle in Ferney. In company, Voltaire was agreeable, polite, and a complete courtier. The activity of his temperament was so great that he often laboured all night. Even in his eightieth year, he worked fourteen hours a day. Among his works, his dramas hold the first place. He is the worthy rival of Racine and Corneille, and his pieces are still favourites with the French. Notwithstanding his great wit, however, Voltaire was not distinguished in comedy. The *Henriade* has many striking passages, but wants true epic characters, and is faulty in its plan. Among his historical works, the *Siècle de Louis XIV. et XV.* and the *Histoire de Charles XII.*, the *Essai sur l'Histoire générale, sur les Mœurs et l'Esprit des Nations*, abound in penetrating views. His merits are not those of thorough investigation, but of striking and happy description, and sagacious observation. His prevailing defect is the exaggerated estimation of the superiority of the French over other modern nations. His philosophical romances, treatises, smaller poems, narratives, dialogues, &c., show a comprehensive spirit, and great felicity of execution. In the department of fugitive pieces, he is unique. As

prose writer, he is unequalled, so beautiful and polished is his expression, so copious his wit. Among all the French writers, he, perhaps, displays, in the fullest degree, the peculiarities of his nation. The accomplished marchioness du Chatelet, as we have already said, was his intimate friend; hence the *Lettres inédites de la Marq. du Chatelet et Supplément à la Correspondance de Voltaire avec le Roi de Prusse, &c., avec des Notes histor.* (Paris, 1818), is an important addition to his biography.

See *La Vie de Voltaire par Condorcet;* also *La Vie de Voltaire par M.* [Mercier] (Geneva, 1788); *Examen des Ouvrages de M. de Voltaire par M. Linguet* (Brussels, 1788); *Vie littéraire de Voltaire rédigée par de Luchet.* The abbé Duvernet describes him more particularly as a man, and a private man, in his *Vie de Voltaire suivie d'Anecdotes qui composent sa Vie privée* (Paris, 1797); see also *Mémoires sur Voltaire et sur ses Ouvrages par Wagnière et Longchamp, ses Secrétaires* (1826, two vols.). Wagnière was directed by the empress Catharine, who bought Voltaire's library, to arrange it in St Petersburg, as it had stood in Ferney. The *Vie de Voltaire*, by Maxure, is very partial. His works were published by Beaumarchais, at Kehl, 1784, seq. in 70 vols. 4to and 8vo, and 92 vols. 12mo; and, by Palissot, with notes, at Paris, 1796, seq. The *Pièces inédites* appeared at Paris in 1820. Since 1817, many editions of the works of Voltaire have been published (the cheapest by Touquet, 1820). In 1823, some unpublished works of his were found in the imperial hermitage, at Petersburg: the most important are a bitter commentary upon Rousseau's *Contrat Social*, and a tale; the latter has since been published. Dupont has lately published an edition of Voltaire's works, in 70 volumes. A tolerably complete, but perhaps not entirely impartial review of the numerous literary contests of Voltaire, is given in the *Tableau philosophique de l'Esprit de M. de Voltaire* (Geneva, 1771).

VOLTERRA; a town of Tuscany, twenty-four miles south-west of Florence, with 5000 inhabitants. It is the see of a bishop, and has a public seminary of education. The ancient Volattera was one of the twelve principal cities of Etruria, and had 100,000 inhabitants. Some Etruscan monuments still remain: among these are its walls, with a gate, dedicated to Hercules; and the fish-pond, constructed of enormous blocks of stone. See *Etruria.*

VOLUME (Latin *volumen*). The volume of a body has reference to the space which it occupies. To have a correct idea of this, imagine a body immersed entirely in a liquid, which neither changes nor penetrates it. If it is now taken out, and we add new liquid, to raise the contents of the vessel as high as they were when the body was immersed, the amount of the newly-added liquid will give us the volume of the body. Thus we have a simple means of ascertaining the volume of small bodies, the irregularity of which presents some difficulty in the way of determining it by ordinary means. *Volume* must not be confounded with *mass.* On the volume also depends the difference of the absolute and specific gravity.

VOLUMNIA. See *Coriolanus.*

VOLUNTARY CONTROVERSY. The principles involved in this controversy are not new in the history of the church; though it began under its present peculiar designation in the year 1832. A certain portion of those called Evangelical Dissenters met in Edinburgh, in September of that year, and formed themselves into a society in support of what they styled Voluntary Church Principles, the avowed object of which was the overthrow of all civil establishments of religion. They assumed the description of "voluntary," in opposition to what they maintained was the compulsory principle of an establishment, viz. the exertion of the civil authority to compel payment of the emoluments of the clergy, either secured or allotted to them by the law of the land. It would be altogether out of place to enumerate, far less to illustrate, the various arguments adduced by the respective parties in this doubtless very important controversy. It may be enough to state very shortly the general grounds assumed and maintained. The assailing party affirmed that a civil establishment of religion was contrary to scripture, not only unauthorized but condemned in the New Testament, contrary to the spirituality of the kingdom of Christ, unjust in its nature, an invasion of the rights of conscience, and most injurious, in its practical effects, both to religion and to the rights and interests of society; while it was altogether unnecessary to afford religious instruction to the people, the truth being, in the inherent power of the gospel, essentially to secure its diffusion and support in the earth. They affirmed that these views were amply confirmed by the history of the church in ancient and modern times, and especially by the condition of religion in the United States of America, where it is left by the state altogether to itself. The others maintained with equal confidence, just the very reverse of these principles, and affirmed that states and nations were bound, by the principles of natural and revealed religion, to honour God and support and encourage his truth; that an establishment of the true religion and its encouragement by the civil magistrate is enjoined in the precepts, and authorized by the examples, of the Old Testament, and is not forbidden nor repealed in the New, but authorized by the principles and intimated in its prophecies; that conscience has no claims that interfere with the law of God and duty to him, and men have no right to plead an erring and sinful conscience as a bar to the support and encouragement of religion; that to prevent a state from acknowledging God and the Christian religion, would be to unchristianize and render it atheistical, to divest the Lord Jesus Christ of his spiritual headship, and his rights and glory as the King of kings and Lord of lords; and would be destructive of the best interests of the community, whose moral and political well-being, which the state is bound to promote, can only be secured by the universal prevalence of the true religion; that to obtain its diffusion among all classes of the people, the aid and encouragement of the state are, in the natural depravity of mankind, which has no desire for the gospel, absolutely necessary; that these views are supported by an appeal to the beneficial effects of the establishment in this country, by the history of the church in past times, and more especially by the extreme destitution of religious instruction in the United States of America.

It would be imprudent in us to give an opinion in a work of this kind, on either side of this much agitated and deeply important question. Ample information may be obtained by consulting the works of the respective parties, published especially since the date above specified; though the leading general principles may be found in many works in every period since the Reformation.

VOLUNTEER, in military language; one who serves in the army, or undertakes a particular duty without being obliged so to do: thus officers not unfrequently take part in a campaign, as volunteers. When an enterprise of peculiar danger is to be undertaken, as the assault of a formidable battery, the taking of a square, &c., a call is made for volunteers; and those who survive receive rewards of money, or medals, swords, &c., or promotion. Sometimes there are also bodies of troops consisting entirely of volunteers; e. g. the Prussian volunteer riflemen, attached to each battalion in the campaigns of 1813, 1814 and 1815, and the volunteer companies of citizens raised, in 1794, in England. These mostly laid aside their arms in 1801; but when the war broke out again in 1803, and the intention of the French to effect a landing was announced, the inhabitants of Great Britain rose anew, and the ministers spoke of nearly 500,000 volunteers being in arms.

VOLUTES. See *Architecture*.

VON; a German preposition, meaning, in some cases, *from*, or *of*. It is prefixed to the names of the host of noblemen in that country; in which case it is equivalent to the French *de*, and the Dutch *van*, which latter, however, does by no means always indicate nobility. There are a few cases, also, in Germany, in which *von* precedes the name of a commoner. The origin of this signification of *von* was, probably, that the early noblemen were called by their Christian name, with the addition of the castle or village which belonged to them. Before family names became settled (see *Names*), it was very customary, on the European continent, to call any person, commoner or nobleman, by his Christian name, with the addition of the place in which he resided, either changed into an adjective, or with the preposition *of*, *de*, *von*. By degrees, this became a distinction of the nobility in Germany, but not in Holland.

VONDEL, Joost van der, one of the most celebrated poets of Holland, of which, however, he was not a native, was born at Cologne, in 1587. His parents, who were Anabaptists, removed to Holland while he was a child, and the poet himself afterwards went over to the Arminians, and finally died in the bosom of the Roman Catholic church, in 1659. Nature had endowed him with extraordinary talents, and he derived little aid from education. He has been called the Dutch Shakspeare. Devoting himself entirely to the cultivation of poetry, Vondel first learned Latin and French in the thirtieth year of his age, read the Roman and French writers, and endeavoured to supply the deficiencies of his early education. His works display genius and elevated imagination; but the language is often incorrect. His poems compose nine vols. quarto, and include metrical versions of the Psalms, of Virgil and of Ovid, together with satires and tragedies. Among the latter, Palamedes, an allegorical piece relating to the death of Barneveldt, and the Conquest of Amsterdam, are considered the masterpieces of Dutch tragedy. Camper has treated of Vondel, in a Latin prize essay, published at Leyden, in 1818.

VORARLBERG; a mountainous district, now forming a circle of the Tyrol, surrounded by the Tyrol, Switzerland, lake Constance, and Bavaria. It has its own separate constitution, and consists of the lordships of Bregenz, Feldkirch, Pludenz, and Hohenems, with a population of 86,754 souls, on 1578 square miles. The Vorarlberg lordships derive their name from the Arlberg, or Adlersberg (Eagle mountain), which belongs to the Noric Alps, and separates them from the Tyrol. They were annexed to the Tyrol in 1782, and were ceded with it, by the peace of Presburg, to Bavaria; but, in 1814, were restored to Austria. The country is mountainous, and watered by several small rivers, among which, the Lech and the Iller take their rise here. There is much wood and good pasturage, and the raising of cattle is the chief occupation of the inhabitants. The corn produced is not equal to the consumption. There are cotton manufactures here, and the making wooden ware, and the building of boats and houses (the latter exported to Switzerland), employ a great number of the inhabitants. The chief town (Bregenz) has 2500 inhabitants.

VORSTIUS, Conrad, an eminent divine, born at Cologne, in 1569, was the son of a dyer, who secretly seceded to the Protestant communion. Conrad was sent to Haerlem and Heidelberg, at which university he was created a doctor of divinity. After giving lectures on theology, at Geneva, in 1596, he accepted a professorship at Steinfurt, until 1610, when he received a call to succeed Arminius in the professorship of theology at Leyden. Having accepted this offer, he soon became involved in the controversial war which raged in the Netherlands; and the Gomarists, taking advantage of a book which he had published, entitled *Tractatus Theologicus de Deo*, accused him of heresy. James I., on receiving the book of Vorstius, drew up a catalogue of heresies from it, which he sent to his minister at the Hague, with an order to certify to the states how much he detested those alleged errors. He also caused his book to be burnt in London, and informed the states, who said they would inquire into the case, that if they did not dismiss Vorstius, none of his subjects should visit Leyden. The appearance of a work, by some of his disciples, entitled *De Officio Christiani Hominis*, which contained some anti-Trinitarian doctrines, although formally disclaimed by Vorstius, excited against him so much odium, that he was banished, by the states of Holland, from their territories. (See *Arminius*, and *Arminians*.) He lived for more than two years in secrecy, frequently changing his abode, in fear of his life, and died, in 1622, at the age of fifty-three.

VORTICES OF DESCARTES. See *Descartes*.

VOSGES; a chain of mountains in the east of France, extending from north to south, nearly parallel with the Rhine, and forming a continuation of the Jura mountains, which separate France from Switzerland. Beginning in the vicinity of Belfort, in the ancient Sundgau, they divide Alsace from Lorraine, and, bending towards the German provinces on the Rhine, they terminate, towards the north-east, on the Rhine and the Moselle, under the name of *Hundsrück* (q. v.), and towards the north-west, in the grand duchy of Luxemburg, under the name of the *Ardennes*. Alsace, situated on the German side of the Vosges, has been in the possession of France for a century; yet the language is still German. The highest summits attain an elevation of nearly 4500 feet above the surface of the sea. They have a gentle declivity, and, on the eastern and southern sides, are often covered with vineyards. Great part of the Vosges mountains are covered with forests: and they are rich in game, wild fowl, silver, copper, iron, lead, coal and

antimony. They also contain excellent pasturage; and the inhabitants breed many cattle, and make large quantities of cheese, known under the name of *Munster cheese*. The Ill, Lauter, Moselle, Meurthe, Saar and Saone rise in this chain of mountains.

VOSGES; a department in the eastern part of France. See *Department*.

VOSS, JOHN HENRY, was born in 1751, in Mecklenburg. Till his fourteenth year, he was educated in the small town of Penzlin. In 1766, he was placed at the school of New Brandenburg. He early devoted himself to the classical languages, and made verses. Being without funds to support him at the university, he accepted the place of tutor in a private family, in order to obtain the necessary means. After having been occupied with instructing five or six hours a day, he found recreation in Greek, music and poetry. In 1772, he went to Göttingen, where he joined a society of young men, at the head of which were Boje and Bürger, and which has since become important in the history of German literature. Voss studied theology, which, however, he soon gave up, in order to devote himself entirely to philology. Heyne was one of his chief teachers; but with him he quarrelled. In 1778, he was appointed rector at Ottendorf. In 1781, after the publication of several treatises, he produced his German Odyssey, a work which, whatever may be the opinion of some respecting it, has rendered this grand poem national with the Germans, and may be compared, in this respect, with Schlegel's translation of Shakspeare. In 1782, the state of his health obliged him to go to Eutin. His disputes with Heyne continued. In 1793, appeared his translation of the Iliad, and that of the Odyssey, in a new form, in which, however, it did not please so much as before, being more simple. Besides many philological and antiquarian works, he published an idyl in the epic form, called *Luise*, in 1795. It had previously appeared in 1783, but was now produced with improvements. It is much liked by many Germans: others consider it an unfortunate attempt to give an epic character to the events of an ordinary life. In 1799, appeared his translation of the whole of Virgil into German. In 1801, he added a volume of pastoral poems to a new edition of Luise, and, in 1802, four volumes of lyric poems, to which was added the *Zeitmessung Deutscher Sprache*, a work of considerable importance. In 1802, his German Homer appeared anew, in an improved form. In 1802, he went to Jena; in 1805, to Heidelberg, in order to aid the new organization of the university. Here appeared, in 1806, his German Horace, Hesiod, and Orpheus the Argonaut; in 1807, a new edition of *Luise*, and of his Homer; in 1808, a German Theocritus, Bion and Moschus; in 1810, Tibullus and Lygdamus, in German; in 1811, the Latin text of the same, prepared from manuscripts. In 1814, he published a much-improved edition of his German Homer. In 1821, appeared his translation of Aristophanes; in 1824, a translation of Aratus. He also undertook to translate, with his sons Henry (died in 1822) and Abraham, the whole of Shakspeare, of which the three first volumes appeared in 1818. This translation cannot stand a comparison with Schlegel's. In 1823, Voss came out, in opposition to Creuzer (q. v.), with his *Antisymbolik* (Stuttgart, 1823). The second volume was published by his son Abraham, from manuscript, in 1826. Almost at the same time he made an attack on Catholic mysticism, principally in consequence of his friend count Stolberg becoming a Catholic. He died in 1826, at Heidelberg. (See Paulus's *Leben und Tod Voss's*, 1826.) His translations of the best existing of classic authors, and have contributed much to the advancement of German literature; while Schlegel's translations of Shakspeare and other modern writers, and his treatises on romantic literature, have prevented the classical element from becoming excessive.

VOSSIUS, OR VOS, GERARD JOHN, a celebrated writer on criticism and philology, born near Bergen-op-Zoom, in 1577, studied at Dordrecht and Leyden. At the age of twenty, he commenced his literary career by the publication of a Latin panegyric on prince Maurice of Nassau, and, two years after, became director of the college of Dordrecht. In 1614 the chair of philosophy was offered him at Saltzburg; but he preferred the direction of the theological college established at Leyden; and, after having occupied that post four years, amidst the storms of religious controversy, he procured the more agreeable appointment of professor of rhetoric and chronology. Having declared himself in favour of the Remonstrants, he became obnoxious to the prevailing party in the church; and, at the synod of Dordrecht, or Gouda, in 1620, he was deprived of his office. Through the influence of archbishop Laud, the patron of Arminianism in England, Vossius was indemnified for his loss by a prebendal stall at Canterbury, with permission to continue his residence in the Netherlands. In 1633, he was invited to Amsterdam, to occupy the chair of history, at the *schola illustris*, and continued there till his death in 1649. Among his numerous works may be specified the treatises *De Origine Idololatriæ*; *De Historicis Græcis, et de Historicis Latinis*; *De Rhetoricis Græcis et Latinis*; *De Scientiis Mathematicis*; *Quatuor Artibus popularibus*; *Historia Pelagiana*; *Institutiones Historicæ, Grammaticæ, Poeticæ*; *Etymologicon Linguæ Latinæ*; *De Vitiis Sermonis*; *De Philosophorum Sectis*. A collective edition of his works appeared in 6 vols., folio (Amsterdam, 1695—1701).

VOSSIUS, ISAAC, son of the preceding, was born at Leyden, in 1618, and, possessing great natural talents, acquired early reputation among the learned. At the age of twenty-one, he published an edition of the Periplus of Scylax, with a Latin version and notes. Christina, queen of Sweden, invited him to Stockholm, and chose him for her preceptor in the Greek language. His quarrels with Salmasius having rendered the court of Sweden disagreeable to him, he quitted it in 1649, and returned to his native country, where he employed himself in the production of various learned works. In 1670 he visited England, and was admitted to the degree of LL.D. at Oxford; and, in 1673, having been presented to a canonry, at Windsor, by Charles II., he passed the remaining part of his life in that city, where he died in 1688. Besides editing the work of Scylax, Justin the historian, Catullus, Pomponius Mela, St Barnabas, and St Ignatius, he published *Dissertatio de vera Ætate Mundi*; *De Septuaginta Interpretibus eorumque Tralationibus et Chronologia Dissertationes*, in which he defended the chronology of the Septuagint version against the Hebrew text of the Old Testament; *De Poematum Cantu et Viribus Rhythmi*, &c. Isaac Vossius was, on his return to England, intimate with St Evremond and the duchess of Mazarin; but though he lived much in the society of the great, his behaviour was

times rude, and his language by no means decent. In his writings, he maintained extravagant paradoxes, while he was generally considered as an infidel in religion. Hence Charles II. said he was a strange divine, for he believed every thing but the Bible.

VOTIACKS. See *Finns.*

VOTIVE TABLES are those tablets which give information of the circumstances connected with offerings deposited in a temple in consequence of vows.

VOUET, Simon, an eminent French painter, was born at Paris, in 1582, and was bred up under his father, who was also an artist. He accompanied the French embassy at Constantinople, and drew the grand seignior, from memory, after an audience in the train of the ambassador. He then visited Venice and Rome, at which latter capital he acquired great distinction. He remained in Italy fourteen years, when he was sent for by Louis XIII., to work in his palaces, and furnished some of the apartments of the Louvre, the palace of Luxembourg, and the galleries of cardinal Richelieu, and other public places, with his works. He was a good colourist, but had little genius for grand composition, although France was certainly indebted to him for introducing a better taste. Most of the succeeding French painters who gained distinction, were bred under him, including Le Brun, Perrier, Mignard, Le Sueur, Dorigny, Du Fresnoy, and others. He died in 1649.

VOULGARIANS. See *Bulgaria.*

VOUSSOIRS; the wedge-shaped stones which form an arch.

VOW. "A vow," says the Catholic *Dictionnaire de Théologie* (Toulouse, 1817), "is a promise made to God of a thing which we think to be agreeable to him, and which we are not, on other grounds, obliged to render to him. This is what the theologians understand by it when they say a vow is *promissio de meliori bono.* To promise God to do what he commands, or to avoid what he forbids, is not a vow, because we are already obliged so to act." The Catholics adduce numerous passages in the Old Testament to prove that vows are agreeable to God; and their idea of vows is intimately connected with that of good works. To Protestants the theory of vows appears untenable, because nothing can be agreeable to God but what is good in itself; and it is the duty of man, at all times, to aim at the performance of all the good in his power. They consider vows as belonging to ages when the ideas entertained of the Deity, and of our obligations to him, were very crude; and he was looked upon much in the light of a human being. They consider those vows as nothing less than impious, which assume that the Deity can be made to deviate from the path prescribed by infinite wisdom for the consideration of a promise which can have no meaning except between finite beings. The pope has the power, not to absolve from vows, but to substitute some equivalent for the specific performance of them. Catholic writers have therefore maintained that liberty, which is given up in the monastic vows, being the highest good of man, no equivalent can be found for it, and therefore the pope cannot dispense from or commute these vows. For the monastic vows, see *Monastic Vows, Monasteries,* and *Religious Orders.*

VOWEL (from the French *voyelle;* Latin, *vocalis*); a simple articulated sound, which is produced merely by breathing and a peculiar opening of the mouth, or, at least, with very little assistance from any other organ of speech. We say very little, because the difference of the sounds *e* and *i* (pronounced as in Italian or German) seems to us to depend, in some slight measure, on a curvature of the tongue. Tubes, with various openings, have been invented, which produce the sounds of the five vowels, *a, e, i, o, u,* as pronounced in most languages on the European continent. The circumstance that all vowels, mainly, and most of them entirely, depend upon the form given to the opening of the mouth, is the reason also, 1. that they can be pronounced without the assistance of another sound; hence they are called, in German, *Selbstlauter* (i. e. self-sounds), whilst consonants are called *Hülfslauter* (sounds which need the assistance of another); 2. that the sound of the vowels can be continued as long as the breath lasts: for this reason, they are the natural expressions of emotions, either with no assistance, or with but slight assistance from consonants. From the circumstance that the vowel sounds require only breathing and the opening of the mouth, they are by far the predominating sounds in the cries or music of animals, the pronunciation of the consonants being more difficult, as requiring the application of the other organs of speech. In the particular that the vowel sounds may be continued as long as the breath lasts, some consonants resemble them, and are therefore called *semi-vowels,* or *half-vowels;* these are the liquids *l, m, n, r,* and the sibilant *s.* (See *S.*) The number of vowels in the different languages is not uniform; thus there are in Greek seven, in Latin but five, and in German, if we consider *ä, ö, ü,* simple vowels, as they really are, eight. (For further observations upon this point, and upon others touched on in this article, see *Voice.*) This difference in number, however, is sometimes founded more on the scarcity or abundance of characters, than on a difference of sounds, since, in some languages, there are many more vowel sounds than signs. In some languages, the sounds of the vowels are uniform, as in Italian and Spanish. Thus *a, e, i, o, u,* never change their sound except in as far as they are pronounced long or short. The same is the case in the German language, with the single exception of *e.* which, in many cases, is mute, as in *haben.* In French, *e* is pronounced in three ways—the *è ouvert, é fermé,* and *e muet.* (See *E.*) But in no language are the same vowel-characters used to designate so great a variety of sounds, and in no European language are there so many sounds falling between the fundamental sounds, as in English: such are *u* in *but; i* in *sir; u* in *spur; ough* in *through; ea* in *heard,* &c. These intermediate sounds are by far the most difficult for foreigners to acquire, and are very rarely learned so perfectly that the foreign accent is not perceptible. Vowels, as has been remarked in the article *Consonant,* very frequently alternate with each other in the fluctuations of language, and are, therefore, of less importance to the etymologist than consonants. In the German language, the change of vowels has become a grammatical form, to indicate, generally speaking, the relation of derivation. The harmoniousness of a language depends much upon the proportion of the vowels to the consonants. See the article *Consonant.*

VOYAGES OF DISCOVERY. See *Travels* and *North Polar Expeditions.*

VOYER. See *Argenson.*

VROON, Henry Cornelius; a Dutch painter, born at Haerlem, in 1566. Being shipwrecked on

the coast of Portugal, during a voyage to Spain, he succeeded so well in painting the storm which caused his misfortune, that he dedicated himself entirely to sea pieces, on his return home. About this time, the Earl of Nottingham, lord high admiral of England, being desirous of preserving the details of the defeat of the Spanish armada, in which he bore so conspicuous a part, bespoke a suit of tapestry descriptive of each day's engagement. For this tapestry Vroon was employed to furnish designs; and the tapestry for years excited great admiration in the house of lords, where it was placed. The conflagration of 1834 caused its total loss.

VULCANISTS; those geological theorists who maintain that the earth was at first in a state of igneous fusion, and that it gradually cooled, and became covered only at a subsequent period. According to the Vulcanists, the land was raised up by an internal force; the irregularities which diversify its surface are the effects of volcanic eruptions; and the transported soils have been formed by the disintegrations of the higher grounds. The Neptunists, on the other hand, maintain that the earth was originally in a state of aqueous solution. See *Geology*.

VULCANUS; a god of the ancients, who presided over fire, and was the patron of all artists who worked iron and metals. He was the son of Juno alone, who, in this, wished to imitate Jupiter, who had produced Minerva from his brains. According to Homer, he was son of Jupiter and Juno; and the mother was so disgusted with the deformities of her son, that she threw him into the sea as soon as born, where he remained for nine years. According to the more received opinion, Vulcan was educated in heaven with the rest of the gods, but his father kicked him down from Olympus, when he attempted to deliver his mother, who had been fastened by a golden chain for her insolence. He was nine days in passing from heaven upon earth, and fell in the island of Lemnos. He broke his leg by the fall, and ever after remained lame of one foot. He fixed his residence in Lemnos, where he built himself a palace, and raised forges to work metals. Bacchus intoxicated him, and prevailed upon him to come to Olympus, where he was reconciled to his parents. Vulcan has been celebrated by the ancient poets, for the ingenious works and automatical figures which he made. It is said, that, at the request of Jupiter, he made the first woman that ever appeared on earth, well known under the name of Pandora. (See *Pandora*) The Cyclops of Sicily were his ministers and attendants; and with him they fabricated, not only the thunderbolts of Jupiter, but also arms for the gods and the most celebrated heroes. His forges were supposed to be under mount Etna, in the island of Sicily, as well as in every part of the earth where there were volcanoes. Venus was the wife of Vulcan. Her infidelity is well known. Her amours with Mars were discovered by Phœbus, and exposed to the gods by her own husband. The worship of Vulcan was well established, particularly in Egypt, at Athens, and at Rome. He was represented covered with sweat, blowing, with his nervous arm, the fires of his forges. His breast was hairy, and his forehead was blackened with smoke. Some represent him lame and deformed, holding a hammer, raised in the air, ready to strike; while, with the other hand, he turns with pincers a thunderbolt on his anvil. He appears, on some monuments, with a long beard, dishevelled hair, half naked, and a small round cap on his head, while he holds a hammer and pincers in his hand. The Egyptians represented him under the figure of a monkey. Vulcan received many other names, among which the most common is Mulciber. He was father of Cupid Venus. Cicero speaks of more than one deity of the name of Vulcan. One he calls son of Cœlus, as father of Apollo by Minerva. The second he mentions as son of the Nile, and called Phtha by the Egyptians. The third was son of Jupiter and Juno and fixed his residence in Lemnos; and the last who built his forges in the Lipari islands, was son of Menalius.

VULGAR ERA; the common era used by Christians, dating from the birth of Christ. See *Epoch*.

VULGAR FRACTIONS. See *Fraction*.

VULGATE; the name of the Latin translation of the Bible, which has, in the Catholic church, official authority, and which the council of Trent in their fourth session, in May 27, 1546, decreed "shall be held as authentic, in all public lectures, disputations, sermons, and expositions; and that no one shall presume to reject it, under any pretence whatsoever." Even in the early period of the church, a Latin translation of the Old Testament existed, called *Itala*, made after the Septuagint. (q. v.) St Jerome found that this translation was not always accurate, and made a new Latin translation from the Hebrew, which however, was only partially adopted by the church, about the year 387. In the sequel, the translations were combined, and formed the *Vulgate*, so called. It grew up between the eighth and sixteenth centuries. Only the Psalms were retained in the ancient form. That its Latin phraseology is impure, or the Latin of the classical Roman authors is taken as the standard, is not, in all cases, an objection. New ideas require new terms; but the Vulgate does not give, in many passages, the sense of the original, and does not correspond to the present advanced state of philology and archæology. The Catholics have often represented the necessity of a new translation, as much of the old one was made when scriptural philology was in a very low state, and all of them admit that the church does not consider the Vulgate as a perfect translation, but only as the most satisfactory of all the Latin versions. Cardinal Bellarmin maintains that all that the counsel of Trent says, is, that the Vulgate contains no errors which affect points of faith or morals: he does not pretend that it is without fault. The Protestants, however, were of opinion that the Vulgate was to be absolutely rejected, as they desired to rest their faith on the Bible. But what edition of the Vulgate was to be adopted by the Catholics, after the decree mentioned above, became a question, because the editions were various, and differed essentially. A committee was appointed to prepare a proper text; but, this not liking it, it was abandoned. Pius IV., Pius V. and Sixtus V., then took the greatest pains to get a correct Vulgate. The latter published an edition in 1590, with anathemas against any who should venture to make changes; but this edition had scarcely appeared, when pope Clement VIII. published a new one, in 1592, accompanied by a similar bull. Another improved edition was published in 1593. The differences in these editions are very considerable. The decree of the council above mentioned, gives the list of the canonical books, as given in our article *Bible*. St Jerome inter-

is true, the apocryphal books; but it is clear that he only considered those canonical, which are now regarded as such by Protestants.

VULPINITE. See *Anhydrite*.

VULTURE (*vultur*). The vultures have been referred, by ornithologists, to the *accipitres*, or rapacious birds, the same family with the hawks and owls, although they differ in many important points. The feet of the vultures are incapable of grasping and bearing off living prey, although sufficiently powerful to permit them to rest on trees: the mouth is also much smaller, the angle not extending beneath the eyes; the head is disproportionately small, compared with the size of the body, and the neck long and slender; the eyes are even with the surface of the head: in short, their general aspect is widely different from the hawks and owls, and most unexpectedly approaches, in some respects, the *gallinaceæ*; which similitude is expressed in many of their common names. The head and neck of the vultures are more or less deprived of feathers, and covered with short and scattering down. The beak is straight, more or less stout, and the superior mandible curved at the extremity. Their wings are very long and pointed, and their flight exceedingly powerful, so much so, that they often soar beyond the reach of sight. They are voracious and cowardly, feeding chiefly on carrion, but sometimes attack young or sickly animals. Their bodies exhale a disgusting odour. They usually live in companies; and many of the larger species do not quit the lofty chains of mountains, where they build in inaccessible places. Their piercing sight enables them to discover carrion at a great distance. The *condor*, or great vulture of the Andes, is particularly described in a separate article. (See *Condor*.) The king of vultures, *V. papa*, is about as large as a small turkey. It is found throughout the greater part of tropical America. The head and neck are ornamented with brilliant colours. The general colour of the plumage is reddish white, with the wings and tail black. This and the preceding species are remarkable for having a comb and fleshy caruncles on the head of the male. Two other small species of vulture are found throughout tropical America, as well as in a great part of the United States, viz. the turkey buzzard and the carrion crow of the Southern States. The latter is rarely found north of lat. 35°; but the former comes into the Middle States. The plumage of both is black, and they are much alike. In the towns and villages of the Southern States, they are protected by law as scavengers, and may be seen sunning themselves on the roofs of houses, or sauntering about the streets, as familiarly as domestic poultry. The *lammergeyer* inhabits only the loftiest mountains of the European continent. It approaches, if, indeed, it does not equal, the condor in size. It differs, however, in some points of structure, from the true vultures. There are, besides, several other species of vulture in various parts of the European continent.

VYASA. See *Indian Literature*.

W

W; the twenty-third letter of the English alphabet, representing a sound formed by opening the mouth with a rounding of the lips, and a somewhat strong emission of the breath. It is one of the sounds which the Germans call *Blaselaute* (breathing sounds.) (See *F*.) The English pronunciation of *w* is a peculiarity of that language, though some other languages have a sound coming pretty near it, as *ou*, in the French *oui*: this, however, is not precisely the same, as the sound of *oo* is heard in the pronunciation of *oui* before the sound of our *w*. In German, *w* has the sound of our *v*. Grammarians are not agreed respecting the character of *w*. Doctor Webster says it is a vowel; others say it is sometimes a vowel, sometimes a consonant, like *y*. It seems to us that it must be classified with *h*. The Romans called the *h* neither a vowel nor a consonant, but simply a breathing: so the *w* is a breathing, though stronger and somewhat modified. If we consider it, however, as a letter, it is undoubtedly a consonant, as much as *h* is, and cannot be said to be the same with the Spanish, German, and Italian *u*, though, as stated in the article *U*, that letter is used to indicate the pronunciation of the English *w*. The *w*, being a strong breathing, is nearly related to all aspirated sounds, and through them again to the gutturals, so that we find *w* and *g* often interchanged in different languages, as in the words *William*, *Guillaume*; *Wales*, *Gallos*, &c.; and we have heard Spaniards, unable to pronounce *w*, use a *g* instead of it, and say *guee* for *we*. (See *G*.) *W*, like other aspirates, often does not belong to the root, but only serves to strengthen the tone; for instance, the Swedish, Danish, and Icelandic *ord*, English *word*, German *wort*; the Icelandic and Swedish *andra*, German *wandern*, English *wander*; the Swedish *ila*, German *weilen* (to tarry,) the root of the English verb *to while*; the Gothic *ourt*, Swedish *ört*, German *wurz*, the same which is found in the English compounds *liver-wort*, &c.; the Swedish *önska*, in German *wünschen* in English *to wish*, and so on. But *w* is by no means always to be overlooked by the etymologist: it often belongs to the root of words, and in many cases it is an onomatopœia, as in *wave*. It has this character particularly in German, which has numerous onomatopœias. *W* is now pronounced by the Germans like our *v*; but it was not always so pronounced. It had, with the early Germans, a sound composed of *u* and *v*, or *f*, as we may conjecture from a passage of Ottfried, in his preface to the Gospels (he says, *Nam interdum tria* U U U, *ut puto, quærit in sono, priores duo consonantes, ut mihi videtur, tertium vocali sono manente*;) and also from the former orthography of the German words *Frawe*, *shawen*, &c., now written *Frau*, *schauen*. This passage of Ottfried is interesting, as respects the English *w*. In ancient times, an *h* was also written

before the *w* in German, as *hwil*, at present *welle* (wave,) *hwelcher*, at present *welcher* (Scotch *whilk*, who.) This was done particularly in Anglo-Saxon. At a later period, the *h* was put after the *w*, though the pronunciation remained *hw*, for *when* is pronounced *hwen*. It is a peculiarity of some German vulgar dialects to put *m* instead of *w*, and say *mir* for *wir*, and *Mörsing* for *Wirsing*. *W* is a letter peculiar to the alphabets of the Teutonic and Sclavonic languages: those of Latin origin have it not, except in proper names of foreign persons.

WAADTLAND, or DIE WAADT; German names for the Pays de Vaud. See *Pays de Vaud*.

WAAL; a branch of the Rhine. See *Rhine*.

WABASH, a river of Indiana, waters the middle and western parts of the state, and flows into the Ohio thirty miles above Cumberland river. It is upwards of 500 miles long, and affords good steam-boat navigation, for most of the year, 150 miles, to Vincennes, and for smaller boats 250 miles farther, to Ouiatan. Very small boats ascend to within eight miles of the Maumee. It receives several large rivers, and meanders through a valley of remarkable fertility. The Little Wabash is one of its principal branches, and unites with it only a few miles from the Ohio. This stream may be rendered navigable, for a long distance, by removing a few obstructions. It is eighty yards wide where it joins the Wabash. It rises in Illinois, about forty miles south-east of the Kaskaskia.

WAD, or WADDING, in gunnery; a stopple of paper, hay, straw, old rope-yarn, or tow, rolled up like a ball, or a short cylinder, and forced into a gun, to keep the powder close in the chamber, or put up close to the shot, to keep it from rolling out.

WAD BLACK. See *Manganese*.

WAFER. (See *Cements*, and *Sealing Wax*.) We only add here, that an antiquarian of the eighteenth century, Mr Spiess, a German, says, that the oldest seal with a red wafer, which he had ever found, is on a letter written at Spire, in 1624, to the government at Bayreuth.—See Beckmann's *History of Inventions and Discoveries* (London, 1797).—The use of sealing wax is universally considered more polite than that of wafers, because the latter is easier and less formal, hence more appropriate for the business style.

WAGENAAR, John, historiographer to the city of Amsterdam, where he was born in 1709, and died 1773, is one of the most distinguished scholars of his country, and, in particular, one of the best historians of Holland. His principal work, *De Vaderlandsche Historie vervattende de Geschiedenissen der Vereenigde Nederlanden*, or History of the United Netherlands until 1751, was published at Amsterdam, in 21 vols. (1749—60). In 1788, a continuation of this work, from 1776 to 1802, appeared at Amsterdam, under the title of *Vervolg van Wagenaar Vaderlandsche Historie* (48 vols.), and, in 1789, volumes 22, 23, and 24, containing the history of the period from 1751 to 1774. His other works are a description of the United Provinces (12 vols., 1739), and a Description of Amsterdam (3 vols., folio, 1760), and some polemical treatises on theological subjects.

WAGERING POLICIES. See *Insurance*.

WAGES. The cost of an article is made up of that of the materials consumed, and the compensation for the use of the land, buildings, and implements employed, and the labour, skill, and superintendence requisite in its production, with interest on these outlays until the product is completed and ready for the market. When we inquire respecting the rate of wages, we are first to consider what extent we give to the term; whether we comprehend the compensation given for skill and industry of all descriptions, employed in the production, distribution, and even use and consumption, of all sorts of commodities; for wages are paid to a servant who waits at a table, or a coachman who drives a pleasure coach, as well as to a miller, tenant, or seaman, though the former are not like the latter employed in giving additional value to any article by producing or transporting it. If we divide the whole annual value produced in a community into three parts, and assign one to pay rent, another to pay for the use of capital, and a third for wages—taking wages in its most comprehensive sense, as including all that is paid for industry and skill of all descriptions,—then the first material consideration is, What is the mass of the products in proportion to the land, capital, and labour employed? for the same quantity and quality of land, capital, and labour will yield a greater annual product in one community than in another. What is the aggregate mass or fund out of which the dividends are made? The aggregate productiveness of England, for instance, will vastly exceed that of Spain in all these particulars; for the lands are made more productive, the labour is more skilfully applied, and the capital is more rapidly carried through the different forms of production, and transported through the different places in its way to that of final consumption; and, consequently, the same capital is more effective, or, in other words, contributes a greater mass of production in the same time. We substitute this inquiry as to the aggregate mass of production in comparing the condition of one community with that of another. One community may have twice as great a fund to divide as another, or the same aggregate means of production; and the distribution is made in precisely the same proportion among the several interests, the compensation will be twice as great in one case as in the other. The effectiveness of the labour and means of production in a community, is a matter of the most weighty consideration, and goes far in determining the condition of the population. This gives us two modes of comparison, as to the rate of wages in any two communities, the results of which may be very different. If we ask whether labour and skill, taking the whole mass of both, of all descriptions, will be better rewarded in Britain or Spain, the answer may be, that a greater quantity of corresponding articles go to compensate the same labour and skill in Britain, but that a greater proportion of the whole mass of annual products goes to compensate labour and skill in Spain. To make the distinction more plain—a labourer in Britain may earn a yard of cloth, and one in Spain but half a yard, of the same quality in a day; so that the British labourer gets absolutely twice as much compensation as the Spanish. But, owing to greater skill and advantages, the British labourer may produce four times as much cloth, or materials for cloth, as the Spanish labourer in the same time. Therefore, though the British labourer gets twice as great a quantity, the Spaniard gets twice as great a proportion of the whole product. The wages of one will accordingly be twice as great as those of the other, and *vice versa*, according as we make the comparison in one or the other way. The other mode of comparison has reference to the share

compensation, that is, the quantity of valuable vendible things commanded by the same labour. All labourers want food, clothing, and shelter; and he that can command the best for the same labour is the best paid. In making the comparison, we may regard the money that each can earn; but then we must go farther, and inquire what the same weight of silver or gold will purchase in each of the two countries. To the man who expends his wages where they are earned, a given amount of silver or gold is valuable only in proportion to the things that he can produce in exchange for it. To all practical purposes, therefore, labour may be higher paid in England at five shillings than in the West Indies at ten. It is, therefore surprising to see economists making comparisons of the money rate of wages in different countries, as if that gave any practical satisfactory result, without also inquiring further what the same money will purchase in each of the two countries. For instance, a labourer at Buenos Ayres can earn an ox in three days, which, in England would cost him at least as many months' wages; whereas the English labourer can earn more cloth in the same time than the one at Buenos Ayres, though the money price of wages is highest in the latter place.

In all the speculations and treatises upon this subject, we do not know of any full and satisfactory comparison of the real rate of wages, for the corresponding kinds of labour, in different countries. If we limit the inquiry to the same community, we first ask what is the aggregate production, and how great a proportion of the whole annual product goes to labour and skill, and how much to rent and capital. And here we readily perceive a gradual change in the course of the progress of a community; for in the early stages of improvement, and while the population is comparatively thin, the rent, and so the value, of lands, is low; that is, the holder of a particular piece of cultivated land receives but a small proportion of the annual products; but, as the population thickens, the proprietor of the same tract will receive a greater proportion of the whole products of the same cultivation than his predecessors. Take the instance of the same crop of grass, on the same piece of ground, for a hundred successive years, from the time of felling the forest, until a populous town has grown up in the neighbourhood; the wages for cutting and securing the crop will, at first, be one half or three quarters of its value, and will diminish, by degrees, to one fifth or one tenth, and the value and rent of the land will rise accordingly; that is, land becomes comparatively scarce in proportion to the population, and the demand for its use; and all raw products, that is, all products the value of which consists mostly of rent, will rise in comparative value. This may take place, in a great degree, through a whole country, as has been the case in England. But the whole territory does not continue to produce merely the same quantity, since, as the wants and consumption of the community increase, the labour bestowed upon the same area will be increased for the purpose of augmenting the quantity of products, so that the land-owner may, in fact, receive a less quantity, and a less proportion of the products, and yet have a higher rent for his ground every successive year, because the quantity which he does receive, on account of its increased comparative value, will command, on the whole, more of the things for which he wishes to exchange it. During the same time, the labourer will receive, for the same labour, a less quantity and less proportion of the raw products; and yet, taking into consideration all that he wants to consume, he may, on the whole, continue to have as high wages as at first, whether we regard the absolute quantity of consumable things which he can command by his labour, or the proportion which it will bear to the whole annual product of the community. Though some parts of his food, and all his fuel, may cost him more labour, other parts of his food, particularly that brought from abroad, and his shelter and clothing, and especially all those articles that come under the class of moderate luxuries, will probably cost him less labour. In the progress of a community in which property is well protected, accumulation gradually reduces the rate of interest, thus reducing the proportional amount of the cost of production, as far as it depends on the use of capital, whereby a compensation, in part at least, is made for the enhancement of rents. All the inventions and facilities to production, transportation and exchange, also contribute to make a similar compensation. From these causes, it may happen that, in the advancement of the population, wealth, arts and industry of a community, though a smaller proportion of the whole products goes to compensate mere labour, still a greater absolute amount of products may go to compensate the same labour; that is, a labourer may be able to supply himself, by his industry merely, with a greater quantity of necessaries and luxuries. In some respects, the labourer suffers by the advancement of a community; in others, he is benefitted.

But another view of the subject is of the very greatest importance in considering the condition of a people, namely, the distribution of that portion of the annual products that is allotted to industry and skill among the different classes of the industrious. It is not possible to estimate exactly what proportion the compensation for making out a legal process, visiting a patient, officiating at the celebration of public worship, superintending the concerns of a bank, commanding a ship or a regiment, &c., ought justly, or for the best interests of a community, to bear to the wages of mere manual labour, requiring very little skill; nor, if we could determine this proportion, would it be practicable to establish it. The law has interposed, in many instances, in different countries, to regulate the price of labour and commodities; but it is now universally admitted that any such interpositions are most usually ineffectual, and always prejudicial. But though positive regulations, in this respect, will never remedy the evils of an unjust distribution, yet a community may be so constituted, and so situated, that the spontaneous operation of internal causes will effect a nearly just apportionment of the rewards of skill and industry among the various classes of the industrious. To ascertain what circumstances will have this operation, we must inquire what class first suffers from an inequality; and we find it to be those who depend wholly on their labour for subsistence. This is the part of the population where misery begins; and thence it spreads and accumulates until it is felt by the whole; for every part of the population will inevitably sympathize, more or less, with every other. It is utterly impossible for any class so to separate itself from the rest as not to be affected, directly or indirectly, by their enjoyments and sufferings. How, then, can the wages of mere labour, requiring very little skill, be sustained at a just

rate, so that the labourer shall have his fair proportion of the annual products? This can be done only by diffusing and maintaining good habits, industry and intelligence among the poor class. It should be the policy of every society to make all the influences, moral, political, economical and social, bear, with the greatest possible energy, upon this point. It is not practicable to sustain this class by external helps: when they have once become degraded, it is scarcely possible to renovate and restore them. The true doctrine is that of prevention.

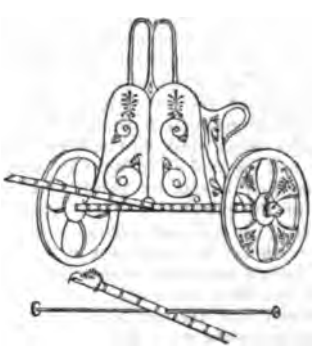
WAGNER, ERNEST; a German poet, born in 1768, and died in 1812. His poem, called Wilibald's Views of Life, is celebrated. His complete works were published in 1827 et seq., at Leipsic.

WAGNERITE; a mineral found in complicated crystals, the primary form of which is an oblique rhombic prism, whose lateral planes incline under angles of 95° 25′ and 84° 35′. Lustre vitreous; colour several shades of yellow, sometimes nearly orange-yellow, often inclined to gray; streak white; translucent; hardness nearly that of feldspar; specific gravity 3·11. It consists of

Phosphoric acid,	41·73
Fluoric acid,	6·50
Magnesia,	46 66
Oxide of iron,	5.00
Oxide of manganese,	·50

It is found in veins of quartz, embraced in clay-slate, and occurs in Werfen, in Salzburg.

WAGONS most probably originated from rude vehicles dragged on cylindrical logs, which must soon have suggested the idea of the axis and solid wheel, even now used in Portugal by the peasants. According to Moses, Egypt was the country where wagons were first used. The Chinese call the inventor Hiene-Yuene. The Greeks attributed the invention to Erichthonius, fourth king of Athens, and say that he used them in consequence of lameness. Wagons with two wheels may have been the first constructed; but Homer mentions four-wheeled wagons, the invention of which was ascribed to the Phrygians. Whoever first conceived the idea of an axis was a most ingenious man; and he who applied it to wheels and wagons has become one of the greatest benefactors of mankind. Much time elapsed before wagons were used for pleasure carriages. The sedan chair and horseback were long preferred. In war, use was sooner made of the wagon. Moses mentions the war-chariots of Pharaoh. Theseus is said to have introduced chariots among the Greeks.



The horses were covered with iron scales. At the end of the pole lances were fastened, and at the side and below were scythes. These chariots were driven into the ranks of the enemy. The Gauls

besides, used two-wheeled chariots, each containing two persons, one of whom drove while the other threw spears. The Romans used them early; in the twelve tables the *arcera* is mentioned. The Romans gave different names to the wagons according to the purpose to which they were applied: as *carpentum*, a two wheeled vehicle, with a roof covering, used particularly by the Roman ladies; *carruca*, a kind of state coach; *cisium*, another kind. They had also triumphal chariots (*currus triumphalis*). Wagons are drawn by men or beasts, or are propelled by machinery. It is reported that, at the *panathenæa*, a galley was moved through the city by internal wheel-work. From the time of Friar Bacon (in the thirteenth century) to our days, many trials of locomotive wagons have been made, of which, the steam-wagon, lately brought to such perfection, is the most important. The wind has also been frequently used to propel wagons. Simon Stiven, of Bruges, invented a sailing wagon in which twenty-eight persons, which, on even ground, is said to have travelled fourteen Dutch leagues in two hours! Mr Slater, an Englishman, travelled in a sailing wagon from Alexandria to Basson. (Respecting the invention of wagons, harnessing, &c. among the ancients, see the work of Gimmerthal, Munich, 1817, 2 vols.). Kites have also been used to propel wagons. See *Velocipede*, and *Steam*.

WAGRAM, BATTLE OF, on the 5th and 6th July, 1809, gained by Napoleon over the archduke Charles. It decided the fate of Austria, on the same field on which Rodolph of Hapsburg, in 1278, had been victorious over the proud Ottocar, and laid the foundation of Austria's power. The severe loss which Napoleon had sustained in the battle of Aspern, on the occasion of his unsuccessful attempt to pass the Danube, made repose necessary for his army. He also needed reinforcements. These he received in the army of the viceroy of Italy, who had forced the Austrians, at last, from that region to Hungary. Bernadotte was also approaching with the Saxons, and other divisions were on the way

The archduke Charles, on the left bank of the Danube, was in a less fortunate situation. His loss, also, had been severe; and his army consisted, in a great measure, of raw troops hastily levied. Napoleon remained in Vienna, and prepared every thing for a decisive struggle, whilst his antagonist appeared to stand merely on the defensive; at least nothing was done by him to disturb the French in their preparations on the islands of the Danube. Heavy ordnance was carried from the arsenals of Vienna to the well-constructed works on these islands. Materials for bridges were provided, and every precaution taken to prevent a second failure in the attempt to pass the river. The position of the antagonists permitted the most accurate knowledge of all the movements of both armies. July 1, Napoleon concentrated his forces, and fixed his head-quarters at Lobau. Presburg had been occupied by Davoust a few days previously. Vandamme guarded the Danube as far as Lintz. The whole number of the French forces has been estimated at 180,000; and if this number is overrated, it is certain that the Austrian force was not half as great. From July 2, the French attempted, at several points on the islands, to establish a secure communication with the opposite bank, without being prevented by the fire of the Austrians; and on July 4, Napoleon concentrated the greatest part of his troops on the island of Lobau. At ten o'clock in the evening, the first troops, in small numbers, passed in boats over the Danube, and established themselves on the left bank, during a tremendous storm, and supported by a warm fire from all the batteries, directed against Enzersdorf and the Austrian redoubts erected on those spots where a landing was expected. Enzersdorf was in flames, and shed a brilliant light on the Danube. With great skill and promptness, excellent bridges were thrown over the river, and as early as two o'clock, the whole army had reached the left bank. It seems to have been in consequence of a settled plan, that Charles did not endeavour to prevent the passage of Napoleon, and that the Austrians immediately made a retrograde movement. On the morning of the 5th, the French army extended itself in the Marchfield (a plain many leagues in length, on the left bank of the Danube, and containing the town of Wagram). A numerous artillery along the whole French line played incessantly. The Austrians were slowly forced back during the day. In point of fact, the archduke Charles had at this time but three divisions to oppose to the French forces. It was not till towards night that his other forces could be brought into action. It is impossible for us to give the details of the battle, or to describe the repeated assaults on Wagram by the Saxons. The French army bivouacked on some places very near the enemy. Some have believed that the retreat of Charles, on July 5, was in order to place the French troops between his forces and those which were approaching, under the archduke John, from Hungary. But the army of the archduke John was much too weak to produce a decisive effect, and, moreover, would have been opposed by the disposable French divisions, and the 10,000 Bavarians under Wrede. Early in the morning of July 6, the extreme left wing of the French, under Bernadotte and Masséna, was extended to Hirschstätten; the centre, comprising the guards and the Italian army, was at Raschdorf; to the right were Marmont and Oudinot; and Davoust was on the extreme right. The archduke Charles now projected an attack, *en echélon*, from his right, against the French left. Thus it was hoped that the Austrian army might relieve itself from the extreme pressure upon its left wing. At first, this attack was successful: the French were forced back as far as Enzersdorf. The Austrian centre was not so fortunate: it could not advance equally with the right wing, and thus a dangerous extension of the Austrian forces took place. Napoleon knew how to keep them in this situation, and thus to obstruct their further attacks; and soon after, having turned the Austrian left wing, he began to act on the offensive, and endeavoured to decide the battle by destroying the enemy's centre. Masséna attacked Aderklaa most violently; and, had he succeeded, all would have been lost; but the Austrians fought with great bravery against the cavalry, artillery and guards, and repeated attacks were repulsed. Had the archduke John arrived at this time on the left wing, as he was ordered to do, a favourable result might have been obtained; but he did not come up, and the French troops spread far to the right. Upon the third attack, they occupied the height of Markgrafen-Neusiedel, and the Austrian right wing was deprived of the advantages which it had gained. The Austrians retreated. The archduke John, it is said, was detained near Presburg in collecting his corps. It was not until late in the evening, that he heard from the field of battle that every thing was decided. To save his own troops, he again retreated from the Marchfield. Both armies had displayed great valour. The loss of the Austrians may have amounted to 27,000 men killed and wounded (they had taken, however, 7000 prisoners, twelve eagles and colours, and eleven cannons). The loss of the French cannot be reckoned at less. On the 7th, 9th and 10th, the archduke retreated, constantly fighting, to the heights of Znaym, where Marmont and Masséna reached him. On the 11th, a battle was fought, which, however, was interrupted by the armistice offered by Austria, and concluded, July 12, at Znaym, after which the negotiations for peace commenced. For information respecting the whole campaign, see general Pelet's (aid-de-camp of Masséna) *Mémoire sur la Guerre de* 1809, *en Allemagne, avec les Opérations particulières des Corps d'Italie, de Pologne, de Saxe, de Naples, et de Walcheren* (Paris, 1825, seq., 4 vols., with an atlas).

WAGTAIL (*motacilla*); small birds which seem to be peculiar to Europe. They differ from the warblers only in their longer legs, more slender form, and longer tail. They never perch on trees or shrubs, but frequent the margins of ponds and water-courses, and are continually elevating and depressing the tail; hence the name. The common European wagtail (*M. alba*) is a familiar bird, which seems to seek the society of man and domestic animals, and is even seen frequently to rest upon the backs of cattle while they are grazing. The vicinity of mills is observed to be its favourite resort. The plumage is a mixture of black, white and gray.

WAHABEES, WAHABITES, or WECHABITES, is the name of several Arab tribes, who profess the religious faith which Sheik Mohammed, son of Abdel Wahab, taught in the middle of the eighteenth century, and, like the founder of the religion of the Koran, sought to propagate by art and courage. Sheik Mohammed, belonging to the great tribe of the Tamini (born in 1729, in the town of

Ajen, situated near the desert, in the district of Al Ared), had acquired great learning in Bassora, Bagdad and Damascus. He taught at first in Ajen, and soon made proselytes of the inhabitants of the district of Al Ared. Claiming divine inspiration, he taught, like the Koran, the doctrines of which he but partially received, the existence of an only God, the Author of the world, the Rewarder of the good, and the Punisher of the bad; but he rejected all the stories contained in the Koran, especially these concerning Mohammed, whom he considered merely a man beloved of God, but branded the worship of him as a crime directly opposed to the true adoration of the Divinity. He also prohibited the wealth and splendour which are found in the mosques of the Mahommedans. All who should oppose this new doctrine were to be destroyed by fire and sword. Mohammed first converted to his new doctrines the sovereign of Derayeh and Lahsa, Ebn-Sehud, whom he proclaimed prince (*emir*) and protector of the new sect, of which he declared himself high-priest, thus separating the spiritual and secular authorities, which were afterwards hereditary in the families of Ebn-Sehud and Sheik Mohammed. The principal seat of the Wahabees was the city of Derayeh, in the province of Nedsjed, and Jamama, 250 miles west of Bassora. As the votaries of the new faith were all inspired with the highest enthusiasm, prepared for all trials,* indefatigable, brave and cruel (conversion or death being their watchword), their dominion spread with incredible rapidity among the surrounding Arab tribes, of which, in a short time, twenty-six were subjugated, incorporated with the original Wahabees, filled with hatred of Mohammedanism, and taught to delight in plundering the treasures of the mosques. Sehud's son and successor, Abd-Elaziz, could bring into the field 120,000 cavalry. Well provided with camels and horses, and armed with sword and spear, the Wahabites, though resembling the Bedouins, and destitute of any considerable artillery, which they obtained only by conquest, were dangerous enemies. The nature of the country, their mode of life, and their religious creed, formed their character, which, from the mountainous regions of their original seat, is even more savage and bold than that of the first followers of Mohammed. The disorders which prevailed in all parts of the dominions of the Porte, including the Arabian countries under its protection, was especially favorable to the enterprises of the Wahabees, who, from their seat between the Persian gulf and the Red sea, had reached several parts of Asiatic Turkey, before the slightest measures were taken to put a stop to their devastations and conversions.

In 1801, the pacha of Bagdad first received orders to proceed, with the tribes which had adhered to Mohammedanism, against the Wahabees, who, however, by great presents, bribed the generals sent against them to retreat, and then attacked the town of Iman Hussein, destroyed it, and, after acquiring much plunder, fled back to their deserts. On this occasion, they also pillaged the mosque of Ali, which was highly venerated by the Persians. The Persian monarch, Fath Ali, threatened them with his vengeance, but was prevented from executing his purpose by civil wars. The daring Wahabites now turned an eager gaze upon the far greater treasures of Mecca, the holy city. Here Ghaleb, a younger brother, had deprived his elder brother, Abd-Al-Mein, of the sherifate. On pretence of avenging this wrong, Abd-Elaziz sent his son Sehud, with 100,000 men, to Mecca, where he put Ghaleb to flight, but was prevented, for a while, from conquering the city, by the arrival of the great caravan under the escort of the pacha of Damascus, who, however, entered into a treaty, not to stay more than three days in Mecca, and not to interfere in the contest of the brothers respecting the sherifate. After the departure of the caravan, the Wahabees took the holy city without resistance, massacred many sheiks and Mohammedans, who persisted in their religious faith, and reinstated, indeed, Abd-Al-Mein, but destroyed all the sacred monuments and carried off immense treasures. Leaving him only a small garrison of 100 men, Sehud next attempted, in vain, the conquest of Jidda and Medina, after which he returned to Derayeh, where, meanwhile, his father had been murdered, in 1803, by a Persian. Sehud was now prince of the Wahabees. Their high-priest was Hussein the Blind, the eldest son of Sheik Mohammed. The misfortunes which they suffered were soon repaired.

In 1806, the Wahabees appeared more numerous than ever; plundered the caravans of pilgrims going to the holy sepulchre; got possession of Medina; Mahmel (a splendid box, in which the grand seignior sends, every year, the presents destined for the tomb of the prophet); and conquered Mecca, Medina, and even Jidda, marking their path by bloodshed and conversions, among which, that of the mufti of Mecca excited the most astonishment. The fear of the Wahabees spread throughout the land, and even the British were apprehensive that their commerce would be endangered, several hundred warriors having proceeded to the Persian gulf, formed a junction with the pirates, and disturbed the communication between Bassora, Muscat and India. The British, therefore, took the imam of Muscat, against whom his brother had rebelled, in the country of Oman, under their protection, and to defend him against the Wahabees, sent troops from Bombay, in 1809, a fleet and army for the chastisement of their common enemies was effected in several battles on the sea and coast, and especially by the demolition of their chief port of assembling, Ras el Elyma (Kherim), where 2000 inhabitants were killed, and 1600 taken prisoners. On the other hand, the British, as a condition of their further assistance, stipulated with the imam for the islands of the Persian gulf, Bahrein and Zebora, celebrated for their rich pearl fisheries.

In 1810, the sublime Porte summoned Mohammed Ali, Pacha of Cairo and the pachas of Damascus and Acre, to undertake an expedition against the pacha of Bagdad, Jusseff Pacha, and his ally, the Wahabees. The pacha of Acre obtained the command with equal activity and bravery; conquered Bagdad, the pacha of which, deserted his treasures, fled to his father, the pacha of Mosul, who had been ordered to take part against him, and with whom he found a favourable reception. Thus the quarrels and jealousies of the Turkish pachas, and of the Persian khans, greatly favored the progress of the Wahabees. Soon after the massacre, perpetrated, by Mohammed Ali, of the beys and mamelukes at Cairo, the Wahabees formed a junction with the relics of them, who had fled to Upper Egypt. Mohammed Ali prosecuted, with indefatigable energy, his preparations for the annihilation of the Wahabees. He conquered Yambo and Nahala in 1811, and

* The use of coffee and tobacco, as well as of silk clothing, are forbidden by their law.

the fruits of three victories, sent three sacks of Wahabees' ears to Constantinople. No subsequent progress, however, was made: on the contrary, Jussuff Pacha, who now fought with his father, Mohammed Ali, on the side of the Turks, was forced to retreat, (he died soon after of the plague.) But the Wahabees, betrayed by their ally, the sherif of Mecca, and abandoned by several Arab tribes, suffered new defeats in the defiles of Sofra and Judeyda, and were altogether driven from the route to Medina. This holy city was weakly garrisoned, and, therefore, easily conquered by the Turks. Mecca, also, soon after fell into their power. The solemn delivery of the keys of the regained cities of the faith, was celebrated with great rejoicings at Constantinople. These victories had done much for the security of Mohammedanism, which finds one of its chief supports in the possession of Mecca and Medina, and the uninterrupted pilgrimages of the faithful to those cities. This formidable sect was as yet, however, far from being suppressed. Mohammed Ali, pacha of Egypt, therefore, renewed his preparations; but he lost a fortified place called Kumsidal, containing great stores of arms and ammunition, which the Wahabees took by surprise. The Persian disturbances were also very favourable to them; and they found opportunity to form a new union with several Arab tribes. But their daring was not accompanied with prudence. They undertook the boldest predatory excursions, while their enemy, the Pacha of Egypt, adopted judicious measures for their entire overthrow. After the death of their sovereign, Sehud II., in 1814, when quarrels arose on the subject of the succession, they suffered several defeats. A decisive victory was obtained by Mohammed Ali, in the beginning of 1815, at Bassila, not far from the city of Tarabe. It was, nevertheless, difficult to attack them in the centre of their power. Ibrahim, the son of the pacha, finally succeeded, in 1818, in inflicting a total defeat on the Wahabees, under their sovereign, Abdallah Ben Sund, and in blocking them up in their fortified camp, four days' march from their capital, Derayeh.* The camp was stormed September 3, eighty pieces of artillery taken, 20,000 soldiers put to death, and Abdallah himself made prisoner. The inhabitants of the city now surrendered, but demanded an amnesty, and that their lives and houses should be spared; but the conquerors declared that the sultan alone could grant or refuse these terms. Meanwhile the arrival of the prisoner, who, both as a rebel and an apostate, was of great political importance to the sublime Porte, was celebrated in Constantinople as a national triumph. With his mufti and treasurer, he was then carried in chains before the sultan, tried by the divan, and beheaded, with his fellow prisoners, December 17, 1818.

Detached bands of Wahabees are still said to rove through the desert; and the heroic daughter of the founder of the sect is said to be their leader; but the sultan, having left the conquered to the pleasure of the pacha of Egypt, he entirely destroyed their principal seat; and the inhabitants, after the loss of their property, were dispersed. The severity of Ibrahim, who is remembered as the scourge of Arabia, and the curse of Derayeh, did not, however, put an end to the Wahabite reformation, nor to the spirit of resistance by which its abettors were animated. The war was renewed in 1824, with as much ferocity as ever, and apparently with increased means, on the part of the insurgents, of bringing it to a successful issue. It was protracted during the three following years, with alternate advantage; having been, during the latter portion of that interval, allowed to slumber, owing to the struggle made by the Greeks in the Morea, to recover their liberty. See Planat's *Histoire de la Régénération de l'Egypte* (Geneva, 1830,) for an account of Mohammed Ali's campaign against the Wahabees.

According to some accounts, the Wahabees are divided into three classes—soldiers, field labourers, and artizans; but since, like the other Arabs, every able man was destined for predatory excursions, it is more correct to divide them into priests, soldiers, and slaves. The sect of the Wahabees is still very numerous in Arabia.

WAHLSTADT; a generic German term for *field of battle* (from *Wal*, which means *fight*, and also *dead body*; hence *Walhalla*, or *Valhalla*.) As a geographical name, it belongs to a large village in Silesia, near Liegnitz, on the Katzbach, where Henry II., duke of Silesia, fought a bloody battle, April 9, 1241, against the Tartars, in which he lost his life, and the latter were victorious. In memory of this battle, the place and village were called *Wahlstadt*. In the same place, Blucher was victorious over the French, Aug. 26, 1813 (see *Katzbach*,) and, in reward of this and other victories, was made prince of Wahlstadt.

WAHOO. See *Elm*.

WAIFS. See *Estrays*.

WAKEFIELD; a town of England, in the West Riding of Yorkshire, nine miles south of Leeds, and 182 N.N.W. of London. It is pleasantly situated on the side of a hill, sloping southward to the river Calder, in the midst of a fertile and beautiful country. The town consists of spacious and regular streets, and the houses are well-built and handsome. The parish church is a Gothic structure; the spire is upwards of 237 feet in height. There is a handsome stone bridge over the Calder, built in the reign of Edward III., in the centre of which is a chapel, in the richest style of Gothic perpendicular architecture, ten yards in length, and about eight in breadth. Wakefield is one of the greatest corn markets in England, and contains immense corn warehouses. By the reform act of 1832, Wakefield was constituted a borough, returning one member to parliament. Population of town in 1841, 18,486; of town and parish, 29,992.

WAKEFIELD, GILBERT, a distinguished scholar and critic, son of the reverend George Wakefield of Nottingham, was born in 1756, and entered, in 1772, Jesus College, in Cambridge, where he pursued his studies with great ardour, in 1776 graduated bachelor of arts, and was soon after elected a fellow. In the same year, he gave the public a small volume of Latin poems, with a few critical notes on Homer. In 1778, he received deacon's orders, and, on leaving college, engaged in a curacy at Stockport, in Cheshire, and subsequently he obtained another near Liverpool. The dissatisfaction which he entertained at the doctrines and liturgy of the church of England, progressively in-

* Derayeh, in the Arab province of Nedjed, protected by deserts and mountains, was situated in 43° 14' E. lon. 26° N. lat. (in the great valley of Wadybeniseh, 300 miles long,) surrounded by gardens and orchards, twelve days' journey from Bagdad, and 120 leagues east of Medina, 100 leagues south-west of Bassora and 160 leagues south-east of Jerusalem. It was two leagues long, half a league broad, exposed to frequent inundations and contained 2600 houses of stone, 28 mosques, and 20 schools. The former rulers resided in the suburb of Turreif.

creasing, he determined to take the first opportunity of resigning his situation in it; which design he fulfilled in 1779, and accepted the office of classical tutor at the dissenting academy at Warrington. He had early formed a design of giving a new version of the New Testament, and published, in 1782, his New Translation of the Gospel of St Matthew, with Notes Critical, Philological, and Explanatory (4to.) On the dissolution of the Warrington academy, he removed to Bramcote, in Nottinghamshire, with a view of taking private pupils. Here he published, in 1784, the first volume of an Enquiry into the Opinions of the Christian Writers of the First Three Centuries concerning the Person of Jesus Christ, a work which he never concluded. He subsequently removed to Richmond and Nottingham, until, in 1789, he commenced his *Silva Critica*, the object of which was to illustrate the Scriptures by the philology of Greece and Rome. Of this learned performance, five parts appeared in succession, until 1790, the three first from the Cambridge press. In 1796, he quitted Nottingham, in order to accept the office of classical tutor at the dissenting college at Hackney. Here his services were highly esteemed, until he advocated the superiority of private to public worship, and wrote a book in support of his opinions, which tended to dissolve the connexion. In 1792, he gave the world his Translation of the New Testament, with Notes Critical and Explanatory, (in 3 vols. 8vo.) and, in 1795, published Memoirs of his Own Life, (2d ed., 1804, 2 vols. 8vo.,) a characteristic performance. He next defended revealed religion by his Evidence of Christianity, in answer to Paine's Age of Reason, and planned a new edition of Pope's Works, in which he was anticipated by Doctor Warton. He, however, proceeded so far as to publish a first volume, and a volume of Notes on Pope; as also an edition of his versions of the Iliad and Odyssey. He followed up his labour with editions of Select Greek Tragedies; of Horace; of Bion and Moschus; of Virgil; and, finally, of Lucretius, (in 3 vols. 4to,) a work which has ranked him among the most erudite and industrious of critical editors. He soon after entered the path of politics, and censured the policy of the war against France, produced by the French revolution, in a pamphlet written in 1798, entitled a Reply to the Bishop of Llandaff's Address to the People of Great Britain; for which he was subjected to a crown prosecution for libel, which terminated in a trial and conviction in February, 1799, when he was sentenced to two years' imprisonment in Dorchester gaol. He endured the whole of this sentence, which was however alleviated by a subscription amounting to £5000, that took away his anxiety for the future support of his family. On his restoration to liberty, he opened a course of lectures upon Virgil, in the metropolis, but in August of the same year, was seized with a typhus fever, which terminated his life, Sept. 9, 1801, in the forty-sixth year of his age. Mr Wakefield was a zealous and industrious scholar, who followed what he deemed truth, without regard to consequences, wherever it might lead him: hence his abandonment of the church, and of public worship, and formation of a system of divinity of his own; for he never formally joined any body of dissenters. His classical emendations occasionally exhibit strange singularities of taste and opinion; and, in conjectural criticism, indeed, he evinced much of the bold character of Bentley and Markland. His private character was amiable and estimable, and far removed from the asperity of controversy and his criticism. Besides the works already mentioned, and a few more of minor importance, a Collection of Letters, in a correspondence between him and the right honourable C. J. Fox, has been published since his death, chiefly relative to topics of Greek literature.

WALACHIA, or WALLACHIA; a province under the protection of the Porte, lying on the northern bank of the Danube, with Moldavia on Transylvania on the north, and Servia on the west. Its area is equal to about 25,000 square miles, with a population of 950,000 souls. Its capital is Bucharest. The other principal towns are Brailow, the key of the Danube, Tergovist and Giorgiev. The face of the country is considerably diversified: in the north it is mountainous; the central and southern parts are less rugged, consisting chiefly of fertile valleys and extensive plains. Few countries are more indebted to nature; but the bad government and insecurity of property have left it nearly a waste. Corn, tobacco, flax, horses, sheep, and salt abound; but the rich soil is little cultivated, and the mineral treasures of the country are undisturbed. The inhabitants are chiefly Walachians and gypsies. The former, the original inhabitants, are a mixture of different nations—Dacians, Bulgarians, Sclavonians, Goths, and Romans. They call themselves Romans, and speak a corrupt Latin. Their costume dress also resembles that of their ancestors of the period of the Roman empire, as appears by the figures on Trajan's column in Rome. They are rude, ignorant, and stupid. The gypsies, who are very numerous, resemble those found in other countries. The mountaineers, who have the right to bear arms, are called, in Moldavia and Walachia, *Pandoors* (a Moldavian word, signifying *mountain guards*.) The religion of the inhabitants is Greek, and the upper classes speak the Greek language and in general have the manners of the Greeks. Walachia is under the protection of the Porte, which has the right of naming its hospodar or prince. The hospodars were formerly appointed for seven years, during which time they could not have been removed; but pretences enough were always found for suspecting them, and they were rarely suffered to die a natural death. By the treaty of Adrianople, in 1829, it was stipulated that the office should be held for life; that the inhabitants should enjoy the free exercise of their religion, free commerce, and a separate administration; that no Mahommedan should be allowed to reside in Walachia; and that the yearly tribute to the Porte should be fixed at a certain sum, beyond which, the Porte should claim no further contributions. Like Moldavia of the Romans, Walachia formed a part of Dacia. In the twelfth and thirteenth centuries, it was governed by princes dependent on the Byzantine court, and, in 1421, was rendered tributary to the Turks. It still, however, retained its own laws and a separate administration, the Turks occupying only the three fortresses of Brailow or Ibrailow, Giorgiev, and Thurnul. Still it was often invaded by the Turks, and subjected to forced contributions, and the hospodars made the best use of their precarious authority to pillage the people. In 1711, Mavrocordatus was appointed hospodar. He was the first Greek who had received this post, and with his successors, who were also Greeks, much towards civilizing and improving the

tion of the country. The insurrection of 1821, (see *Hetairein* and *Greece, Revolution of*) was quelled, and only rendered the state of the province more deplorable, until the war of 1828, when it was occupied by the Russians, and now, though nominally a Turkish province, is quite under Russian influence.

WALCHEREN, or WALCHERN; an island of the Netherlands, the most important and the most westerly of the Zealand islands, about thirteen miles from north to south, and eight from east to west, situated in the German sea, at the mouth of the Scheldt. It lies low, protected from inundation by strong dikes; is well cultivated, but not healthy. It contains three towns, Middleburg, the chief place, with 13,200 inhabitants; Flushing, a fortress; and Veere; and numerous villages. Middleburg is the capital. Lon. 3° 29′ E.; lat. 51° 34′ N. The British troops suffered dreadfully from ague and fever, while quartered at Walcheren, in 1809.

WALDECK; a sovereign principality of Germany, bordering to the south and east on Hesse-Cassel, and to the west and north on the Prussian province of Westphalia. It has a superficial area of 455 square miles, with 56,000 inhabitants. The soil is mostly stony, but yields grain in abundance, and affords good pasturage. The religion of the inhabitants, who are industrious, but poor, is Lutheran. The county of Pyrmont belongs to Waldeck, though territorially separated from it. The Waldeck estates are composed of certain landed proprietors, deputies from the thirteen towns of the principality, and ten deputies of the peasants. Waldeck, as a member of the German confederation, has one vote in the general assembly (*plenum*,) and, in conjunction with the Hohenzollern, Lippe, Reuss, and Lichtenstein houses, the sixteenth vote in the diet. (See *Germany*.) The chief town is Corbach, with 2200 inhabitants. The residence of the prince is Arolsen, 1750 inhabitants. The revenue of this petty principality is about £45,000; public debt about £135,000; quota of troops to the army of the confederacy, 518 men. The house is one of the most ancient in Germany. Waldeck was one of the *shambles*, as Chatham appropriately called them, to which the British government had recourse for purchasing troops in the American war.

WALDENSES. This Christian sect, celebrated as the precursor of the reformation, appears, from old manuscripts in the university of Cambridge, to have existed as early as 1100. According to the common opinion, it owes its origin and name to Peter Waldus (Waldo, Vaud), a rich citizen of Lyons, although some of their writers derive the appellation *Waldenses* from *vallis* (valley), and call them *Vaudois*, or dwellers in the valleys. About 1170, Waldo, from reading the Bible and some passages from the fathers of the church, which he caused to be translated into his native tongue, came to the determination to imitate the mode of life of the apostles and primitive Christians, gave his goods to the poor, and by his preaching collected numerous followers, chiefly from the class of artisans, who, from the place of their birth, were called *Lyonists*; or *Poor Men of Lyons*, on account of their voluntary poverty; *Sabatati*, or *Insabatati*, on account of their wooden shoes or sandals (*sabots*); *Humiliatists*, on account of their humility; and were often confounded with the Cathari, Patarenes, Albigenses, and others, whose fate they shared. In their contempt of the degenerate clergy and their opposition to the Roman priesthood, the Waldenses resembled other sects of the middle ages; but, going beyond the design of their founder, which was merely to improve the morals of men, and preach the word of God freely to every one in his native language, they made the Bible alone the rule of their faith, and, rejecting whatever was not founded on it, and conformable to apostolical antiquity, they gave the first impulse to a reform of the whole Christian church, renounced entirely the doctrines, usages and traditions of the Roman church, and formed a separate religious society. They were therefore excommunicated as heretics, at the council of Verona, in 1184; but they did not suffer a general persecution until the war against the Albigenses, after they had spread and established themselves in the south of France, under the protection of the counts of Toulouse and Foix. At that time (1209—1230), many Waldenses fled to Arragon, Savoy and Piedmont. Spain would not tolerate them. In Languedoc they were able to maintain themselves till 1330; in Provence, under severe oppression, till 1545, when the parliament at Aix caused them to be exterminated in the most cruel manner; still longer in Dauphiny; and not till the war of the Cevennes were the last Waldenses expelled from France. In the middle of the fourteenth century, single congregations of this sect went to Calabria and Apulia, where they were soon suppressed; others to Bohemia, where they were called *Grubenheimer*, because they used to conceal themselves in caverns. These soon became amalgamated with the Hussites; and from them the Bohemian Brethren derive the apostolical consecration of their bishops. On the other hand, they found a retreat, fortified by nature, in the valleys of western Piedmont, where they founded a distinct church, which has remained, till the present day, the main seat of their sect. Their doctrines rest solely on the gospel, which, with some catechisms, they have in their old dialect, consisting of a mixture of French and Italian. In this language their simple worship was performed, till their old *Barbes* (uncles, teachers) became extinct, in 1603. They then received preachers from France, and since that time their preaching has been in French. These teachers, however, form no distinct priesthood, and are supplied from the academies of the Calvinistic churches. Their rites are limited to baptism and the supper, respecting which they entertain the notions of Calvin. The constitution of their congregations, which are chiefly employed in the cultivation of vineyards, and in the breeding of cattle, and which are connected by yearly synods, is republican. Each congregation is superintended by a consistory composed of elders and deacons, under the presidency of the pastor, which maintains the strictest moral discipline, and adjusts small differences. From the time of their origin, the Waldenses have been distinguished from their Catholic neighbours by their pure morals and their industry, and have been esteemed as the best subjects. After they had entered into a religious communion with the Calvinists, in the sixteenth century, they were also exposed to the storm which was intended to sweep away the reformation, the doctrines of which they had already cherished for upwards of three centuries. This was the cause of their extirpation in France, and their chequered fate in Piedmont. Those who had settled in the marquisate of Saluzzo were totally exterminated by 1633; and those in the other valleys, having received from the court of Turin, in 1654, new assurances of religious free-

dom, were treacherously attacked in 1655, by monks and soldiers, treated with brutal cruelty, and many shamefully murdered. The rest of their male population took up arms; and their bravery, aided by the mediation of the Protestant powers, finally procured them a new, though more limited ratification of their freedom by the treaty concluded at Pignerol, August 18, 1655. New oppressions, in 1664, gave rise to a new contest and treaty. The persecution exercised in 1685, through French influence, obliged thousands to emigrate into Protestant countries. In London, they united with the French Huguenots; in the Netherlands, with the Walloons; in Berlin, with the French congregations; nearly 2000 went to Switzerland. Some of these returned by force to Piedmont, in 1689, and, with those who had remained, maintained themselves, under many oppressions, to which limits were finally put, in 1725, in consequence of Prussian mediation.

The Waldenses now enjoy religious freedom and civil rights in their old valleys of Lucerne, Perusa, and St Martin, in western Piedmont, where they have thirteen parishes, containing about 20,000 souls. Their church service is under the direction of a synod. After long negociations, in the way of which great difficulties were thrown by the religious zeal of the Tübingen theologians, several hundreds of the above-mentioned fugitives settled in Würtemberg, in 1699, where their descendants have ten parishes, and are 1600 in number. They are next to the Calvinists in the simplicity of their worship, and in their ecclesiastical constitution, but in intellectual cultivation, they are behind the other Protestants. In later times, England and Prussia have afforded aid to the Waldenses. By contributions which they collected from all Europe, in 1824, they erected an hospital. The latest accounts of them were collected on the spot, in 1823, by W. St Gilly, an English clergyman—Narrative of an Excursion to the Mountains of Piedmont, and Researches among the Vaudois, Protestant Inhabitants of the Cottian Alps, &c. (second edition, London, 1825, 4to.). Also see Hugh Dyke Akland's *Sketch of the History and present Situation of the Waldenses in Piedmont* (London, 1826), and the same author's *History of the glorious Return of the Vaudois to their Valley, in* 1689 (from the original accounts of their pastor, H. Arnaud), *with a Compendium of the History of that People, &c.* (London, 1827, 1 vol.).

WALDIS, Burkard. See *Burkard Waldis.*

WALDSTÆDTE (i. e. the *Forest Towns*), or VIERWALDSTÆDTE (i. e. the *Four Forest Towns*): a name given, in Switzerland, to the four forest towns of Rheinfelden, Seckingen, Waldshut, and Lauffenburg, which are a part of the Black Forest.

WALDSTÆDTERSEE. See *Vierwaldstädtersee.*

WALDSTEIN-WARTEMBERG; a Bohemian family, known since the thirteenth century, and from which sprung the famous Wallenstein. There are at present two lines, with large possessions, in Bohemia and Moravia, containing 90,000 inhabitants. The late Francis Adam, count of Wallenstein, after having served in several wars, travelled for seven years in Hungary, to study the plants of the country, and published, in 1812, *Descriptiones et Icones Plantarum rariarum Hungariæ* (Vienna, folio), which procured him the membership of several learned societies. Wildenow called a plant, after him, *Waldsteinia*, in his *Species Plantarum Linnæi*. He died in 1823.

WALES; a principality in the west of Great Britain, washed on the north and west by the Irish sea, and on the south and south-east by the British channel. It is from 130 to 180 miles in length from north to south, and from 50 to 80 in breadth, comprising an area of 8125 square miles. It is divided into North and South Wales, containing twelve counties, Anglesey, Caernarvon, Denbigh, Flint, Merioneth and Montgomery in the former, and Brecknock, Cardigan, Caermarthen, Glamorgan, Pembroke and Radnor in the latter division. The general aspect of Wales is mountainous, affording numerous views of wild scenery, interspersed with delightful valleys. The Vale of Clwyd, in North Wales, is not less remarkable for the noble panorama of natural graces displayed in a length of thirty miles, than for the verdure of its pastures and the value of its grain harvests. This, however, is the elysium of Wales. The Vale of Edeirnion is also fruitful, but less extensive and less beautiful; and the Vale of the Conway is a grassy one of twenty miles in length, where excellent cattle are reared. The loftiest summits in North Wales are Snowdon (3579 feet), Plinlimmon (2463 feet) and Cader Idris (3550 feet). Numerous small lakes are scattered among the mountains; and there are several navigable rivers, such as the Severn, the Coye, the Conway, the Towy, and the Dee. The climate is colder than in England, and humid, but the air is, in general, salubrious, and the country healthy. The Cambrian goat is found here in a wild state; and goat-hunting is a favourite diversion of the people. The mineral kingdom abounds in silver, copper, lead, iron and coal. The agriculture of Wales is, in general, much behind that of England, though, of late years, the improvement of farming, and the management of the land, have been much improved. The roads have also been, until recently, in a bad state. The Ellesmere, Montgomery, Brecknock, Cardiff, and other canals facilitate the internal intercourse. See Canal.

The common Welsh still retain many peculiar superstitions and customs, and, in many parts, a peculiar language. The gentry, however, are, in general, educated in England; and the influence of their example is gradually exterminating the Welsh peculiarities. Many remains of the ancient literature are yet extant, and societies have been formed for preserving such relics. (See *Bard.*) The Welsh are descendants of the ancient Britons, who, being driven out of England by the Anglo-Saxons, took refuge in these fastnesses, or in the continent of Europe, where they gave their name to Brittany. (See *Gael.*) The Welsh language is Celtic. (See Roberts's *Cambrian Popular Antiquities*, London, 1815), and *Collectanea Cambrica.*

When Julius Cæsar invaded Britain, Britain the country included between the Severn and the sea was called Cambria, and inhabited by the Silures, Dimetæ, and Ordovices. In a later age the Romans extended hither their ambitious views and overpowering the aborigines, reduced the little kingdom to a province, and gave it the name of Britannia Secunda. In this territorial arrangement, Monmouthshire and portions of other adjacent English counties were annexed to Wales. After the retirement of the Romans, intestine feuds convulsed and rent this province for many years, and its distraction was augmented by the frequent

datory incursions of the Saxons. The ancient inhabitants, however, as if cemented by misfortunes into a closer and more indissoluble phalanx, resisted and repelled the spoliator. The Saxons imposed upon the Cambrians the appellation of Welshmen (strangers) and called their country Wales, but an ancient Briton calls himself Cymry, denoting his ancient origin, either from his ancestor Gomer, or from the race of the Cimbri. Between the years 843 and 876, Wales was divided into three dynasties, called North, South, and Powysland, by Roderic the Great, king of all Wales, and his three sons set over these respective possessions. Gwynedd, or North Wales, comprehended the counties of Anglesea, Carnarvon, with parts of Denbigh, Merioneth, and Flintshires. Deheubarth, or South Wales, included the counties of Cardigan, Pembroke, Carmarthen, Glamorgan, with portions of Brecon, Radnor, Gloucester, Hereford, and the county of Monmouth. And in Powysland were comprised the county of Montgomery, portions of Merioneth, Denbigh, Flint, and Radnor, the hundred of Bualt, in the shire of Brecon, and parts of the counties of Chester and Salop. In the year 940 this tripartite arrangement was exchanged for one great government, and continuing for some period in this form, was subjected to a division into North and South once more, previously to its falling into the power of the Normans and the English.

When Wales was partitioned into shires is not very certain. Flint is mentioned as a county in the Domesday-book, which is probably the earliest record of such divisions, although it is supposed that Alfred the Great was the inventor of the system of territorial subdivisions. The twelve counties now included within the principality are Anglesea, Brecon, Cardigan, Carmarthen, Carnarvon, Denbigh, Flint, Glamorgan, Merioneth, Montgomery, Pembroke, and Radnor. Each county is subdivided into cantrefs, or hundreds, and these again into cwmwds (comots) or communities. The parochial division does not correspond with the civil. They were arranged into circuits distinct from those of England, having their own judges and law officers; but in the year 1831, the Welsh judicature was totally abolished, and the counties attached to the Oxford and western circuits, according to the convenience of position, and included henceforth in the great sessions of England and Wales.

No traces at present exist of the early tenements of the primitive Briton, but Caerneddau mark conspicuous places, or indicate the transaction of some remarkable event at very early periods: next, the Pillarstone records, perhaps, the mark or conquest of some numerous legion under their ruling prince; then the Cromlech, Sacrificing-stone, and Druid-circle, testify the thraldom in which the minds of those were held who fought so bravely for what they still called freedom. The ruins of Segontium, the several Sarns, or paved roads, and numerous architectural remains, establish the superiority of the Roman over the simple but courageous Briton. A few Welsh castles, such as those Dollwyddellan, Diganwy, Nantfrankon, Cedom, Dolbadarn, Criccaeth, Castell-Gyfarch, and Dolbenmaen, &c. do not evince a rapid progress in arts, or an age of wealth or greatness, though some, perhaps, being of later date, were in some degree formed after foreign models. It was reserved for the Normans to introduce arts and arms into Wales at nearly the same dates They were the founders of all the beautiful castles, the ruins of which confer such a melancholy grandeur upon the solemn scenery of Wales. The castles of Chepstow, Caerphilly, Dinefawr, and very many others, give an instructive lesson to the inquiring antiquary, and an ample testimony of the historic fact. The great castles of Gwynedd were all erected by Edward I. either from the foundation, or upon the well-chosen sites of former citadels. Harlech illustrates very happily an instance of the latter; Carnarvon, Conway, and Beaumaris, exemplify the former. Christianity was, doubtless, fully and completely established here in the middle of the sixth century, and many cells of Eremites were then founded, but still the splendid monastic institutions which characterize England and Ireland, point out each date in architectural history, and adorn so many of the fairest and choicest retreats in these islands, do not appear to have been founded in this mountainous country in any numbers; Strata-florida, Vale Crucis, Lanthony, and some others, are amongst the few, and Tintern also, with its scenes of enchantment, was formerly within the principality. Feudal castles raise their towers over the rich vales of Cambria, and remind the ancient Briton of the brave struggles of his forefathers for liberty and life, but they are now but phantoms of departed power: their banquet-halls are silent, their towers and dungeons fallen to decay, and they remain themselves powerless objects in a land of freedom.

About the year 843, Roderic the Great united the different petty states of Wales into one principality, and ruled over his new kingdom, though for no very long period, with conspicuous wisdom and justice. He bequeathed the sovereignty of Gwynedd to his eldest son, Anarawd; the principality of South Wales to Cadell, his second son, and to the youngest son, Merfyn, he left Powysland. In the year 877, Merfyn being deposed by his brother Cadell, the dynasties of Powys and South Wales were again united under one prince, at whose death, A. D. 907, his son Howel succeeded to the sovereignty. Prince Anarawd survived his brother Cadell only six years, and was succeeded in his government by his son Edward the Bald; but this prince being slain in an engagement between the English and the Danes, his crown was usurped by his kinsman Howel, to the prejudice of the legitimate offspring. By this last act of violence the three subdivisions of Cambria became reunited under the sceptre of one monarch, who, however unjustly he might have obtained the regal purple, has shed a lustre over this part of the Cambrian annals by the prudence of his conduct and the wisdom of his laws. He died full of years, A. D. 948, having obtained the enviable distinctive cognomen of *Dda*, the Good, which he is generally styled by chroniclers and historians. The death of this benevolent prince and wise legislator was the signal for the return of anarchy and bloodshed. The sons of Edwal seized upon the throne, and held the reins with unsteady hand and want of determination. The Danes took advantage of the unsettled state of affairs, and ravaged great part of South Wales, and the Saxons also became acquainted with such parts of Cambria as would be likely to remunerate the sword of the invaders. During the continuance of these domestic feuds, and the absence of an acknowledged form of government, in the year 1091, the subjugation of Wales was boldly determined on by the enterprising spirit of Robert Fitzhamon, a Norman baron. He succeeded first in the complete reduction of Glamor-

ganshire, and afterwards, in conjunction with many adventurers from the same country, pushed their conquests northward into all the other parts of Wales. This was the origin of a new and unusual government, named that of the Lords Marchers. The jurisdiction of these nobles was absolute, and the exercise of their power attended with much cruelty and despotism. From this period the struggles of the brave Cambrians for liberty were few and faint, and their history as an independent nation henceforth hastens to a close, and may be said to have become extinct at the death of the last reigning prince, Llewellyn ap Gryffydh, in the year 1282.

Edward I. completed the entire conquest of Wales, and his policy allowed the natives to retain possession of their estates under their ancient tenures, and permitted the enjoyment of as much freedom as was consistent with English laws. But his humane intentions were frustrated by the despotic lords marchers, for in the reign of the fourth and sixth Henrys it appeared that the Welsh were reduced under a bondage the severest and most humiliating. Henry VII. received much assistance in his ambitious designs from the inhabitants of the principality, and was not forgetful of these services when the object of his hopes and wishes was attained. Under this monarch several statutes of a healing and alleviating nature were enacted, but as the power of the lords marchers still continued, it was not until the twenty-seventh of Henry VIII. that substantial relief was afforded to this oppressed district. The act sets forth, "that many robberies, murders, and other evil practices, have been daily committed in the county palatine of Chester, and Flintshire in Wales, and also in Angleseas, Carnarvon, Merioneth, Cardigan, Carmarthen, Pembroke, and Glamorgan, because justice is not administered there in such form as in other places of this realm; for the remedy of this it is enacted that the lord chancellor of England, or keeper of the great seal, shall nominate and appoint justices of peace, justices of the quorum, and justices of the gaol delivery in the said counties, and that they have like power and authority as those in England." The effect of this statute was very important, it struck the first blow at the power of the lords marchers, and terrified offenders, who could no longer escape from the hands of justice, by flying from one lords marchership to another. It also established the administration of the laws upon a more solid and unimpeachable foundation, and was the origin of what was called the great sessions of Wales, a system of judicature which continued in operation until the year 1831.

The manufactures and productions of Wales are considerable. Glamorgan contains mines of coal and iron, apparently inexhaustible. Iron-works are established on an extensive scale at Merthyr Tydvil, Aberdare, and all through that district. Every species of tin and iron-plate work is made, copper is manufactured into sheets, bolts, and other varieties, at Swansea. Brass, copper, &c., founded at Llanelly; and half the lead and copper ore raised in Great Britain and Ireland finds its way into the blast furnaces of the prosperous town of Swansea. Iron-foundries are also worked at Rhiwabon and Wrexham in Denbighshire, and Hawarden in Flintshire, Holywell is the Swansea of North Wales; brass, lead, copper, wire, and other such articles, being wrought there, and blast-furnaces kept in constant occupation. The coal district of Flintshire and the wonderful spring of St Winifred, rendered the position of Holywell favourable for the establishment of hardware manufactories. The manufacture of slates, if it may be so termed, is extensively followed in North Wales. The quarrymen here have obtained a skill in the working the metal superior to that of any other miners, as the metal itself is not equalled by any yet discovered in these islands. Bangor, Carnarvon, and Portmadoc, are the chief places of export, at the latter of which a manufacture of writing-slates, chimney-pieces, inkstands, and various useful articles from slate, is permanently established. The woollen-trade is also established in the twelve counties of Wales, but the best and finest webs are manufactured in North Wales. Newtown contains the largest factories; Welshpool is one of the best markets; large works are conducted in Denbigh, but the greatest quantities are made in the cottages of the peasants. Small factories are erected in the most retired mountain districts; hither the country housewife brings her wool to be carded and spun, and suffering a small toll to be retained, converts the rest into a home-woven web, or knitted stockings, gloves, or wigs. With articles manufactured in this manner, the stockings being made by the females as they walk to and from the fair or market, most of the great Welsh woollen-markets are supplied. Cottons and cotton-twist are manufactured in Flint and Denbighshires, principally at Newmarket, Sceviog, Greenfield, Denbigh, Caerwys, and Bagillt-well, and the silk manufacture has lately been commenced. The principal agricultural exports are those of grain from South Wales and herds of cattle from the North. The principal places of exportation and asylums for shipping are Caerdiff, Neath, Swansea, Oxwich, Kidwelly, Carmarthen, Tenby, Milford-Haven, Fishguard, Newport, Cardigan, Aberystwith, Aberdyfi, Barmouth, Port Madoc, Pwllheli, Nevin, Carnarvon, Holyhead, Amlwch, Beaumaris, Bangor, Aberconway, Rhyl, or Flint, and Bagillt.

Wales formerly sent twenty-four members to parliament, one for each county, and one for each of twelve boroughs. By the reform act of 1832 the number is increased to twenty-nine, two for each of the counties of Caermarthen, Denbigh, and Glamorgan, one from each of the other nine, and fourteen from as many boroughs, of which Merthyr Tydvil and Swansea are the two created by the act. Wales belongs to the province of York in ecclesiastical matters, and has four bishoprics, St David's, Bangor, Llandaff, and St Asaph. Its dioceses have been contracted by taking from it the whole county of Monmouth, and a part of several of the adjacent English counties. Population of Wales in 1811, 611,788; in 1821, 717,438; in 1831, 911,603.

WALES, New; a name given to a part of North America, situated south-east and north-west of Hudson's bay, and divided into North and South; the former name is lost in the more general name of *Labrador*. New South Wales is situated to the west of Canada, and extends along the south borders of Hudson's bay, 450 miles, from long. 80° to 90° W., lat. 54° to 58° N.

WALES, New South. See *New South Wales*.

WALES, Prince of; the title of the heir apparent of the British throne, first conferred by Edward I. on his son (afterwards Edward II.) at the time of his conquest of that principality. (See *Edward I.*) The heir apparent is made prince of Wales and earl of Chester by special creation, as

investiture, but, as the king's eldest son, is, by inheritance, duke of Cornwall, without any new creation. To compass or conspire the death of the prince of Wales, is as much high treason as to conspire the death of the king. The eldest daughter of the king is styled the *princess royal*, unless there are no sons, when she is created princess of Wales. The arms of the prince of Wales are the royal arms, with the addition of the motto *Ich dien* (I serve,) said to have been adopted by the Black Prince, from a prince of Bohemia, whom he slew at Cressy. Another account says Edward I. presented his infant son to the Welsh, who had agreed to accept a native prince from him, with the words *Eich dyn*, (This is your man.)

WALKER, JOHN, a philological writer, was born in 1732, and joined with a Mr Usher, about the year 1767, in setting up a school at Kensington; but the speculation not succeeding to his wishes, he settled in London, where he gave lectures on elocution, having, it is said, in the earlier part of his life, studied the art with a view to making the stage his profession, although his ill success on the boards had induced him to adopt another calling. Mr Walker died in 1807. He is known as the author of several useful elementary works, such as a Rhetorical Grammar, (8vo); a Pronouncing Dictionary, (8vo); Elements of Elocution; Key to the correct Pronunciation of Greek, Latin, and Scriptural Names, (8vo.); and a Rhyming Dictionary.

WALKYRIAS, or VALKYRIAS. See *Northern Mythology*.

WALL. See *Architecture*.

WALL-FLOWER (*cheiranthus cheiri*;) a cruciferous plant, which grows in the clefts of rocks and old walls, in most parts of Europe. The stem is naked, hard, and almost woody at the base, dividing above into leafy branches. The flowers are large, of a fine golden-yellow in the wild-plant, and agreeably scented. In the cultivated plant, the flowers are of various and brilliant colours, and attain a much larger size. Double and semi-double varieties are common in gardens. It is a beautiful and favourite ornamental plant. Being an acrid and hardy evergreen, it is sometimes sown in pastures, together with parsley, thyme, &c., as a preventive of the rot in sheep. About thirty species of *cheiranthus* are known, several of which have been long cultivated in gardens.

WALLACE, SIR WILLIAM; a celebrated Scottish patriot and warrior, was the son of a small landlord of an ancient family in the west of Scotland. His father was knight of Elderslie and Auchinbothie in Renfrewshire; and his mother, daughter of Sir Raynauld Crawford, in the shire of Ayr. He was born, probably about the middle of the reign of Alexander III., or the year 1270. He received the rudiments of his education at Dunipace, in Stirlingshire, under the guardianship of his uncle, a wealthy ecclesiastic there. From Dunipace he was removed to a public seminary at Dundee, where he contracted a friendship with John Blair, a Benedictine monk, who afterwards became his chaplain. Blair, being an eye-witness to most of his actions, composed a history of them in Latin; but the work has not, unfortunately, come down to us, though a liberal use has evidently been made of it in the vernacular metrical work of Blind Harry.

The miserable state to which Scotland was reduced at this period, by the tyranny of the English, will be found recorded in the historical section of the article *Scotland*. Possessing great strength of body, and undaunted courage, as well as a warm attachment to his native country, Wallace beheld its subjugation by the English king, Edward I., with the utmost impatience, and resolved to undertake the task of liberating Scotland from a foreign yoke. Having collected a small band of followers, he commenced an irregular warfare with the English troops left to secure the conquests of Edward; and his enterprising spirit and local knowledge soon rendered him a formidable foe. In 1297, he planned an attack on the English justiciar at Scone; but that officer and his colleagues eluded the danger by flight. Many of the barons, encouraged by this success, joined the standard of Wallace, or secretly favoured his designs. Earl Warenne, the governor of Scotland under king Edward, assembled an army of 40,000 men, with which he marched against the Scottish champion, who retreated to Cambuskenneth, on the banks of the Forth, where the English were defeated with great slaughter; and their commander fled, with the remains of his army, into England. Wallace was now declared regent of Scotland, under the captive king, John Baliol. The English monarch, alarmed at the reverses which his partizans had experienced, hastened from Flanders to oppose Wallace, against whom he led an army of 90,000 men. Jealousy at his elevation had already thinned the ranks of the Scottish hero, who, having resigned the regency, retained his command only over his particular followers. The Scottish army, under the steward of the kingdom, and Comyn, of Badenoch, waited the approach of Edward at Falkirk, where an engagement took place in the summer of 1298, in which the English were completely victorious. Wallace retired to the mountains, resumed his system of predatory warfare, and maintained his independence at the head of those who still continued attached to him. King Edward at length, on the 5th August, 1305, obtained possession of the person of his formidable adversary, through the treachery of Sir John Menteith. Wallace was first taken to Dumbarton castle, then under the command of Menteith, and afterwards carried to London, heavily fettered, and guarded by a powerful escort. On reaching London, he was (23d August, 1305,) taken to Westminster Hall, accompanied by the mayor, sheriffs, and aldermen of the city, and there arraigned of treason. A crown of laurel was in mockery placed on his head, because, as was alleged, he had been ambitious of the Scottish crown. The king's justice, Sir Peter Mallorie, then impeached him as a traitor to Edward, and as having burned villages, stormed castles, and slain many subjects of England. "I could not be a traitor to the king of England," said Wallace, "for I was never his subject, and never swore fealty to him. It is true I have slain many Englishmen; but it was in the defence of the rights and liberties of my native country of Scotland." Notwithstanding the truth and justice of his plea, Wallace was found guilty, and condemned to a cruel death. It is a stain on the character of Edward, and a reproach to the spirit of his age and country, that, while he pardoned, and even favoured many who had repeatedly violated their oaths of allegiance to him, he not only bestowed no mercy on this brave and true-hearted man, who had never professed allegiance, but, with an enmity which showed how little sympathy he had for his noble qualities, added insult to injustice, and endeavoured to heap indignity

on the head of him, whose name shall be through all ages honoured and revered by every generous breast. Sir William Wallace was dragged at the tails of horses through the streets of London to a gallows in Smithfield, where, after being hanged a short time, he was taken down, yet breathing, and his bowels torn out, and burned. His head was then struck off, and his body divided into quarters. His head was placed on a pole on London Bridge, his right arm above the bridge at Newcastle, his left arm was sent to Berwick, his right foot and limb to Perth, and his left quarter to Aberdeen. "These," says an old English historian, "were the trophies of their favourite hero, which the Scots had now to contemplate, instead of his banners and gonfanons, which they had once proudly followed." But he might have added, as is well remarked by Mr Tytler, that "they were trophies more glorious than the richest banner that had ever been borne before him; and if Wallace already had been the idol of the people, if they had long regarded him as the only man who had asserted, throughout every change of circumstances, the independence of his country, now that his mutilated limbs were brought before them, it may well be conceived how deep and inextinguishable were their feelings of pity and revenge." Edward, assuredly, could have adopted no more certain way of canonizing the memory of his enemy, and increasing the animosity of the Scottish people. Accordingly, we find, although the execution of Wallace may be said to have completed that subjugation of the country, which the English monarch had been straining for, by force and fraud, during a period of fifteen years —that in *less than six months* from the death of her great champion, Scotland, roused to the cause now sealed and made holy by her patriot's blood, shook off the yoke of England, and became once more a free kingdom.

WALLACHIA. See *Walachia*.

WALLENSTEIN, ALBERT, count of (properly *Waldstein*); duke of Friedland, generalissimo of the Austrian army in the thirty years' war, a man whose name excites mingled emotions of admiration and abhorrence; for, though his achievements were great, he knew no motive but ambition, and scrupled at no means of gratifying it. He was the terror of his contemporaries, and, in the short period of 1625—1634, exercised a powerful influence on events, and has therefore met with many historians. But the veil which hangs over the last scene of his life has not been wholly removed by any of them.

Albert of Waldstein, born at Prague, in 1583, was descended from a distinguished Bohemian family, which was attached to the Protestant religion. For the instructions which he received under the paternal roof, and in the celebrated Protestant school at Goldberg, in Silesia, he had no taste. His restless, impetuous disposition was hostile to discipline, and, in all mischievous exploits, he was the leader of his fellow scholars, over whom he exercised a certain supremacy. He behaved in like manner at the university of Altorf, which he entered in 1594, and where the commission of an offence brought him into the academic prison. Albert afterwards entered, as a page, into the service of the margrave Charles of Burgau, a prince of the Austrian-Tyrolese collateral line, who resided at Inspruck. He became a convert to the Catholic religion, and received from the margrave the means of travelling in Germany, England, France and Italy. During his travels, military and financial systems, statesmen and generals, were the only objects of his attention. He then studied, for a time, mathematics and politics, but especially astrology, at the celebrated university of Padua. Argoli, his teacher in the latter science, seems to have given rise to his latter projects, by predicting a splendid fortune to him. In 1606, Wallenstein performed a campaign against the Turks, in Hungary, with the imperial army, in which he manifested much bravery, and became captain. The peace (Nov. 11, 1606) terminated this campaign, and he returned to Bohemia without an appointment. Here he married a very rich but aged widow, who, after a short, childless marriage, left him a great property, which enabled him to play a splendid part at the court of the emperor Matthias, at Vienna. In an insignificant war which broke out in Friuli in 1617, between the archduke Ferdinand of Styria and the republic of Venice, he raised, at his own expense, a body of 200 cavalry, and led them to the assistance of the archduke (afterwards the emperor Ferdinand II)., by which means he acquired a high place in his favour. His courage and conduct were distinguished at the relief of Gradiska, and he gained the attachment of officers and soldiers by his extraordinary generosity, and his attention to their wants. After the end of the war, Ferdinand appointed him colonel of the militia at Olmütz, in Moravia. He there took for his second wife Isabella, daughter of count Harrach, a favourite of Ferdinand, and was raised by Ferdinand to the rank of count. On the breaking out of the troubles in Bohemia, Wallenstein joined, in 1619, the Austrian party against the Protestant Bohemians. He was compelled to leave Olmütz, but succeeded in conveying the public treasure to Vienna. He had retained of it 9000 dollars. With this and his own money he raised 1000 cuirassiers, whom he led to Bohemia, to succour the Austrian general. Here he distinguished himself in several engagements, and afterwards went, with the Austrian army, under Boucquoi, to Moravia, the fortified places of which soon opened their gates to the conqueror. Wallenstein was now appointed military governor of Moravia, recovered his estates, which had been confiscated by the Protestant Bohemians, and, having been created major-general, after the fall of Boucquoi, commanded with success against Bethlem Gabor, prince of Transylvania. In 1623, the emperor invested him with the lordship of Friedland, in Bohemia, and, in 1623, created him prince of Friedland. When the war commenced in the north of Germany, where the king of Denmark came forward, in 1625, at the head of the Lower Saxon circle, against the league, the emperor found himself in great embarrassment, from want of money and troops. Wallenstein offered to raise an army of 50,000 men at his own expense, and without the least contribution on the part of the emperor, on condition that he should be its commander-in-chief, and should be allowed to retain the contributions obtained from the conquered countries. It was not uncommon in those times, for a general to raise a body of troops at his own expense, and thus to indemnify himself from friend and foe; but the idea of raising so numerous an army appeared rash. The emperor had no alternative: he therefore accepted his proposition on those terms, and, soon after, gave him the title of duke. The reputation of Wallenstein, and the active co-operation of many distinguished officers, soon enabled him to collect an army

25,000 men under his banners, at Eger. He immediately marched with it (in 1625) to Franconia, where the country was compelled to support them for some time, then through Suabia and the circle of the Upper Rhine, to Lower Saxony, where he passed the winter in Halberstadt, and even occupied a part of Upper Saxony. Every where the inhabitants were compelled to afford subsistence to his troops, the number of which continued to increase. The celebrated count Mansfeld opposed him with a far inferior army, but was totally defeated by Wallenstein, April 18, 1626. He, nevertheless, assembled new troops, with which he proceeded through Silesia, towards Hungary, in order to join Bethlem Gabor. Wallenstein followed him rapidly. Gabor concluded a truce, and Mansfeld withdrew to Dalmatia, where he died. Wallenstein now relieved Novigrad, which was besieged by the Turks, and conquered Waitzen. After Gabor had made peace with the emperor, Wallenstein returned (in 1627) from Hungary, through Silesia, Lusatia and Brandenburg (August, 1627), to Lower Saxony, where he obliged the king of Denmark (who could not withstand, at the same time, him, and the army of the league, under Tilly) to make a speedy retreat; conquered, in a short time, the duchy of Mecklenburg, and Holstein as far as Glückstadt, as well as the greater part of Silesia and Jütland, no one being prepared for so unexpected an attack. All these countries were very severely treated, and heavy contributions were exacted of them. As Wallenstein, from want of vessels, could not invade the Danish islands, he went into winter-quarters on the coasts of the Baltic, occupied Pomerania, and extended his line of troops to Berlin. The fortress of Stralsund alone withstood him. By the edict of June 9, 1629, the emperor threatened the two dukes of Mecklenburg with the ban, for having espoused the Danish party, and, on June 16, 1629, invested Wallenstein with their territories, and with the principality of Sagan, in Silesia: he also appointed him admiral of the Baltic. The object seemed to be, to make the emperor master of the coasts of the Baltic, and to destroy, in this sea, the trade of the Dutch, who were at variance with Spain. But the Hanseatic towns refused Wallenstein's demand for vessels, and he had not enough to execute his bold plan. He was also unsuccessful in his attempt on Stralsund, which was aided by Denmark and Sweden, and which he besieged from May till July, 1628. During this siege, he lost in various assaults, more than 12,000 men. He was also obliged to withdraw his troops from before Glückstadt and Magdeburg. He again undertook, in September, the siege of Stralsund. "The city should be his," he said, "were it fastened by chains to heaven." But in vain. He was obliged a second time to raise the siege. He next took Rostock, and defeated the Danes at Wolgast. His further progress was obstructed by the peace between the emperor and Denmark, at Lübeck, in 1629, which he had himself promoted, because he expected to obtain by it the quiet possession of Mecklenburg. But having ignominiously dismissed the Swedish ambassadors from the congress of Lübeck, and having likewise sent his confidential friend Arnheim, with 12,000 men, to aid king Sigismund of Poland, against Gustavus Adolphus, he gave occasion to a new war with Sweden. The fear of the emperor's designs, as well as the overbearing conduct of Wallenstein, and the immense extortions which he and his troops practised, even in neutral countries (having, within seven years, raised 600,000,000 thalers — nearly £90,000,000 sterling — by contributions in the north of Germany), induced the German princes, at the diet of Ratisbon, in 1630, to wrest from the emperor a promise to diminish his army to 30,000 men, and deprive Wallenstein of its chief command. In order to promote the election of his son as king of the Romans, Ferdinand II. was induced to disgrace, in a mortifying manner, a general who had saved Austria, and raised it to the summit of power. With the command of the army, Wallenstein was at the same time obliged to resign the duchy of Mecklenburg. He seemed, however, to bear with indifference this degradation, and lived, from that time, in Prague, as a private man, but with the pomp of royalty. He was surrounded with guards: sixty pages and twenty chamberlains waited on him. He travelled to his estates with a train of 200 carriages; and Battista Seni, his astrologer, announced to him a new career, yet more splendid. This career was opened to him after Tilly's death. The military successes of Gustavus Adolphus in Germany forced the emperor to the humiliating step of conferring again on Wallenstein the command of the army. After some hesitation, he accepted the offer, but on terms very derogatory to the emperor. He received absolute power, almost independent of the emperor, not only over the army, but also to treat, confiscate, punish, and reward, at will, in the countries of the empire. He stipulated for an indemnification of Mecklenburg, and also for the grant of an imperial hereditary province. In an incredibly short time, he assembled an army of 40,000 men, at Znaym. After having expelled the Saxons from Bohemia, who had taken Prague and other cities, he formed a junction with the troops of the elector of Bavaria, and marched to Franconia, against Nuremberg. But Gustavus had already hastened to the aid of the Protestants; and Wallenstein, though his troops were superior in number to those of the king by one half, avoided a battle. Both parties intrenched themselves. Gustavus waited for the approaching reinforcements; Wallenstein undertook no attack; and nothing but insignificant skirmishes occurred. As Wallenstein could not be made to risk a battle, Gustavus Adolphus attempted to storm the Austrian camp (August 24, 1632); but his assaults were repeatedly repelled. The Swedish army now turned towards the north of Suabia, and made new conquests, while Wallenstein suddenly invaded the unoccupied Saxony, to compel the elector to secede from the alliance with Sweden. Gustavus Adolphus followed him thither, and, November 6, the battle of Lutzen took place. Wallenstein was compelled to retire with great loss. He himself was wounded, Pappenheim was killed, and all his artillery was taken. The Swedes, although their great king had fallen, maintained the field under Bernard, duke of Weimar. Wallenstein now withdrew to Bohemia, and caused a strict court-martial to be held, at Prague, over the officers and soldiers, who were accused of not having done their duty in the battle; and many of them were executed. In May, 1633, he again took the field, and proceeded to Silesia, where there was a Swedish army, combined with Saxon and Brandenburg troops. Notwithstanding his numerical superiority, he undertook, at first, nothing important. This inactivity gave rise to the suspicion, that he was engaged in secret negotiations with the enemy, to the disadvantage of Austria. He was even charged with the

design of making himself king of Bohemia, by the aid of the Protestants. That negotiations were carried on between the parties, was no secret; but that these related to the conclusion of a peace, and not to Wallenstein's private advantage, is the conclusion to be drawn, at least from the documents that have been made public (e. g. from the Von Arnin archives*). What has been published in justification of the subsequent steps of the emperor against Wallenstein should not be unconditionally received. After a truce of seven weeks, without result, Wallenstein, during the rest of this campaign, did nothing but surprise and capture a body of Swedes (October 18, 1633), occupy several Silesian towns, and make an incursion into Lusatia and Brandenburg, as far as Berlin. Count Thurn, the instigator of the first insurrection of the Bohemians, he set at liberty, loaded with gifts, and charged with secret commissions to the Swedish chancellor, which proceeding excited great indignation in Vienna. But the duke cared not for the favour of a court whose ingratitude he had experienced, and which he contemned. Meanwhile he performed nothing decisive. Still less success followed the expedition which he made, at the request of the emperor, through Bohemia, into the Upper Palatinate, to prevent the further progress of Bernard of Weimar in Bavaria. Without risking a battle, Wallenstein, on the approach of the duke, retired to Bohemia, where he took up his winter-quarters. This measure, which was entirely against the will of the emperor, who wished to spare, as much as possible, his hereditary provinces, increased the suspicions of Wallenstein's fidelity. His enemies at court, especially the Spanish party, accused him of treason. The plan of a conspiracy, ascribed to him, was laid before the emperor, the object of which was said to be, to make himself independent sovereign of Bohemia, by means of his devoted troops, and to maintain possession of this country by the aid of the Swedes and some Protestant German princes. Wallenstein having at last submitted to a council of war assembled at Pilsen, on Jan. 11, 1634, all his complaints against the emperor, and having gained over part of the generals to his purposes, the court of Vienna, which had received information of the whole affair from Octavio Piccolomini, began to realize the urgency of the danger. Ferdinand II. therefore issued an order (Feb. 18, 1634), depriving Wallenstein of the command of the army, and pronouncing sentence of outlawry against him and two of his generals, Illo and Trczka (pronounced *Tertschka*), as traitors and rebels. The generals, whose fidelity could be relied on, were commanded to seize Wallenstein, dead or alive. He therefore proceeded to Eger, in order, it was supposed, to be nearer the frontiers and the Swedish troops. Nothing, indeed, seemed to remain for him but to seize on some fortified place, like Eger, and unite himself with the enemy. His assassination, however, put a sudden end to his projects; and, in all probability, Germany was thereby preserved from a great catastrophe. Some officers of the garrison at Eger (colonel Leslie, an Irish Catholic, to whom Wallenstein had confided every thing; Butler, the commander of the fortress, and lieutenant-colonel Gordon, both Scotch Protestants), as every moment of delay seemed to increase the danger, conspired for Wallenstein's destruction. On Feb. 25, 1634, at an entertainment given by the conspirators for this purpose, the most confidential friends of Wallenstein (Illo, Will, Kinsky, Trczka, and his aid, Neumann, captain of horse) were surprised and murdered by Butler's dragoons, led by major Geraldin. Devereux, an Irishman, at the head of the halberdiers, was intrusted with the execution of the emperor's order on Wallenstein, who, surprised in his bed-chamber, received in silence, with outstretched arms, the thrusts of the halberds in his breast, and expired without a groan. He was not yet fifty-two years old. Not an arm was raised to avenge his death; and he was entombed, without pomp, in the Carthusian monastery, founded by himself, at Gitschin. He was mourned only by his widow. His cold, imperious temper had prevented him from gaining friends. The large sums of money found in his possession fell into the hands of the conspirators and their associates. All his papers were seized; but none have come to the public knowledge, that prove his treachery. His extensive possessions were confiscated by the Emperor, and given, in part, to those who had assisted in his destruction. Wallenstein was of a large, strong frame; his small, black eyes had a fire which few could not endure; his mien was always serious, cold and repulsive; his activity was extraordinary. Though his table was always richly filled, he was himself moderate, and resisted all the allurements of sense, seeking only the gratification of his ambition. He spent, however, a great deal in splendid buildings, and in a numerous and stately household. His own dress was generally marked by some singularity. He possessed much prudence, knowledge of mankind, and cunning, especially the art of fathoming the intentions of others and concealing his own. Towards those who were dependent on him, he was severe, and not unfrequently cruel. He was lavish to those whom he wished to win over to his purposes, but possessed not the art of winning the heart. With personal courage he united confidence in himself, and was not destitute of military talents, though he cannot be compared with the great tacticians who were opposed to him (Gustavus Adolphus and Bernard of Weimar). All his military undertakings were based on numerical superiority of troops; and his manner of waging war showed rather policy than military ability. He had no respect for religion, and was the professed enemy of the clergy, who, on their part, hated him in an equal degree. He was unable to raise himself above the prejudices of his age. His usual companion, who left him only a few moments before his death, was the Italian astrologer Seni, who, as was suspected, was bribed by the imperial court to murder him. The dramatic pieces of Schiller, *Wallenstein's Lager*, *Die Piccolomini*, and *Wallenstein's Tod*, are among the finest productions of modern poetry. Some of the personages (Thekla and Max) are mere creations of the poet's imagination. See *Thirty Years' War*.

WALLER, Sir William, a military officer who distinguished himself in the civil wars between Charles I. and the parliament, was born in [illegible] and was a connexion of the poet. He studied at Oxford and Paris, and began his military career in the service of the confederate princes against the emperor, where he acquired the reputation of a good soldier. Upon his return home, he received the honour of knighthood, was elected a member of the long parliament for Andover, and, having

* There have been lately printed 200 unpublished letters of Wallenstein and others, of various dates, from 1627 to 1634.

suffered under the severity of the star chamber, acquired a predilection for the Presbyterian discipline. He soon became strenuous in his opposition to the court, and, when hostilities commenced, was appointed second in command of the parliamentary army, under the earl of Essex. The west of England was the principal theatre of his exploits, where he obtained several signal advantages, but ultimately sustained defeats by the king's forces at Roundway Down, near Devizes, and at Cropready bridge, in Oxfordshire. The blame was thrown by him on the jealousy of other officers; and soon after, having refused to fall in with the views of the Independents, he, among others, was removed by the self-denying ordinance. Being deemed a great support to the Presbyterian party, he was one of the eleven members impeached of high treason by the army, and finally expelled the house of commons, and committed to prison. He was again taken into custody, on suspicion of being engaged in Sir George Booth's insurrection, but was released upon bail. He died at his seat in 1668. He published Divine Meditations, which were written during his retirement, and give a faithful picture of his sentiments and failings. He also left behind him a manuscript, published in 1793, under the title of Vindication of Sir William Waller, explanatory of his Conduct in taking up Arms against King Charles; Written by himself.

WALLER, EDMUND; an eminent English poet, born at Colshill, in Warwickshire, in March, 1605. His father died during his infancy, leaving him an ample fortune. He was educated at Eton, whence he was removed to King's college, Cambridge. He was chosen member of parliament in his sixteenth or seventeenth year, and evinced himself a poet almost as soon as a politician, his verses On the Prince's Escape at St Andero being written in his eighteenth year. What is more remarkable, they exhibit a style and versification as perfectly formed as those of his more mature productions. He continued to employ his muse on courtly topics, and augmented his fortune by a marriage with a rich city heiress. Being left a widower at the age of twenty-five, he became the suitor of lady Dorothea Sidney, eldest daughter of the earl of Leicester, whom he has immortalized under the poetical name of *Sacharissa*. He describes her as a haughty and scornful beauty; and, his addresses being unsuccessful, he acted as poetical, and other lovers, under such circumstances, frequently act, and married somebody else. In the parliament of 1640, he was again chosen to represent Agmondesham, and took a decided part with those who thought that a redress of grievances ought to precede a vote of supply. He also sat for the same borough in the long parliament, and joined Hampden, who was his uncle, in his opposition to ship-money. He continued to vote with the opposition, but did not fall in with all their measures, and absented himself from the house of commons on the commencement of open hostilities. He is also thought to have sent the king some pecuniary aid at Nottingham. He was one of the commissioners employed to treat with Charles at Oxford, who treated him with great kindness. His mind being then entirely disposed towards the royal party, he entered into a plot with his brother-in-law, named Tomkyns, clerk of the council to the queen, who possessed considerable influence, to produce a rising in the city. When arrested, there was little to convict them of the design; but Waller, according to lord Clarendon, to save himself, betrayed every body and every thing. The conclusion of this business, in which he displayed great baseness, was the execution of Tomkyns and Challoner, with his own expulsion from the house; after which he was tried and condemned; but on paying a fine of £10,000, he was allowed to leave the kingdom. He retired first to Rouen, and subsequently to Paris, where he lived on his wife's jewels, until, after a lapse of ten years, perceiving himself getting to the end of his resources, he applied for permission to return to England, which, by the interest of colonel Scroope, who had married his sister, was granted him. He was also restored to his estate, although now reduced to half its value; and he fixed his abode at a house he had built near Beaconsfield. He next paid his court to Cromwell, to whom his mother was related; and the very noblest tribute of his muse was offered to the protector. On the restoration, he was equally complaisant to Charles II., but not so successful; which being remarked to him by the king, he replied, "Poets succeed much better in fiction than in truth." In a reign of oblivion for past offences, and no regard for character, his wit and poetry soon made him a favourite at court and in the highest circles; and he had also interest to obtain a seat in all the parliaments of the reign. In 1665, he was emboldened to request the provostship of Eton college, which was given him; but Clarendon refused to set the seal to the grant, which produced a rupture of the friendship that had long subsisted between them; and he joined Buckingham and the enemies of that minister. On the accession of James II., Waller, then in his eightieth year, was chosen representative for Saltash; and he appears to have taken advantage of his intimacy with that monarch to give him very sound advice. He now turned his thoughts to devotion, and composed Divine Poems. He died at Beaconsfield, in 1687, in the eighty-third year of his age. His intellectual powers were of a superior order; he was at once a prompt, elegant and graceful speaker, while the wit and pleasantness of his conversation made him a favourite, even with those whom his abject pliancy must have disgusted. English versification is much indebted to him; and for ease, gallantry, gayety, brilliancy and wit, his amatory poetry has not been surpassed. The dignity which he assumes in some heroic themes he not unfrequently attains; and his thoughts are often worthy of the sonorous versification in which they are clothed. He was not, however, sufficiently natural for pathos, or elevated for sublimity; but he trifles with ingenuity, and is serious with an air of grandeur; nor will he ever be entirely neglected by the student of English poetry. He left several children by his second wife, one of whom, a daughter, was married to doctor Birch; and Edward, who succeeded to the estate, ultimately became a Quaker. His descendants long resided at Beaconsfield, in great affluence.

WALLINGFORD; a borough and market town of England, Berkshire, on the Thames. It has sent two members to parliament from the twenty-third year of Edward I., but, by the reform act of 1832, was deprived of one of its members. The number of voters was previously about 210, the right of election having been in the corporation, and inhabitants paying scot and lot. Population in 1841, 2780.

WALLIS, JOHN, a celebrated mathematician, born in 1616, at Ashford, in Kent, where his father

was minister, was educated for the church at Emanuel college, Cambridge, and, having regularly taken his degrees, entered into holy orders, and, in 1641, became chaplain to a Yorkshire baronet. In 1643, he obtained a living in London, and, the following year, was one of the secretaries to the assembly of divines at Westminster. He was one of the first members of the scientific association which gave birth to the royal society, and, in 1649, was appointed, by the parliamentary visitors, Savilian professor of geometry at Oxford. In 1653, he published a grammar of the English tongue, written in Latin, for the use of foreigners. He was admitted to the degree of doctor of divinity in 1654, and, on the death of Langbaine, was chosen *custos archivorum* to the university. He was particularly skilful in the art of cryptography, or deciphering; and having by this means been enabled to render considerable service to the royal cause, he was, on the restoration of Charles II., very favourably received at court, and made one of the royal chaplains. In 1661, he was one of the divines appointed to review the book of Common Prayer; and, as he complied with the terms of the act of uniformity, he continued a steady conformist to the established church till his death. When the royal society was founded, in 1663, the name of doctor Wallis was included in the list of the earliest members; and he added much to the reputation of that body by his valuable contributions to the Philosophical Transactions. After a long life devoted to science and to the duties of his clerical profession, he died at Oxford, in 1703. Among his mathematical works, the most important are *Arithmetica Infinitorum*; *Mathesis Universalis, sive Opus Arithmeticum*; *Mechanica, sive de Motu Tractatus geometricus*; *De Sectionibus Conicis Tractatus*; and his Algebra. He also published some of the writings of Archimedes, Ptolemy, Aristarchus, and Porphyry. His works, including various treatises on theology, were published at Oxford, 1692—99 (3 vols., folio); and a volume of his sermons, printed from the original manuscripts, appeared in 1791.

WALLIS; the German name of the Valais. See *Valais*.

WALLOONS; the inhabitants of the district situated between the Scheldt and the Lys, to which belongs a part of the former French Flanders and the present French departments of the North and of the Channel (*pas de Calais*). In a more general sense, *Walloons* are the inhabitants of the former Henault, Namur, Luxemburg, Limburg, and of part of the former bishopric of Liege, who speak Walloon or old French, considered by some as a relic of the ancient Gallic language, mixed, however, with Spanish, German, &c. words. In the old geographical works we find a *Walloon Flanders*, and a *Walloon Brabant*. The name either comes from *Wall* (water or sea), as these tribes in Germany lived on the sea-coast, or from the old German word *Wahle*, which signifies a foreigner, especially an Italian (hence *walnuts*); and *Wälschland*, in German, signifies Italy. (In the same way the Polish word for foreigner is used to signify, particularly, a German.) The Walloon guards, which formerly constituted part of the Spanish household troops, were so called, because, as long as Spain was the mistress of the Netherlands, these guards were recruited from the Walloon part of Flanders. The Walloons, in the thirty years' war, were distinguished for valour, and for their savage spirit.

WALNUT (*juglans*). The walnuts differ from the hickories, in many respects, in the structure of their flowers and fruit; and the last have been formed into a distinct genus under the name of *carya*. (See *Hickory*.) The foliage and general habit of the trees are very similar, but a difference is again perceived in the properties of the wood. The true walnuts are easily recognised by the fruit, the outer rind being destitute of valves, and the external surface of the nut rugose and irregularly furrowed.

The common European walnut, (*J. regia*), was discovered by Michaux the elder, growing wild in the province of Ghilan, which lies on the Caspian sea, between lat. 35° and 40°. It was introduced into Europe at a remote period, and is now common in the central parts of that continent, but flourishes most in Italy, Spain, and the south-western departments of France. It is a lofty and beautiful tree. The fruit, in the wild state, contains a small, hard nut, of inferior quality; but in the cultivated varieties, the nut is much larger, the shell becomes thin enough to be easily crushed by the fingers, and the kernel is very agreeably tasted. These nuts are highly esteemed, and often served up as desserts, and form an article of commerce. The oil expressed from them is in general use as an article of diet, in those districts where the tree abounds, and serves a still more important purpose in the preparation of fine colours: it is preferred on account of the complete and rapid manner in which it dries, and the facility of obtaining it perfectly limpid, by diffusing it upon water in large shallow vases. In copper-plate printing at Paris it is considered indispensably necessary for a fine impression, either in black or colours. By boiling the husks when beginning to decay, and the bark of the roots, a substantial dark-brown colour is obtained, which is used by dyers for woollens, and also by cabinet-makers to stain other species of wood in imitation of walnut. The fruit, in a green state, before the shell hardens, is much used for pickling, and also as an adulteration of soy sauce. The leaves, strewed on the ground, annoy worms. Before mahogany was imported so abundantly into Europe, the wood was employed, almost exclusively, in cabinet-making, and is still in general use in the interior; and the furniture is far from being inelegant. It is preferred for the stocks of muskets as it is lighter, in proportion to its strength and elasticity, than any other wood. Great quantities of wooden shoes are also made of it. Seven or eight varieties are cultivated. When propagated for timber, the nut is sown; but when fruit is the object, inarching from the branches of fruit-bearing trees is preferable. Budding has also been tried with success, and the buds succeed best when taken from the base of the annual shoots: ordinary lateral buds from the upper parts of such shoots generally fail. Trees that have not been grafted or budded may be induced to produce blossoms by ringing the bark. It is especially necessary to protect amputated limbs from the weather, by nicely adapting a covering of clay to the exposed surface, so as entirely to exclude the rain.

The black walnut (*J. nigra*) is found in most parts of the United States of America, the extreme north and east excepted, and the low districts of the Southern States, where its absence seems to be owing to the nature of the soil, which is either too sandy or too wet. It requires a deep and loamy soil, and in favourable situations the trunk often attains the diameter of six or seven feet. It is not

of the largest of American trees, and yields to none in the majesty of its appearance. The nuts are often served upon table. The shell is very hard, and the kernel is divided by firm woody partitions, but has a sweet and agreeable flavour, though inferior to the European. The wood is very strong and very tenacious, when thoroughly seasoned is not liable to warp and split, and remains sound a long time, even when exposed to the influence of heat and moisture: the grain is sufficiently fine to admit a fine polish, and it is, besides, secure from the attacks of worms. It is chiefly employed in cabinet-making wherever it abounds. By selecting pieces immediately below the first ramifications, the furniture is sometimes rendered extremely beautiful, from the accidental curlings of the grain; but, as the colour soon changes to a dusky hue, wild cherry is frequently preferred. It is employed for the stocks of muskets, and is said to make excellent naves for wheels. At Philadelphia, coffins are exclusively made of it.

The butternut (*J. cinerea*) is a much smaller tree than the preceding, rarely exceeding fifty feet in height, with a trunk ten or twelve inches in diameter. The fruit is elongated, covered externally with a viscid, adhesive substance; and the nut is hard, very rough externally, and deeply and irregularly furrowed. The nuts are sometimes brought to market. The wood is light, of a reddish hue, and possesses little strength, but lasts long, and is secure from worms. It is sometimes used in the construction of houses in the country, but never in cities. From its resistance to heat and moisture, it is esteemed for posts and rails, for troughs for the use of cattle, and is preferred to the red maple for corn-shovels and wooden dishes, as it is lighter and less liable to split. The bark affords one of the best cathartics known, operating always with certainty, and without pain or irritation even in the most delicate constitutions: it is not, however, in general use except in the country. A dark-brown dye is also obtained from the bark, which is employed in the country for woollens; but that afforded by the black walnut is preferred. By piercing the trunk early in the spring, sugar may be obtained, but of inferior quality to maple sugar.

WALPOLE, ROBERT, earl of Orford, third son of Robert Walpole, esquire, was born at Houghton, his father's seat, in Norfolk, in 1676, and, in 1696, was admitted a scholar of King's college, Cambridge. In 1698, in consequence of the death of his elder surviving brother, he became heir to the family estate, on which he resigned his scholarship. He was then taken from college by his father, and, in the jovial life of a country gentleman, soon lost his inclination for literature. In 1700, he married the daughter of Sir John Shorter, lord mayor of London, and, soon after, succeeded to his paternal estate by the death of his father. He was also returned representative for Castle Rising, and became an active member of the whig party. In 1702, he obtained his election for King's Lynn, which he also represented in several succeeding parliaments. In 1705, he was nominated one of the council to prince George of Denmark, as lord high admiral of England; in 1708 was appointed secretary at war, and, the following year, treasurer of the navy. In 1710, he was one of the parliamentary managers in the trial of Sacheverel; but, on the dissolution of the whig ministry, he was dismissed from all his employments, and, soon after, was voted, by the house of commons, guilty of a high breach of trust, and notorious corruption in his office of secretary at war; for which imputed offence he was expelled the house, and committed to the Tower of London. This severity, being a party proceeding, little affected his character; so that, in 1714, the borough of Lynn re-elected him; and he became a formidable opponent of the tory administration. On the accession of George I., a new whig ministry was formed; and Walpole, who had previously ingratiated himself with the family of Hanover, was appointed paymaster of the forces, treasurer of Chelsea hospital, and a privy counsellor. Being nominated chairman of the secret committee formed to inquire into charges against the late ministers, he drew up and moved the impeachment of lord Bolingbroke, the earl of Oxford, the duke of Ormond, and the earl of Strafford. In the subsequent year, 1715, he displayed so much energy and vigour in support of government during the rebellion, that he was raised to the important posts of first lord of the treasury and chancellor of the exchequer. In the course of the two following years, a disunion took place in the cabinet on the question of supplies, to enable George I. to vindicate his purchase of the duchies of Bremen and Verden against Charles XII. of Sweden; and Mr Walpole resigned. On the day of his resignation, he brought in the sinking fund bill, which he subsequently rendered nugatory by misapplication. In the next session, he became a strenuous opposer of measures which, had he been in place, he would as certainly have supported, and mainly contributed to the rejection, by the commons, of the peerage bill of 1719. He was the opposer, in 1720, of the South sea scheme for liquidating the national debt, on which subject he wrote a pamphlet. At length the earl of Sunderland, finding his ministry involved in great difficulties, made overtures to Walpole, who resumed his former post of paymaster of the forces. His reputation as a financier induced all eyes to be directed towards him on the occurrence of the unprecedented disasters arising from the bursting of the South sea bubble; and lord Sunderland being obliged to retire, on account of his being implicated in the affairs of that company, Walpole resumed his post of first lord of the treasury, and premier. He was indisputably a most serviceable minister to the house of Brunswick, and mainly contributed to the discomfiture of the plots and intrigues of the Jacobite party in favour of the Pretender. His general policy was principally characterized by the desire of preserving peace abroad, and avoiding subjects of contention at home. He was an able financier, and certainly exerted himself, with considerable success, to improve the trade and revenues of the country, although the introduction of the excise scheme forms a very dubious claim to applause. A pursuit of useful rather than of splendid objects, joined to a sincere zeal for the Protestant succession, formed the leading principles of his government; and the means which he employed were prudence, vigilance, and a degree of corruption not greater than what was practised by many of his predecessors, but more general and systematic. Walpole is the reputed author of the saying, that "All men have their price;" but his biographer, archdeacon Coxe, asserts that the words were "all *those* men," speaking of a particular body of his opponents. He was an artful rather than an eloquent speaker, and discerned, as if by intuition, the prevalent humour of the house, and pressed or receded accordingly. He was particularly clear in financial

debates, and a most excellent and diligent man of business. In private life, he was distinguished by frankness of manners and a species of jovial good-nature; but his mirth was coarse, and his moral conduct assumed much of the easy license of rank and fashion. Letters he neither loved nor patronised, except the productions of subaltern writers in his praise or defence, whom he rewarded liberally. On the whole, without being an exalted character, he was an able minister. His ministry was finally shaken by the unpopularity of his exertions to maintain peace with Spain, in 1739, from which time the opposition to him gained ground, until, in 1742, he resigned, and was created earl of Orford. A parliamentary inquiry into his conduct was subsequently instituted; but, after repeated fruitless attacks, all proceedings against him were dropped. His health soon after began to decline, owing to repeated attacks of the stone, which at length carried him off, March 18, 1745, in the sixty-ninth year of his age.—See Coxe's *Memoirs of Sir Robert Walpole* (3 vols., 4to., 1790).—His brother *Horatio* (lord Walpole) was born in 1678. He filled several offices under government, and was an able diplomatist. He was raised to the peerage in 1756, and died the following year. He wrote several political tracts, and an answer to Bolingbroke's Letters on History. See Coxe's *Memoirs of Horatio Lord Walpole*.

WALPOLE, Horace, earl of Orford, third and youngest son of Sir Robert Walpole, was born in 1718. He received his early education at Eton, whence he removed to King's college, Cambridge. He quitted the university without a degree, and, by the interest of his father, was nominated to three valuable sinecures, which he held to the time of his death. In 1739, he set out on a tour to the continent, accompanied by the poet Gray, with whom he had a difference, and they parted, Walpole subsequently taking all the blame upon himself. He entered parliament in 1741, as member for Callington, and spoke spiritedly in opposition to a motion against his father, but was, in general, a very silent and inactive member. It was soon apparent that he was not destined for the paths of public life. With much vivacity and love of occupation, his chief delight was in the indulgence of literary curiosity, and a taste for antiquity and the fine arts. In 1747, he represented the borough of Castle Rising, and, in 1754 and 1761, that of King's Lynn, and always adhered to the whig principles in which he was educated; and his parliamentary conduct was uniformly correct and independent. In 1748, he purchased his small but celebrated villa at Twickenham, called *Strawberry hill*, which it formed no small part of the business of his future life to render a miniature specimen of Gothic architecture, and a splendid collection of pieces of art, and relics of antiquity, many of them curious and valuable, and others of rather a trifling description. He first made himself known as a writer by some papers in the World, and a few poems in Dodsley's Collections. His first separate publication appeared in 1752, entitled *Ædes Walpoliana*, being a description of his father's seat at Houghton. In 1757, he set up a printing-press at Strawberry hill, at which he printed Gray's Odes, and various other works. From his own press also appeared, in 1758, the first edition of his Catalogue of Royal and Noble Authors. This was followed by a collection of Fugitive Pieces, and, in 1761, by his Anecdotes of Painting in England (2 vols., 4to.), compiled from the papers of the artist George Vertue. Two more volumes were afterwards added, and the whole forms a valuable collection. In 1764, his friendship for general Conway drew from him a pamphlet on the dismissal of that officer from the army, on account of the vote which he gave on general warrants. In 1765, appeared his romance-fiction of the Castle of Otranto, the prolific parent of the Radcliffe romance, and a vast variety of similar fictions. Being at Paris in 1765, he composed a French letter to Rousseau, in the name of the king of Prussia, by way of exposing the vanity and self-consequence of that singular character, who acted on the occasion with his usual extravagance. Walpole was, however, scarcely excusable for this attack upon the morbid sensibility of a man who had given him no provocation; but his correspondence with Hume supplies a very extraordinary specimen of his aristocratical contempt for authors by profession. In 1767, he declined being now chosen to sit in parliament; soon after which appeared his Historic Doubts on the Life and Reign of King Richard III. It is an acute and ingenious performance, but failed in convincing the public, and the brief, but conclusive investigation of Mr. Gibbon, in his miscellaneous works, has probably disposed of the question for ever. Mr Walpole forgot his dignity so much in regard to this performance, as to expunge his name from the list of members of the antiquarian society, because two papers were read before them controverting part of his evidence. In 1768, he printed his Mysterious Mother—a very powerfully written tragedy, on a disagreeable subject, and one which altogether excludes it from the stage. About this time occurred the transaction with the unhappy Chatterton, which subjected him to so much censure; but his conduct on this occasion, appears to have been merely the general apathy towards literary men. He visited Paris in 1771 and 1775, and became much distinguished in the circle of the celebrated madame du Deffand, who particularly admired him. The principal incident of his advanced years was his succession to the earldom of Orford, by the death of his nephew—an elevation which gave him more trouble than satisfaction, and which made no alteration in his mode of living or literary pursuits. His death, which was hastened by a hereditary gout, that had reduced him to a cripple, took place in March, 1797, in his seventy-ninth year. He bequeathed to Robert Berry, esquire, and his two daughters, all his printed and manuscript works, of which a collective edition was published in 1798 (5 vols., 4to.). The most valuable addition to what had formerly appeared consisted in his letters to a great variety of correspondents, written with great ease and vivacity, occasionally exhibiting affectation and effort. He is certainly, however, one of the most lively and witty of letter-writers, but too frequently devotes his letters a grace and a favour accorded to literary correspondents, which superseded the necessity of any thing more substantial. His Memoirs of the last ten Years of the Reign of George II. (2 vols., 4to., 1822) are of the highest value for the domestic history of that period. In 1825, appeared his Letters to the Earl of Hereford, forming the ninth volume of a quarto edition of his works. See also, the *Walpoliana* (2 vols., 18mo), and the *Reminiscences of Horace Walpole* (1826). His rule of life was formed upon a selfish principle of self-enjoyment. As an author, he ranks respectably among general writers.

WALPURGA, WALBURGA, or WALPURGIS; a saint, born in England, sister of St Willibald, first bishop of Eichstädt, in Germany, and niece of St Boniface, the apostle of the Germans. She went, like her uncle and brother, to Germany as a missionary, and became, about the middle of the eighth century, abbess of a convent at Heidenheim, in Franconia. She must have been a learned woman, as she was considered the author of a Latin description of the Travels of St Willibald. After her death (776 or 778), she received the honours of a saint, was believed to work many miracles, and chapels in honour of her were built in many places. From the circumstance that in German almanacs the name *Walpurgis* has been accidentally placed, sometimes alone, sometimes together with the names of the apostles Philip and James, against the first of May, the night previous to the first day of May, so famous, in German legends, for the assembling of the witches, has been called *Walpurgis night*. The first of May is an important day for the German cultivator: many contracts are made at this time; the labours of the field assume new activity, &c. It is not strange that, on so important a day, the devil and the witches were supposed to be more active than usual, and to assemble in a particular place to organise the work of evil. This superstition, however, may have had its origin in the ancient German mythology. Hence straw was burned in many places, on the Walpurgis-night, with a view of dispersing the malignant beings—a custom still preserved in some places. The chief convocation of the witches was considered to take place on the Brocken. Many customs connected with the first of May, in Germany, originated in this superstition.

WALRUS (*trichecus rosmarus*); a marine quadruped, resembling the seals in the structure of the feet, but differing in the teeth and digestive system. It is large and unwieldy, sometimes attaining the weight of 2000 pounds, and inhabits unfrequented coasts in the arctic seas. The head is oval, short, small, and flat in front: the flat portion of the face is set with very strong bristles, which are pellucid, about a span in length, and twisted; the orifices of the ears are very small, but the sense of smelling appears to be exceedingly acute; the incisors are four in the upper jaw, but the two middle ones are shed as the animal advances in age; the upper canines are large, elephant-like tusks, directed downwards; the feet are very short, and the toes are connected by a membrane, and armed with strong nails; the tail is short. Formerly, vast herds of these animals frequented the shores of the islands between Northern Asia and America, Davis' straits and Hudson's bay, in lat. 62°, and even as far south as the Magdalen islands, in the gulf of St Lawrence, between lat. 47° and 48°; but, at present, the walrus is no where numerous, except on the icy shores of Spitsbergen and the remotest northern coasts of America. Voyages were once made to procure its tusks and oil, and it is said that 1200 or 1500 individuals have been sometimes killed at once out of a herd. The walrus is slow and clumsy while on land, but quick and active in the water. It often comes on shore, and the female brings forth her young there in the spring. It is fearless and inoffensive, unless disturbed, and strongly attached to its mate and young, but becomes fierce and formidable when attacked, especially if the young are present, furiously endeavouring to sink the boats by rising and hooking its tusks over their sides; and frequently the violence of its blows is sufficient to stave the planks of small boats. Its principal food, it is said, consists of shell-fish. The tusks grow to the length of ten or twenty inches, or sometimes even three feet, weighing from five to ten pounds. They are worked like ivory, but turn yellow in a shorter time. The skin is about an inch in thickness, and is used for a variety of purposes.

WALSALL; a market town and parish of England, in the county of Stafford, 116 miles from London; population, 20,852. By the reform act of 1832, Walsall was constituted a borough, returning one member to parliament. The chief trade of the place is the making of saddlery.

WALLSEND, so called, as being the spot where the celebrated wall of Severus terminated on the northern bank of the Tyne, a few miles below Newcastle, has in modern times been chiefly known as the site of a colliery yielding the most valuable description of coal. So important, indeed, is the appellation in the market, that although the high main seam which afforded the original coal has long been worked out, the designation has not only continued to be applied to some one or other sort, as the best, but to several sorts which the dealers wish to recommend.

WALSINGHAM, Thomas of, an English chronicler of the fifteenth century, was a Benedictine monk of the abbey of St Alban's, where he held the office of precentor; and he also styles himself royal historiographer. His works are, *Historia Brevis*, containing the annals of England, from the end of Henry III's. reign, forming a continuation to the history of Matthew Paris; and *Hypodigma Neustriæ*, giving an account of the occurrences in Normandy, from the time of Rollo to the sixth year of Henry V. These pieces were published by Archbishop Parker, (London, 1574, folio.)

WALSINGHAM, Sir Francis, an English statesman, in the reign of Queen Elizabeth, descended of an ancient family, was a native of Chiselhurst in Kent. He was educated at King's college, Cambridge, and, at an early age, travelled on the Continent, and acquired a knowledge of the languages, manners, and policy of foreign nations. His first employment was that of ambassador to the court of France, whence he returned in 1573, and, being appointed one of the principal secretaries of state, and a member of the privy council, received the honour of knighthood. In the important situation which he filled he rendered great services to his sovereign, and contributed, by his policy, to the stability of her government. The means which he adopted, however, for the attainment of his purposes, were not of the most honourable description. Lloyd, in his State Worthies, says, "Sir F. Walsingham outdid the Jesuits in their own bow, and over-reached them in their equivocation and mental reservation; never settling a lie, but warily drawing out and discovering the truth. Few letters escaped his hands, whose contents he could read and not touch the seals. He had the wonderful art of weaving plots, in which busy people were so entangled that they could never escape, but were sometimes spared upon submission; at others, hanged for example. He would cherish a plot for years together, admitting the conspirators to his own and the queen's presence familiarly, but dogging them out watchfully." Such was the policy of this statesman, who is stated to have maintained

fifty-three agents, and eighteen spies in foreign courts. In 1581, he went on a second embassy to France, to treat of a marriage between Elizabeth and the duke of Anjou; and, in 1583, he was sent to the court of James VI. of Scotland, whence he is said to have brought back a higher opinion of the abilities of the future sovereign of Britain than the event justified. He acted a very important, but by no means honourable part, in the detection of Babington's plot against the life of the queen, in 1586, and in the subsequent proceedings against Mary, queen of Scots. His death took place in April, 1590, in the ninetieth year of his age; and his remains were interred privately, by night, in St Paul's church, apprehensions being entertained that his corpse might be arrested on account of his debts. An account of his negociations and his despatches from France appeared under the title of the Complete Ambassador (1655, folio;) and a work called *Arcana Aulica* has been ascribed to him, but its authenticity is questionable.

WALTHER OF THE VOGELWEIDE, one of the most eminent old German lyric poets of the class of *Minnesingers*, was descended from a noble, but not wealthy family, whose castle, Vogelweide, is supposed to have been situated in Upper Thurgau. Walther resided at the court of Frederic, the eldest son of Leopold VI., duke of Austria and Stiria. Frederic took the cross in 1195, departed for Palestine in 1197, and died the ensuing year on the crusade. Walther seems to have left the court of Vienna immediately after the loss of his royal patron. After the murder of Philip of Suabia, in 1208, he set out on his wanderings. At the court of Philip Augustus, king of France, he seems to have met with a kind reception; but he remained longest at the splendid court of the landgrave of Thuringia, who had always around him a circle of poets, and instituted that celebrated poetic contest, the war on the Wartburg (1207,) in which Walther took part. Walther shows himself, in his political poems, a warm defender of the imperial power and honour, against the encroachments of the clergy and their head in Rome. Some time after the arrival of Frederic II. in Germany, we find Walther again at the court of Vienna, where he was kindly treated by Leopold VII. After Leopold's death, in 1230, Walther seems to have left the court of Vienna, of the decline of which he complains; and of the further events of his life, we only know that he was engaged in a crusade, probably the one undertaken by the emperor Frederic II., to Palestine, in 1227. The year in which Walther died is as uncertain as that of his birth; he must have lived, however, till after 1230. The latter years of his life were devoted to a pious contemplation of the world, of death, and eternity. His poems, all of them lyric, may be found in the manuscript collections of the *Minnesingers*. Lachmann has published them according to the original text, (Berlin, 1827.) Akland has given an account of the life and character of this poet under the title *Walther von der Vogelweide*, &c. (Stuttgart, 1822.)

WALTON, Brian; a learned divine and critic, born about 1600, and educated at Cambridge, where he took the degree of master of arts, in 1623. Removing to London, he obtained a rectory in 1626, and, ten years after, was instituted to the rectory of St Giles's in the fields. In 1639, he commenced doctor of divinity. In the civil wars, he favoured the royal cause, and was consequently obliged to take shelter at Oxford. There he formed the scheme of a Polyglot Bible, to which he owes his literary reputation. This work was completed and published in six volumes, folio, in 1657, under the following title. *Biblia Sacra Polyglotta complectentia (textus originales) Hebraicum, cum Pentateucho Samaritano, Chaldaicum, Graecum (versionumque antiquarum,) Samaritanae, Graece LXX. interpp., Chaldaicae, Syriacae, Arabicae, Aethopicae, Persicae, Vulg. Lat. quicquid conferri potuit cum Textuum et Versionum Orientalium Translationibus Latinis.* Doctor Walton had several assistants in his laborious undertaking, of whom the principal was doctor Edmund Castell. On the restoration of Charles II., to whom he presented his Bible, with a new dedication, (the original one to Oliver Cromwell having been cancelled,) he was made one of the royal chaplains; and, in 1660, he was raised to the bishopric of Chester. His death took place in London, 1661.

WALTON, Isaak, an ingenious and amusing writer, was born at Stafford, in August, 1593. He settled in London as a semster, or milliner and linen-draper, and kept a shop in Fleet street. About 1632, he married the sister of Bishop Ken, and, in the beginning of the civil wars, he removed from the metropolis. His death took place at Winchester, in 1683. He was the editor of several publications, and gained considerable celebrity by a treatise entitled the Complete Angler, or the Contemplative Man's Recreation, which has passed through numerous editions; and his Biographical Memoirs of Bishop Sanderson, Hooker, Sir H. Wotton, George Herbert, and doctor Donne, which have attained an equal share of popularity. These possessed of much general information, Walton has no pretensions to learning; and the charm of his writings depends on the air of verisimilitude and unaffected benevolence which they exhibit. Some short pieces of poetry are interspersed in his works which evince much taste and feeling.

WALTZ, (German *Walzer*, literally rolling,) a national German dance, common, however, among other nations of the continent, as Spain, &c., and of late introduced into England and the United States. A waltz ought to be danced with much grace and precision; and the first note of each bar (the music being always written in $\frac{3}{4}$ or $\frac{3}{8}$ time) should be distinct, and longer than the two others. It is a mistake to suppose that the waltz music is always gay. The waltz of the north of Europe, many was grave and slow, whilst that of the south, particularly Vienna, is gay, and may degenerate into a bacchanalian swiftness, the quick, gay waltz being the most common at present. Several waltzes, however, are now often united, to prevent monotony. One of the most important rules for waltzing well, but often neglected by foreigners, is, that both the dancers should stand parallel, and directly opposite each other.

WAMPUM, (from *wempi* or *wompi*, signifying in the Massachussetts Indian language, white,) the colour of the shells most frequent in wampum beads, shells, or strings of shells, used by the American Indians, as money. These, when united, form a broad belt, which is worn as an ornament or token. It is sometimes called *wampumpeague*, or *wampum* or *wampumpeague*, of which wampum seems a contraction.

WANDERING; a technical term with the mechanics, to denote their custom of travelling

foreign countries after finishing their apprenticeship. Formerly, they were bound by law, in all German states, to travel in this way, otherwise they could not make their masterpieces; that is, those specimens of their skill, by which they proved to the corporation that they were fit to become masters, and which they are still bound to exhibit in several parts of Germany where corporations exist. Whether this habit of wandering arose from the universal disposition of the Germans for travelling into foreign countries, which scatters German mechanics all over the world, or from the unsettled habits of many classes in the middle ages, as the knights, the *vacantivi* (see *School*), or the frequent campaigns of the Germans in Italy, where the servants of the noblemen learned many arts not known in Germany, we cannot here discuss. In summer, mechanics may always be seen on the roads in Germany, carrying knapsacks and sometimes a few tools. They receive dinner and lodging, or money, from the corporation in each place, or from the master-workmen, if there are only a few in a place. Many peculiarities and absurdities are connected with this receiving of presents. Instead of a passport, they carry "wandering-books," so called, which must be kept in good order, and shown to the police of the places through which they pass.

WANKER, FERDINAND GEMINIAN, doctor of theology, professor of moral philosophy in the university of Freiburg, was born in 1758, in Freiburg, in the Brisgau, was made professor of morals in 1788, and elected archbishop, but died in 1824, before the papal confirmation arrived from Rome. His works would prove instructive to many Catholics who believe that they abandon their faith if they give up certain things which are inconsistent with the present state of intelligence, or with the testimony of history. Among his works are the following:—On Reason and Revelation, with a View to the Moral Wants of Mankind, (Vienna, 1802, 2d ed., Freiburg); On the Matrimonial Tie, considered with Respect to Natural Law and Pure Morality, (1810); and System of Christian Morals.

WAPATOO ISLAND; an island of North America, formed by the junction of the Multnomah with the Columbia, twenty miles long and ten broad. Its numerous ponds abound with the common arrow-head, (*sagittaria sagittifolia*), to the root of which is attached a bulb, growing in the mud. This bulb, to which the Indians give the name of *wapatoo*, is the great article of food, and almost the staple article of commerce on the Columbia. It is never out of season, so that, at all times of the year, the valley is frequented by the neighbouring Indians, who come to gather it. It is collected chiefly by the women, who take a light canoe in a pond where the water is as high as the breast, and, by means of their toes, separate the root from the bulb, which on being freed from the mud, rises immediately to the surface of the water, and is thrown into the canoe. This plant is found through the whole extent of the Columbia valley, but does not grow farther eastward.

WAPPING; a commercial district of London in Middlesex, on the north bank of the Thames, one of the out-parishes of London, on the east side of the city, inhabited chiefly by persons employed in trade connected with the shipping of the port of London; pop. in 1841, of St John's parish, Wapping, 4108. Here are the London docks, St Catharine's docks, &c., and the stupendous warehouses belonging to the custom-house, &c. See *London*.

WAR, in general; a state of hostility and violence between individuals, or, in a more common sense, between sovereign nations, who, having no superior power to which to appeal for the decision of their disputes, have recourse to force and arms. In contradistinction to international or public war, *civil war* designates a similar state of violence existing between different portions or members of the same nation. International wars were generally distinguished into offensive wars, or wars of attack, and defensive wars, or wars of defence. The party which carries on what is called an offensive war is not, however, by any means, always the original author of the hostile measures, since the seeming assailant is often forced into his position by the violation of his rights, or the menacing posture of the other party. It is well known that both belligerents aim to acquire the credit of acting on the defensive, partly to conciliate public opinion, which, though often mistakenly, commonly pronounces a defensive war justifiable, and condemns an offensive war; and sometimes, also, to secure the assistance of foreign powers, which has been guarantied, by treaty, to one or both parties, who may become the object of offensive measures. The right of declaring war, in monarchical governments, is commonly in the king, as the actual sovereign power, or the head of the executive, as in constitutional monarchies. In England and France, the king has the right to declare war and make peace; but this power is virtually controlled by the legislative power to grant or withhold supplies. In the United States, the constitution provides that the congress shall have power to declare war, grant letters of marque and reprisal, raise and support armies, and provide and maintain a navy. It is not, in modern times, a common practice to make a formal declaration of war, or official previous notice to the enemy; but a domestic manifesto of the sovereign to his subjects, or to the nation, is considered as sufficient to apprize neutrals that a war actually exists. Thus, in the war between England and France, in 1778, the recalling of the British minister from Paris was considered the first public act of hostility; and there was no other declaration of war. So, in the war of 1812, between Great Britain and the United States, hostilities were commenced, on the part of America, as soon as the necessary act of congress was passed, without waiting to communicate its intentions to the British government. Individuals have no right to commit acts of hostility, except in self-defence, without a commission from the proper authorities, and are liable to be treated as pirates and robbers if they undertake hostilities on their own responsibility. (See *Privateers*, and *Prize*.)—On the rights and duties of belligerents in general, see the articles *Nations, Law of;* and *Conquest*. See likewise, *Soldiers, Strategy, Military Sciences, Army, Navy, Tirailleurs*, &c.

War, Private, or *Club-Law* (*jus manuarium;* in German, *Faustrecht*, fist-law). Throughout the countries which composed the Carlovingian empire, no feudal right was more universally established and exercised than that of private war, the immediate cause and systematic commencement of which are sufficiently to be found in the anarchy of the ninth and tenth centuries. During the abeyance of all regal or national authority, the great feudatories were, in fact, in the condition of foreign powers to each other: they were without any common superior jurisdiction, to which, had they been inclined, they could appeal for the redress of in-

juries; and the power of the sword alone remained to decide their quarrels. (See *Middle Ages*, and *Feudal System*.) Their example was followed by their subvassals, and the countries of Europe were perpetually ravaged with internal hostilities. In England alone, of all feudal countries, this scourge was little felt; and, though it cannot be said that the practice of private wars was unknown under the Norman kings, yet the right of waging these feuds was never recognised: their occurrence was denounced, and sometimes punished, as an offence against the king's peace, that is, against the supreme authority of the crown. (See Hallam's *Middle Ages*, vol. ii, chap. 8.) By the feudal customs of the continent, the right of private war was extended to all persons of noble quality, or, in other words, to all possessors of fiefs or knightly tenure. But they must be equal, in the scale of infeudation, with their adversaries; nor did every civil cause of offence justify an appeal to arms, but such deadly injuries only as are usually deemed capital crimes in modern jurisprudence, or such outrageous insults as no knight might endure. When the war was once begun, it might legally be espoused by the relations of both parties; and it was even incumbent on them, in some cases, to give aid in the quarrel, under pain of forfeiting the claims and inheritance of kindred. Still more were the vassals of each combatant involved in the contest, since, by the very essence of the feudal obligations, they were bound to defend and assist their lords. The means by which this pernicious custom was finally abrogated, were various. The most remarkable was the truce of God, by which men were forbidden to assail their adversaries during any of the holy festivals, and also during the interval between every Wednesday evening and Monday morning, as embracing those days of the week which had been sanctified by the passion and resurrection of the Redeemer. At first, the truce of God, extending from France, was adopted throughout Europe; but, notwithstanding the anxiety of the church, and repeated decrees of popes and councils, its provisions appear to have been little regarded. The interposition of royal authority was necessary to restrain, and finally to extinguish, these bloody feuds; and the first step towards the accomplishment of this object dates from the ordinance of Louis IX., forbidding, under penalty of treason, the commencement of any private war until forty days after the commission of the act in which the quarrel had originated. The opportunities of accommodation between the parties, given by this edict, which was known under the name of the *king's peace*, or *royal truce*, appear to have contributed essentially to diminish the number of private wars in France; and the endeavours of St Louis, being followed up by Philip the Fair, and successfully completed by Charles VI. and Louis XI., led, soon after the middle of the fifteenth century, to the total abolition of the practice in that country. In Germany, truces of this kind (called *landfriede*, peace of the land) were repeatedly declared for a certain period, during which private war was illegal. But the circumstance that Germany always continued to be divided among a great number of petty but independent sovereign princes, retarded the accomplishment of the efforts of the clergy and the emperors to effect the entire abolition of the practice. In 1486, a *landfriede* of ten years, the longest that had ever been established, was proclaimed; and it was soon followed by the perpetual peace (*ewiger landfriede*), entirely forbidding private war. See *Chamber, Imperial*, and *German Empire*.

WAR, NORTHERN. See *Northern War*.

WAR OF 1812—15. See *Russian-German War*.

WAR OF THIRTY YEARS. See *Thirty Years' War*.

WAR, PEASANTS' OR RURAL. See *Peasants' War*.

WARBECK, PERKIN; an individual who played a singular part in the reign of Henry VII., giving himself out as the second son of Edward IV. who was supposed to have been murdered, in the Tower, by Richard III. It is difficult, at this distance of time, to decide upon his pretensions; but his ill success has set him down with posterity as an impostor. He was first heard of at the court of the duchess of Burgundy, sister of Edward IV., about the year 1490, when all were struck with his resemblance to that prince. Some authors have asserted that he was the natural son of Edward. Supported by the duchess of Burgundy in his pretensions, Warbeck at length (1496) ventured to make a descent upon England; but, being unsuccessful in the attempt, he retired to Scotland, where he was well received by the king, who gave him the hand of Catharine Gordon, a young lady akin to the royal family. The Scotch king was, however, soon after prevailed upon to abandon his cause. Warbeck landed in Cornwall, where he was proclaimed king by the name of Richard IV. But while yet at the head of 10,000 men, he suddenly deserted his followers, on the approach of Henry, and took refuge in the sanctuary of Beaulieu. Having finally surrendered himself into the hands of the king, he was obliged to read a confession of his imposture, while standing in the stocks, and was then thrown into the Tower (1499). Here he met with Edward Plantagenet, earl of Warwick, son of the duke of Clarence, and rightful heir to the crown, who had been a prisoner there for many years. The unhappy boy listened with eagerness to the projects, suggested by Warbeck, for their deliverance, and they were both charged with a conspiracy to set themselves free, by seducing some of the guards and destroying the rest. Warbeck seems to have been excited, by the king, to urge Warwick into acts which would give a pretext for effecting his death. Bacon darkly hints that Ferdinand of Spain was unwilling to assent to a marriage between his daughter, the unfortunate Catharine, and Arthur, prince of Wales, while the earl of Warwick lived. However this may be, Warbeck was convicted of treason, and hanged at Tyburn (1499); and Warwick was likewise convicted of high treason, by a jury of peers, and sent to death for an offence which his faculties could not enable him to comprehend. Rey (*Essais historiques et Critiques sur Richard III.*, Paris, 1818) maintains that Warbeck was the son and lawful heir of Edward IV.

WARBURTON, WILLIAM, a celebrated prelate of the English church, born at Newark-upon-Trent, in Nottinghamshire, in 1698, was the second son of an attorney, and, after being educated at home, was, in 1714, articled to an attorney at East Retford, in his native county. After completing his clerkship of five years, he was admitted an attorney in the courts at Westminster, and, returning to Newark, he engaged in legal practice. Not finding the profession adapted to his taste or talents, he relinquished it, and, in 1723, took deacon's orders

church. His first work, consisting of Miscellaneous Translations, in Prose and Verse, from Roman authors, was published with a Latin dedication to Sir George Sutton, who, in 1726, bestowed on him a small vicarage. Shortly after, he visited London, and formed an acquaintance with some of the inferior wits of that period, among whom was Theobald, then engaged on an edition of Shakspeare, to which Warburton became a contributor. In 1727, he began to distinguish himself as an original writer by his inquiry into the Causes of Prodigies and Miracles, which he dedicated to Sir Robert Sutton, through whose interest he was placed in the list of the king's masters of arts, on his majesty's visit to Cambridge, in 1728; and he thus supplied the want of an academical education. His patron also presented him to the rectory of Brand Broughton, in Lincolnshire, where he remained several years, during which he composed most of those works which contributed to the establishment of his fame. In 1736, appeared his Alliance between Church and State, or the Necessity and Equity of an established Religion and Test Law, which passed through four editions during the life of the author, though it is said to have given satisfaction neither to the zealots of the church nor to the advocates for religious liberty. The first volume of his chief work was published, in 1738, under the title of the Divine Legation of Moses demonstrated on the Principles of a Religious Deist, from the Omission of the Doctrine of a Future State of Rewards and Punishments in the Jewish Dispensation. This paradoxical performance met with adversaries among all parties, who concurred in criticising and censuring the theory on which it is founded. Undismayed by animadversion, he published a Vindication of his opinions, and persevered in the prosecution of his work. Having published, in the literary journal called the Works of the Learned, in 1739 and 1740, a defence of the Essay on Man, against the remarks of De Crousaz of Geneva, Pope acknowledged his obligations to his advocate, and an intimacy ensued between them. On his death, in 1744, Pope bequeathed to our author half his library, and the copy-right of such of his works already printed as were not otherwise disposed of. Among the numerous antagonists of Warburton and his Divine Legation, were doctors Middleton, Pococke, R. Grey, Sykes and Stebbing, against whom he published, in 1744 and 1745, two defences, in which he treats all his opponents, except Middleton, with a high degree of asperity and self-confidence. He became, in 1746, preacher to the society of Lincoln's inn; and, in the following year, he appeared as the editor of Shakspeare. He now rapidly advanced in the course of preferment in his profession, becoming prebend of Gloucester in 1753, king's chaplain in ordinary in 1754, then prebend of Durham, D.D. by archiepiscopal mandate, dean of Bristol in 1757, and, two years after, bishop of Gloucester. The fifth volume of the Divine Legation was published in 1765; and some remarks which he introduced on the character of doctor W. Lowth, father of the bishop of London, involved him in a new controversy, in which he was assisted by doctor Richard Hurd. In 1768, he established a lecture at Lincoln's inn, on the evidence in favour of Christianity from the prophecies of the Old and New Testament. The last years of his life were embittered by the decease of an only son, who fell a victim to consumption at the age of nineteen. Bishop Warburton died at Gloucester, June 7, 1779, and was interred in the cathedral church, where a monument was erected to his memory. His works were collected and published by his friend Bishop Hurd, in 1788 (6 vols., 4to.); and a biographical memoir, forming a seventh volume, appeared several years after. Doctor Johnson in his Life of Pope says of Warburton, "He was a man of vigorous faculties, a mind fervid and vehement, supplied, by incessant and unlimited inquiry, with wonderful extent and variety of knowledge, which yet had not oppressed his imagination, nor clouded his perspicuity. To every work he brought a memory full fraught, together with a fancy fertile of original combinations, and at once exerted the powers of the scholar, the reasoner, and the wit. But his knowledge was too multifarious to be always exact, and his pursuits were too eager to be always cautious. His abilities gave him a haughty consequence, which he disdained to correct or mollify; and his impatience of opposition disposed him to treat his adversaries with contemptuous superiority as made his readers commonly his enemies, and excited against the advocate some who favoured the cause. He seems to have adopted the Roman emperor's determination, *Oderint dum metuant*. He used no allurements of gentle language, but wished to compel rather than to persuade. His style is copious without selection, and forcible without neatness; he took the words that presented themselves; his diction is coarse and impure, and his sentences are unmeasured."

WAREHAM; a market town and borough of England, in Dorsetshire, near the mouth of the Frome. By the reform act of 1832, it was deprived of one of its members of parliament. Population in 1841, 2740.

WARENDORF, on the Ems; a Prussian town in the government of Munster, and province of Westphalia, with 4200 inhabitants. Above 16,000 pieces of linen (or 900,000 ells) are woven by the peasants of the environs in winter, when they cannot work in the fields.

WARHAM, William, an English prelate and statesman of the sixteenth century, was a native of Hampshire, and was educated at Winchester school and Oxford, and he obtained a fellowship in 1475. He subsequently practised as an advocate in the court of arches, and, after an embassy to Burgundy was appointed chancellor of Wells, and master of the rolls. Henry VII. at length raised him to the dignity of Lord chancellor; and he successively became bishop of London and archbishop of Canterbury. He was one of the early patrons of Wolsey, whose influence under Henry VIII. gave umbrage to Warham; and in 1515, he resigned the great seal, and at length withdrew his attention altogether from affairs of state. He died in 1532. This prelate was noted as an encourager of learning, and was the friend and patron of the celebrated Erasmus.

WARMBRUNN (also called *Warmbad*); a watering place in Silesia, a league from Hirschberg, 1077 feet above the sea, in a romantic situation. It contains 1900 inhabitants. The warm springs are much resorted to for the cure of gout, rheumatism, obstructions, cutaneous eruptions, &c. The environs are romantic.

WARNEFRIDUS. See *Paul the Deacon*.

WARP, in manufactures, is the threads, whether of silk, woollen, hemp, &c., that are extended lengthwise on a weaver's loom, across which the workman, by means of his shuttle, passes the threads

of the woof to form a cloth, riband, fustian, or other stuff.

WARP; a rope or hawser, employed occasionally to remove a ship from one place to another, in a port, road, or river. Hence to *warp* is to change the situation of a ship, by pulling her from one part of a harbour, &c., to some other, by means of warps which are attached to buoys, to other ships, to anchors sunk in the bottom, or to certain stations upon the shore, as posts, rings, trees, &c.

WARREN, Sir Peter, an English admiral, distinguished for his professional talents and his private virtues, was descended from an ancient family in Ireland, and received an education suitable to the employment for which he was destined. Having entered young into the navy, he gradually rose to the rank of commodore, which he held in 1745, when he was appointed commander of an armament destined for the attack of Louisburg, North America, then belonging to the French. He was joined by the fleet of transports from Boston, containing the New England troops under Sir W. Pepperell, in Canso bay, on the 25th of April; and the combined forces took possession of Louisburg on the 19th of June. The French considered the loss of this place of so much importance, that, in 1747, they fitted out a powerful fleet for the purpose of retaking it; and, at the same time, another squadron was sent to the East Indies. The views of the French government were rendered abortive by the courage and activity of admiral Anson and Sir Peter Warren. The latter, who had been made a rear-admiral, with a large fleet, fell in with the French squadron, completely defeated them, and captured the greater part of their men-of-war. Peace being concluded the succeeding year, he was elected member of parliament for Westminster. He died in 1752.

WARRINGTON; a thriving town of England, in Lancashire, on the Mersey: eighteen miles east of Liverpool. By the reform act of 1832, it was constituted a borough, returning one member to parliament. Population in 1841, 21,116.

WARSAW (Polish *Warszawa*; called by the Germans *Warschau*, and by the French *Varsovie*); capital of the late kingdom, formerly capital of the whole country of Poland, on the west bank of the Vistula, 300 miles east of Berlin; lon. 20° 3′ E.; lat. 52° 14′ N. The population, which in 1830, was 140,000, is now reduced to about 60,000. Warsaw has a pleasant situation, not very elevated yet sufficiently so to be secure against the overflowings of the Vistula. It is an open town, having neither gates nor walls, but is enclosed with lines. It covers a great extent of ground, being between three and four miles long, including its four suburbs, and between two and three broad; but this extent includes large spaces occupied by gardens. The city, formerly but little better than a collection of cottages, received considerable improvements from its Saxon sovereigns of the last century. Still it was an irregular and unpleasant place, exhibiting a singular contrast of ostentation and poverty, having in a few quarters, mansions of such splendour as to be entitled to the name of palaces; in others a succession of miserable hovels. The streets were formerly wholly without pavements, and exceedingly filthy; but several of them have been paved, kept clean, and well lighted. The town is divided into old and new, exclusive of the four suburbs, one of which, Praga, lies on the east bank of the river. The old town, with the exception of a few public edifices, is miserably built; but there is a great proportion of good houses in the new town and the suburbs. The largest edifice is the palace of the kings of the house of Saxony, the residence of the viceroy, who represents the emperor of Russia. The city was in an improving state, and increasing in population, and trade, previously to the insurrection of 1830. It then contained thirty-one churches, six hospitals, a military academy, a gymnasium, a lyceum, and a university, founded in 1816, consisting of five faculties, theology, jurisprudence, political economy, philosophy, and the fine arts, with a library of 150,000 volumes, among which were 15,000 Polish works, 7000 incunabula, and 1200 manuscripts. Its situation, for an inland town, is favourable for trade. The Vistula is navigable to a great extent, upwards as well as downwards. It has manufactures of woollen stuffs, soap, tobacco, gold and silver wire, carriages, harness, and carpets. Since 1817, two great annual fairs have been established. In 1566, the diet of Poland was transferred from Cracow, the old capital of Poland, to Warsaw. (For an account of the insurrection of 1830, and the war which followed, see *Poland* and *Russia*.) Warsaw was captured by Paskiewitch, Sept. 7, 1831, after two days' fighting. The scenes of horror exhibited there need not to be detailed. The Russians have erected a citadel at Warsaw to overawe the country, the cost of erecting which (20,000,000 florins) was extorted from the unfortunate citizens.

WART (*verruca*); a thickening or induration of the cuticle. These little tumors form most commonly on the face and hands, and either drop off spontaneously or may be removed by the application of caustics.

WARTBURG; an ancient mountain castle, about a league from Eisenach, belonging to the grand duke of Saxe-Weimar. It was built between 1069 and 1072, was the residence of the landgraves of Thuringia, and famous for its tournaments, especially in the first half of the thirteenth century. The elector Frederic the Wise, of Saxony, caused Luther, who had been outlawed by the diet of Worms, to be carried thither, where he lived from May 4, 1521, to March 6, 1522, engaged in the translation of the Bible. The room in which he laboured is yet shown. The disorderly conduct of Carlstadt induced him to leave this place. (See *Carlstadt*, and *Luther*.) For the meeting of the German students here, Oct. 18, 1817, see *Eisenach*.

The *War of the Wartburg*, one of the most dramatic poems, or dialogues in verse, in the German language, grew out of a poetical contest which took place about 1207, between six of the most distinguished German poets—Henry the Orator (Heinrich von Rispach), Walther von der Vogelweide, Wolfram von Eschenbach, Bitterolf, Heinrich von Ofterdingen and Reimer von Zweter—all Germans, assembled at the Wartburg, under the protection of the landgrave. This poem exists in manuscripts, in the Manesse collection, and in the Jena manuscript of the *Minnesingers*; from which Zeune printed it in 1808. Opinions differ respecting the writer.

WARTENBURG, Battle of, October 3. Wartenburg is a small place on the left bank of the Elbe. Blücher having resolved to give a new face to the war, by transferring the scene of conflict to the left bank of the Elbe, left his camp at Bautzen, Sept. 26, and made a memorable march to the Elbe. The river was wide and rapid, and the pas-

were thrown over it in the midst of the fire of the enemy. The Prussians were 24,000 strong; the French corps, under Bertrand, who opposed them, 20,000. The French were defeated with much loss.

WARTON, Joseph, son of the Rev. Thomas Warton, professor of poetry at Oxford, was born in 1722, at Dunsfold in Surrey. At the age of fourteen, he entered on the foundation of Winchester school, and, in 1740, at Oriel college, Oxford. He left the university after taking his first degree, and became curate to his father, afterwards exercising the same office at Chelsea. He was created M. A. by diploma in 1757, and, in 1768, was admitted to the degree of D.D. He published, in 1744, a small volume of Odes, and, in 1748, was presented, by the duke of Bolton, to the rectory of Winslade, Bucks. Soon after, he married. In 1751, he accompanied his patron, the duke of Bolton, to France, as his chaplain, for the purpose of uniting him in the bands of wedlock to his mistress, Miss Fenton, a public singer, on the occurrence of the expected death of the duchess. The chaplain, however, returning to England before that event took place, another clergyman solemnised the nuptials. In 1753, Warton published a new translation of the Eclogues and Georgics of Virgil, accompanied by Pitt's version of the Æneid, with dissertations and notes, and became a contributor to doctor Hawkesworth's Adventurer. In 1754, he was presented to the rectory of Tamworth, and, the following year, was chosen second master of Winchester school. His Essay on the Writings and Genius of Pope first appeared anonymously, in 1756; and, twenty-six years after, he added a second volume, part of which had been printed at the same time with the former. In 1766, he was advanced to the station of head-master at Winchester, where he presided with high reputation nearly thirty years, when he resigned the mastership, and retired to the rectory of Wickham, in Hampshire. In 1797, an edition of the works of Pope, with notes, issued from the press under his superintendence (in 9 vols., 8vo.); and he then undertook an edition of Dryden's works, of which he prepared only two volumes at the time of his death, which took place at Wickham, in 1800. Memoirs of his Life and Writings were published (in 2 vols., 4to.) by his pupil, doctor Wooll.

WARTON, Thomas, brother to the preceding, was born at Basingstoke, in 1728, received his education at Winchester school, and Trinity college, Oxford, and, in his twenty-first year, distinguished himself by his Triumph of Isis, a poetical vindication of his *alma mater* against the reflections in Mason's Elegy of Isis. His progress of Discontent, said to have been composed as a college exercise in 1746, added to his fame. In 1750, he took the degree of M. A., and the next year, was chosen a fellow of his college. His Observations on Spenser's Fairy Queen, published in 1754, made him advantageously known as a critic, and prepared the way for his election, in 1757, to the professorship of poetry at Oxford, which he filled for ten years with great ability. He was instituted to the living of Kiddington, in Oxfordshire, in 1771, and, several years afterwards, published an account of his parish, under the title of a Specimen of the History of Oxfordshire (1783, 4to.). The first volume of his History of English Poetry was published in 1774, and the second and third, respectively, in 1778 and 1781. His plan was extensive, including the period from the eleventh to the eighteenth century; but the history goes no lower than the reign of Elizabeth, and a few sheets only of a fourth volume were prepared for the press, when he relinquished his undertaking. What he has executed is, however, very well done, exhibiting an extent of research and reading, and a correctness of taste and critical judgment, which render it a subject of regret, that he should have been diverted from completing his design. A new edition of the History of Poetry, with a preliminary essay, and the notes of Ritson, &c., was published in 1824 (4 vols., 8vo.). In 1785, Warton became Camden professor of history at Oxford, and succeeded Whitehead in the office of poet laureate. His last publication was an edition of the smaller poems of Milton, elucidated with curious notes. In his sixty-second year, he was seized with a paroxysm of the gout; and though a journey to Bath removed the complaint, yet it probably laid the foundation for a paralytic attack, which occasioned his death at Oxford, May 21, 1790. He was interred, with academical honours, in the chapel of Trinity college. Among his various literary labours, not already noticed, were an edition of the Greek Anthology (1766); another of Theocritus (1770, 2 vols., 4to.); the Life and Literary Remains of Doctor Ralph Bathurst (1761, 8vo.); Life of Sir T. Pope (1780, 8vo.) and an Inquiry into the Authenticity of the Poems attributed to Rowley (1782, 8vo.). He published a collection of his poetical productions in 1777 (8vo.); and his Poetical Works, with an Account of his Life, by Richard Mant, appeared in 2 vols., 8vo. (Oxford, 1802).

WARWICK; a town of England in Warwickshire, situated on the north side of the Avon, ninety miles distant from London. Rous, the historian of the county, considers Warwick to have been a place of considerable size and importance even in the time of the Britons. Under the Saxon heptarchy this town was with the county included in the kingdom of Mercia, and came into the possession of Warremund, who called it after his own name *Warre-wyke;* this derivation has, however, been disputed, principally on the information afforded by a coin of Hardicanute, on which it is called *Werhica.* Warwick suffered much from the invasion of the Danes, and it appears most likely that it was immediately after this rebuilt by Ethelfleda in 913, who also built the most ancient part of the castle. Immediately after the Norman conquest, the importance of this place as a military station seems to have been duly appreciated, for we find it surrounded with walls, a portion of which still remains, and is known under the name of the Wall-dyke. In 1312, Warwick castle was repaired by the celebrated Guy, earl of Warwick, who beheaded here Piers Gaveston, the favourite of the king, and the object of especial enmity to the great barons who were in opposition to the crown. Warwick was visited in 1572 by queen Elizabeth on her route to Kenilworth castle; the town was also visited by James I., in 1617, when a splendid entertainment was given him in the great hall of the earl of Leicester's hospital, in commemoration of which an inscription was put upon one of the walls of the building. During the parliamentary war, the castle was defended against the king by Robert Greville, Lord Brooke. Lord Brooke having had occasion to repair to London for supply of arms and ammunition, the castle was besieged for about fourteen days by the earl of Northampton, but the garrison made a gallant defence till Lord Brooke returned to raise the siege. A large portion of the

town was burnt in 1694, and in the course of a few years after was rebuilt, the losses of the inhabitants having been relieved by a national contribution of £110,000. The town stands in an agreeable situation on the north side of the river Avon, and is built upon a rock of freestone. The surrounding country is very beautiful and richly diversified, and the entrances from the Banbury, Birmingham, and Stratford roads are remarkably picturesque. The streets are regularly built and spacious, the two principal ones running east and west, and being crossed by another of considerable extent, near the centre of the town. Here are a public library and a news-room, supported by subscription. Assemblies are occasionally held in the town-hall, and during the races, in the county-hall; here is also a small theatre, occasionally opened by the Cheltenham company. Races are held twice a year, in March and September. Warwick has scarcely any manufactures; that of worsted is rapidly decreasing, and that of cotton is entirely extinct. Malt is made to some extent: and there are lime, coal, and timber wharfs on the banks of the Warwick and Napton canal, which comes up to the north part of the town. This canal communicates with the Oxford and Birmingham canal. Population, in 1801, 5592; in 1841, 9124.

The castle of Warwick is on the south side of the town, and is equally remarkable for its strength, size, and magnificence. A winding road leads from the outer lodge to a gateway flanked with two towers, and in which was formerly a portcullis. This gate admits into the inner court, in which there are several octangular towers, one of which is called Cæsar's—a common appellation of some commanding part of the fortress in many castles of remote antiquity. Another, and the more important of these towers, is called Guy's. This building is perhaps the most commanding feature of Warwick castle. It is 148 feet in height. From whatever point it is viewed its proportions are truly majestic. On the north-eastern side are two low embattled towers, in which bears were formerly kept for the purpose of being baited.—The state-rooms, which are exhibited at Warwick castle, contain many objects deserving attention. Some of the pictures are of the first order of excellence, particularly several portraits by Vandyke. In a green-house, delightfully situated in the grounds surrounding the castle, is one of the finest and most perfect remains of antiquity, a Grecian vase of white marble, dug up from the ruins of the emperor Adrian's palace at Tivoli, and sent to England by Sir William Hamilton, in 1774. At the western extremity is the lofty keep, which presents a truly majestic and noble appearance from this side of the castle; it was erected by the daughter of Alfred the Great, and is now approached by a winding path of great beauty, the grounds having been laid out in shrubberies. The side towards the Avon is by no means the most favourable point of view, consisting entirely of one unbroken line of masonry, only preserved from monotony by the number of windows. On this side are the remains of an ancient bridge.

WARWICKSHIRE; an inland county of England, bounded on the north-east by Leicestershire, on the east by Northamptonshire, on the south-east by Oxfordshire, on the south-west by Gloucestershire, on the west by Worcestershire, and on the north-west by Staffordshire. A small insulated portion of it lies in the county of Worcester, another in that of Gloucester, and it includes within its limits a portion of the county of Worcester, a few miles south from Stratford-on-Avon. On the establishment of the Saxon octarchy this county was included in the kingdom of Mercia, or of the middle Angles. In 757 a sanguinary conflict took place near Leckington, near the northern extremity of the county, between the people of Mercia under Ethelwald, and the west Saxons under Cuthred. The former monarch was slain in the conflict by one of his treacherous commanders. During the incursions of the Danes the county suffered severely. In 1147, a conflict took place between the earl of Chester and Stephen; the latter having seized the castle of the former at Coventry. In 1263, the castle of Warwick was seized and dismantled by the revolted barons, who took possession of the fortified the castle of Kenilworth, but were dislodged in 1266 by the king, at the head of a powerful body of men. In the civil wars in the reign of Charles I., the inhabitants of this county were unanimously sided with the parliament. Warwickshire contains the city of Coventry, the borough and market towns of Warwick and Birmingham, and the market-towns of Alcester, Atherstone, Coleshill, Henley-in-Arden, Kington, Kenilworth, Leamington, Nuneaton, Rugby, Solihull, Southam, Stratford-on-Avon, and Sutton-Coldfield.

The principal rivers are the Avon and the Tame. The current of the river Avon is very gentle, and vessels of forty tons burden can sail up to Stratford,—the river having been deepened, so as to permit of this, in 1637. Its tributary streams are the Dove, the Sow, the Leam, the Stour, and the Alne. The Tame rises in Staffordshire, and enters the county a few miles to the north of Birmingham. Its tributaries are the Anker and the Blythe.

Warwickshire is a noted grazing county. The Scotch and Herefordshire oxen, and the long-horned breeds, are chiefly preferred for grazing: for the dairy, the Yorkshire long-horned and Durham breeds are most esteemed; for breeding, the long-horned Lancashire are preferred. The breeds of sheep are chiefly the old Warwickshire and new Leicester, which, of late, have been much intermingled.

The mineral productions of Warwickshire are coal, limestone, freestone, and a kind of blue slate stone. The best coal is found at Bedworth, extending between Coventry and Nuneaton: the seam varying in thickness from three to four feet. Lime is quarried at Bearley, Crafton-Court, Oldbury, Bidford, Newbold-on-Avon, Princethorpe, Stretton, and Wilnecote. Freestone exists chiefly in the western vicinity of Warwick, Leamington, Coventry, and Kenilworth; and extensive quarries of blue flagstone are wrought near Bidford and Wilnecote. Marl abounds chiefly in the western part of the county, and ironstone was formerly raised at Oldbury.

The principal manufactures of the county are those of hardware, &c. in Birmingham and its vicinity. The city of Coventry is celebrated for the manufacture of watches, silks, and ribbons. There are considerable flax-mills at Berkswell, Balsall, and Tamworth. Fish-hooks and needles are extensively manufactured at Alcester, and combs at Kenilworth. The chief exports are the produce of the manufactures, corn, cattle, and sheep, great numbers of the latter being annually sent to London.

Within this county is an extensive artificial navigation. The Birmingham and Fazeley canal, constructed in 1790, extends from Birmingham

north-easterly direction towards Tamworth, within a few miles of which it joins the Coventry canal at Whittington-Brook. It is sixteen and a half miles in length, thirty feet in breadth, and four and a half feet deep, admitting boats of twenty-two tons burden. The Coventry canal, constructed in 1790, forms an important line in the communication between London, Manchester, Birmingham, and Liverpool. It is twenty-seven miles in length. The Ashby-de-la-Zouch canal arises from the Coventry canal at Marston-bridge, near Nuneaton, and enters Leicestershire near Hinckley. Its whole length is 40¼ miles, the part within Warwickshire being only about seven. The Oxford canal, forming part of the chain from London to the western counties, commences in the Coventry canal at Longford, about four miles from Coventry, and runs with an extremely tortuous course to Harborough-Magna, near the borders of Leicestershire, from whence it winds in a southerly direction, occasionally passing into Northamptonshire, and finally entering Oxfordshire a little to the southward of Wormleighton. The total length is ninety and a half miles, breadth thirty feet, and depth five feet. The Warwick and Birmingham canal commences at Birmingham, where it communicates with the Warwick and Fazeley canal, and runs in a south-easterly direction to Warwick, from whence it continues under the name of the Warwick and Napton canal, and finally joins the Oxford canal near Napton-on-the-Hill. Both these canals were constructed in 1799, and the former is twenty-five miles in length, with thirty-two locks, and a tunnel 300 yards in length; the latter is fifteen miles in length. A branch from the Worcestershire and Staffordshire canal, near Wolverhampton, enters the county a little to the west of Birmingham, and joins the Birmingham and Fazeley canal. The Birmingham and Worcestershire canal, the course of which lies chiefly in the county of Worcester, crosses that detached portion of the county of Warwick which lies about ten miles to the west of Henley-in-Arden, and again entering the county near Edgbaston, proceeds to join the Birmingham and Fazeley canal at Farmer's-bridge. The Stratford-upon-Avon canal commences at King's-Norton in Worcestershire, near which it enters the county of Warwick and runs in a south-easterly direction towards Lapworth, after which it turns to the southward, and joins the river Avon at Stratford-upon-Avon. At the point where it turns to the southward, it gives off a small branch communicating with the Warwick and Birmingham canal; it also communicates by a short branch with the village of Tamworth. Population of the county in 1841, 401,715.

WARWICK, Guy, earl of, an English champion, now celebrated in nursery tales, is supposed to have flourished in the reign of the Saxon king Athelstan. There is a tower belonging to Warwick castle, which still bears the name of this redoubted hero, and a spot called Guy's cliff, where the hermitage, to which he retired after performing the many valorous exploits recorded of him, is said to have stood. In the suburbs of Warwick, a chantry, with a statue, was erected to his memory, in the reign of Henry VI., by Beauchamp, earl of Warwick. In the castle of Warwick are still shown his spear, buckler, spurs and bow, and also the slippers of the beautiful Phillis, for whom he performed all his wondrous achievements. Besides many victories over dragons, wild boars, &c., Guy is said to have decided the fate of the kingdom in single combat with an enormous giant, who stood forth as the champion of the Danes, at Memhill, near the walls of Winchester, when king Athelstan was besieged. —The history of Warwick may be found in old English and French romances.

WARWICK, Earl of. See *Dudley*.

WASA, Gustavus. See *Gustavus I.*

WASA, Order of. See *Sweden*.

WASH. See *Brewing*.

WASHES; a large estuary on the eastern coast of England, in the counties of Norfolk and Lincoln. When the tide is full, the whole is under water; but when the tide is out, it is passable by travellers, though not without danger from quicksands.

WASHING OF ORES. See *Mining*.

WASHINGTON, the capital of the United States of America, is situated on the left bank of the Potomac and the right bank of the Anacostia, or Eastern branch, in the district of Columbia. The Tiber, a small stream, runs through the middle of the city; and its waters may be conveyed to the capitol and the president's house. Lat. 38° 32′ 54″ N.; lon. 77° 1′ 48″ W. from Greenwich (on American maps it is often made the first meridian); 436 miles south-west of Boston, 226 of New York, 136 of Philadelphia, thirty-seven of Baltimore; 553 north-east of Charleston, 1260 north-east of New Orleans, and 897 east of St Louis; 295 miles, by the course of the Potomac, from the Atlantic ocean; population, in 1810, 8208; 1820 13,247; 1840, 23,364; population of the district, at the last-mentioned period, 43,712, of which 4694 were slaves. The city of Washington became the seat of government in 1800; and it is the residence of the president, and the other chief executive officers of the federal government. The federal congress meets at Washington on the first Monday of December every year, and the supreme court of the United States holds its annual sittings here, beginning on the second Monday of January. Washington is separated from Georgetown by Rock creek, over which there are several bridges, and from Alexandria by the Potomac, over which is a pile bridge upwards of a mile in length: there are, also, several bridges over the Anacostia. This river has a sufficient depth of water for frigates to ascend, without being lightened, above the navy-yard, which is situated upon it; vessels drawing fourteen feet can come up to Potomac bridge, whence to the mouth of the Tiber, there are nine feet of water at ordinary high tide. A spacious canal unites the Anacostia with the Potomac. The city is well supplied with good water, and is pleasantly situated with a range of heights in the rear, affording many fine sites, and the Potomac, of more than a mile in width, opening towards the south. Near the head of tide-water navigation, and having an easy communication with the ocean, it is connected with a rich back country by the Chesapeake and Ohio canal. Steam-boats ply regularly between Washington and Baltimore, Alexandria, Norfolk and other places. A railroad leads from Washington to Baltimore, and from thence to New York. The city is regularly laid out; but a small part of the ground embraced within the plan is built upon. Streets running north and south, are crossed by others running east and west, whilst those which are called avenues, traverse these rectangular divisions diagonally, and are so laid out as to afford the most direct communication between those places deemed the most important, or which offer the most agreeable prospects. Where the avenues form acute

angles by their intersections with the streets, there are reservations which are to remain open. The avenues are named after the states of the Union, and the streets are designed numerically or alphabetically, beginning at the capitol; those running north and south of it being designated by the letters of the alphabet—A north, A south, &c.—and those east and west of it being numbered—as 1st street east, 1st street west, &c. The avenues and streets, leading to public places are from 120 to 160 feet wide; the others from seventy to 110 feet. The public buildings are, 1. the capitol, situated on Capitol square, at the head of Pennsylvania avenue. It is of the Corinthian order, constructed of freestone, and composed of a centre and two wings. The length of the whole is 350 feet; depth of the wings, 121 feet; height to top of dome, 120 feet. A Corinthian portico extends the length of the centre, which is occupied by the rotunda, ninety-six feet in diameter and ninety-six feet in height. The rotunda is ornamented with relievos, and contains four paintings, executed by Trumbull, representing the landing of the pilgrims at Plymouth, the treaty between Penn and the Indians, the preservation of Smith by Pocahontas, and the adventure of Daniel Boone with two Indians. Adjoining this, on the west, is the library of congress. The hall, ninety-two feet in length, thirty-four in width, and thirty-six in height, contains 16,000 volumes. The senate-chamber, in the north wing, is a semicircle of seventy-four feet in length, and forty-two in height. Over the president's chair is a portrait of Washington, by Rembrandt Peale. The representatives' chamber, in the south wing, is also a semicircle, ninety-five feet in length, and sixty in height. The dome is supported by twenty-six columns and pilasters of breccia, or Potomac marble. A colossal statue of liberty, and a statue of history, are the principal embellishments of the hall. Immediately beneath the senate-chamber, and nearly of the same form and dimensions, is the room in which the sessions of the supreme court are held. The president's house is two stories high, with a lofty basement, and 180 feet long by eighty-five wide. Four brick buildings, two stories high, with freestone basements and Ionic porticoes, contain the offices of the principal executive departments. The general post-office, 200 feet long, contains also the patent-office. The navy-yard, on the Anacostia, with an armoury, &c.; the marine barracks, to the north of the navy-yard; an arsenal, public manufactories of arms and military stores, &c., are among the other public establishments. There are also, a city-hall, four market-houses, twenty churches, an orphan asylum, alms-house, &c. Columbia college, which was incorporated by congress in 1821, is situated a little to the north of the city, and has four instructors and about fifty students. There are also two Roman Catholic institutions, which are under the care of the sisters of charity. In August, 1814, Washington was taken by the British, under general Ross, who set fire to the capitol, president's house, and other public offices. The library of congress was burned at the time, and that of Mr Jefferson was subsequently purchased to replace it.

WASHINGTON, GEORGE, was born in Westmoreland county, in the North American colony of Virginia, on the 22d of February, 1732, and was great grandson of John Washington, a gentleman of the south of England, who, about the middle of the seventeenth century, emigrated to this province. The education of young Washington extended only to the reading of English, and some of the more practical branches of mathematics. His inclinations, it seems, led him to adopt a sea life, and when very young, he obtained the commission of midshipman in the British navy, but was soon induced to relinquish that service, by the pressing entreaties of his mother. After this, he entered upon the business of land-surveying, and was remarked for his diligence and expertness, but particularly for a certain gravity and dignity of demeanour, that would have graced riper years, and a more elevated station. In this humble sphere, however his countrymen seem early to have discovered its capacity; for, when only nineteen years of age, he was appointed one of the adjutants-general of the Virginia militia, with the rank of major. But the opinion of his prudence and capacity was still more conspicuously displayed by his appointment as envoy to the French commandant on the Ohio, to remonstrate against certain encroachments of the troops upon the province of Virginia. Upon his return, he published a very clear and interesting account of this arduous mission, and was immediately appointed lieutenant-colonel of a regiment that had been ordered to proceed against the French, the answer of the commandant not having proved satisfactory. He had not proceeded far, when the command devolved upon him by the death of the colonel, and his services in this campaign obtained the thanks of the legislature of Virginia. Soon after, he resigned his commission, in consequence of certain regulations which he thought degrading to the officers of the provincial troops, and retired to Mount Vernon, an estate on the banks of the Potomac, to which he had lately succeeded by the death of his brother, purposing to devote himself to the occupations of a country life.

His military bias, however, did not permit him to remain long in retirement. He was invited once more to defend the frontiers of the province from the invasions of the French, and his conduct during the whole expedition, was so much approved that, though only twenty-three years of age, he was soon made commander of all the provincial forces in Virginia. The frontiers being in some measure secured from invasion, he again, in 1758, resigned his commission, amidst the applauses and regrets of his soldiers.

Here might have terminated the military career of George Washington, and he might have passed the remainder of his days in the quiet of rural affairs, but for the unfortunate rupture which took place betwixt Great Britain and her American possessions. It will here be necessary to explain the origin and nature of this distressing dispute. For a considerable period Great Britain possessed a large tract of territory on the North American continent, divided into colonies or separate jurisdictions, the inhabitants of which being chiefly emigrants from this country were governed by English laws, and enjoyed that civil and religious liberty common to other British subjects. Each of these colonies had a local parliament or assembly of delegates of the people presided over by a governor appointed by the British ministry. One of the understood regulations in managing these distant countries was, that they should contribute no taxes to Britain; but it having happened in the course of time, that the British treasury stood much in need of a supply of money, our ministry and parliament resolved on exacting certain taxes or duties from the American colo-

These taxes, we are informed, would have been freely contributed by the Americans, provided they had been granted the power of sending representatives to Britain to sit in parliament; but this proposal being strenuously refused, through a fear of its leading to further changes in the British legislature, the result was, that the Americans refused to pay any taxes whatever, and in a short time opposed their exaction by force. All men are now of opinion that the British government at this period acted with extreme impropriety; nevertheless, the nation at the time rushed heedlessly into a war with the colonies, expecting speedily to quell all opposition to the laws. As for the Americans, they sagaciously prepared for the struggle.

In constructing an army for the defence of the provinces, the Americans bestowed the command of the forces on George Washington, of whose military talents and prudence they had already seen many proofs. No man in any age or country ever filled a more arduous station than that in which he was now placed. He was called to defend an extensive country just beginning the perilous experiment of self-government, altogether unpractised in war on a great scale, and with no other resources than her spirit, against a nation possessed of all the means, and strong with all the sinews of war, and able, by its command of the ocean, to carry its hostilities against any part of that extensive coast, which had drawn towards it the best part of the wealth and industry of the country. For a considerable period, his troops had no fire-arms but what they provided themselves; they had no tents, no magazines, no cavalry, no artillery, and scarcely any ammunition. So provided, or rather unprovided, the best troops in the world would not have been able to do much; but when we consider the nature and description of the American armies, we must wonder that he was able to keep the field for a single campaign against the well-trained forces of Britain.

The history of the war in America may be summed up in a few words. Instead of transporting large masses of men capable of crushing in an instant the united force of the colonists, the British ministry dispatched small detachments of troops, who were invariably cut up in detail as they marched through the country, and on some occasions whole regiments had ignominiously to lay down their arms. In this species of inglorious war, which has afforded our American brethren some cause for boasting, Washington was equally conspicuous for his cool determination and courage in the heat of conflict, and his mercy after victory, so as to win the applause of both friend and foe. The situation of the general was, moreover, one of peculiar difficulty. He experienced languor, insubordination, and desertion in his followers; and it was only after he had the address to induce his countrymen to establish a standing army, on something like regular principles, that success crowned his exertions. It is allowed by all parties that the services of Washington in this grand struggle against oppression, were as great as ever were performed by any man to any nation. History is full of far more brilliant exploits; but it must always be recollected that in Washington's situation, not to be defeated was victory. In the arrangements on the day of battle, we should discover but a small portion of those happy endowments which gave him an unrivalled ascendancy over the minds of his countrymen; which enabled him to keep a powerful enemy in awe with fluctuating levies, whose defective constitution forbade the necessary severities of discipline; which enabled him to awaken sentiments of honour and patriotism in hearts divided by animosities and jealousies. In criticising his military conduct, we must always keep in view his means; and if we cannot discover any single achievement of peculiar brilliancy, we shall yet be forced to admire a long series of arduous operations, which display penetration and energy, combined with uniform and unerring sagacity. Although it was simply the redress of grievances relative to taxation which prompted them to take up arms, as they began to feel their strength, they aspired to higher views.

The war was commenced on the 14th of June 1774, and, with greater or less vigour, was carried on for about eight years. Two years after its breaking out, on the 4th of July 1776, the colonists declared their independence of the British crown, which was acknowledged by France in 1778, by Holland in 1782, but not by the British parliament till the 30th of November 1783. Yet, in thus securing the blessing of national liberty, the colonists, it seems, were by no means satisfied. They broke out into parties; disaffection spread on all sides; and had not the wisdom and patriotism of Washington suggested expedients to allay the ferment and avert the danger, the Union of States would have been dissolved, and national ruin and disgrace the consequence.

Having given liberty to his country, Washington once more retired from public life to his paternal roof, followed by the fervent admiration of his countrymen. Unlike Cromwell, or Napoleon in latter times, he had no desire to take advantage of his situation or popularity, and so secure the office, for life, of emperor, king, or protector. He freely renounced all official distinction, thereby offering an example of moral virtue quite unparalleled in the history of modern times, and retaining no other reward for his extraordinary services than his country's love.

During his retirement, objects of public utility still occupied his thoughts; and it was not long before he formed, with his characteristic sagacity, a plan of improving the internal navigation of the country. This plan was, to open as high as possible the great eastern rivers, and to connect them, by means of intermediate streams with the Ohio: and his object in this magnificent undertaking was to draw the States beyond the Alleghany mountains into a closer connexion with those upon the Atlantic; and thus, by multiplying their commercial relations, to give stability and unity to those of a political nature. These beneficent schemes of Washington have been fully accomplished. He was soon, however, called upon by a sense of duty into more burdensome labours. The jealousies prevailing among the States threatened again to wreck the newly-formed republican government. When at last it became evident to all that some alteration of the general system was indispensable to the preservation of its parts, a convention was held under his auspices; and the constitution which it formed having been adopted by the greater part of the States, he was, in April 1789, called to the office of first president, by the unanimous voice of the confederation. There is abundance of evidence that he accepted this office of chief magistrate of the United States with the greatest reluctance. He had no ambition of high place; and, free from

all presumption, this truly great man felt diffident of his capacity to administer, in peace, the affairs of a country which, in war, he had saved from ruin. "I bade adieu to Mount Vernon, to private life, and domestic felicity," says, he, in an entry in his diary; "and, with a mind oppressed with more anxious and painful sensations than I have words to express, set out for New York, with the best dispositions to render service to my country, but with less hope of answering its expectations."

The duties of Washington's civil administration, though far less arduous than those of his military command, yet required much of that fortitude and sagacity which that command so conspicuously displayed. To re-establish credit, and provide for the debts of the Union, when there was every desire to profit by injustice, and where taxation was both difficult and odious—to give stability and energy to a new government, encountered in its first operations by the contending interests of thirteen separate States—and to preserve the blessings of peace to a rising community, when the misguided feelings of the people would have precipitated a war, were efforts which statesmen are seldom called to make, and which but few would have been equal to perform. In his public conduct, we look in vain for any of those vices which oppose the prosperity of nations, and the peace of the world. In choosing the officers of his government, in virtue of the powers committed to him by the constitution, he is universally allowed to have displayed the utmost disinterestedness. No prejudices, no affections, no interests, were seen to interfere with his great duty, to call to the management of a nation's concerns the talents from which a nation has most to hope. His addresses to the people and to congress afford indubitable proofs of the purity, as well as the solidity of his principles; and it is impossible to read them, and to trace them, as exemplified in the whole course of his public career, without admitting "that he performed justly, skilfully, and magnanimously, all the offices, both public and private, of peace and war." General Washington survived his retirement from the Presidency, which he twice enjoyed, only two years. He died on the 14th of December, 1799, of an inflammation in the throat, occasioned by a slight rain to which he had been exposed the preceding day. Soon after the disease commenced, he foresaw he would die; and he met his fate with his accustomed fortitude.

The personal appearance of this statesman was noble and commanding; and it has been frequently remarked, that the impression of awe which it was calculated to produce, was never effaced by frequency of intercourse. He was reserved in his manners, and unaffectedly modest. He was hospitable, and his establishment expensive, but under exact regulation. He spoke with diffidence; but his letters to congress, and his written addresses, are admirable for clearness and solidity. His personal habits were exceedingly temperate, and the purity of his morals was never questioned. In short, to use the words of Mr Fox, "a character, of virtues so happily tempered by one another, and so wholly unalloyed with any vices, is hardly to be found in the pages of history." By all classes of citizens in the United States, the memory of George Washington is cherished above that of all other patriots, while his name serves as a lasting incitement to the nation to preserve its institutions unimpaired to a distant posterity.

WASHINGTON ISLANDS, or INGRAHAM ISLANDS; a group of three islands in the South Pacific ocean, to the north-west of the Marquesas islands, lon. 139° 5′—140° 13′ W.; lat. 7° 50′—9° 30′ S. They were discovered by captain Ingraham, of Boston, in 1791, and visited by captain Roberts, of the same place, in 1792. The latter gave them the name of *Washington*. They are fully described in captain Porter's Journal of a Cruise made to the Pacific Ocean in 1812—4 (New York, 1825, 2 vols.). The principal island of the group is *Nooahiva*, or *Nukahiva*. Stewart also gives an account of these islands, in the first volume of his Visit to the South Seas.

WASHINGTON, Mount. See *White Mountains*.

WASHITA (formerly spelled *Ouachita*), a river of Arkansas and Louisiana, which rises about intermediate between the river Arkansas and the Red river, in lat. 34° N. The Fourche Caddo, Little Missouri, and Saline, rise at no great distance from the Washita. It runs through a country, in Arkansas, that is generally sterile and mountainous. Pine, and that species of oak called *pin oak*, are the common kinds of timber in that region, and they denote an inferior soil. In the richer and alluvial tracts are found the trees common to that latitude. That beautiful kind called *bois d'arc* is here found in great abundance. In high stages of water, the Washita is navigable for steam-boats 600 miles, to the Hot springs. A hundred salines, some of which are highly impregnated with salt, are found near the river. Its bottoms are very fertile after it enters Louisiana. Where it unites itself with Red river, it strikes the eye as the larger of the two. It has a course of nearly 800 miles.

WASP (*vespa*). The wasps may be readily distinguished by having the upper wings longitudinally folded while at rest. They belong to the order *hymenoptera* of Linnæus, and have a pedunculated abdomen, terminated by a concealed sting. Their larvæ resemble those of the bee, and their history is also similar in most respects. They live altogether in societies, the individuals of which share in common their labours and dangers. In general, they construct their habitations of a sort of paper, formed of vegetable fibres, agglutinated by a sort of gum. The cells resemble form those of honeycomb, and are often disposed in several stories. They feed on animal substances on meats exposed to the air, dead insects, overripe and sugary fruits, fragments of which they cut with their mandibles, and carry away, for the purpose of feeding their young.

WASSANAH; a city of Africa, on a river called Zadi, sixty days' journey south-east of Timbuctoo. According to an account given by Hamet to Riley, this city appears to contain twice as many inhabitants as Timbuctoo. It is surrounded by a very large wall, built of great stones laid or piled up. A whole day is required to walk round it. The houses are built of stones, without cement, and roofed with reeds and palm leaves. The country around is highly cultivated. The inhabitants are Mohammedans. The account of Hamet, above quoted, that, after embarking at Joliba, at Timbuctoo, he found that river run six days nearly east, and then to take a southeasterly direction, seems to agree with the statements of the Landers (see *Niger*); but it is easy to conjecture what was the city described under the name of Wassanah by Sidi Hamet.

king, according to the same authority, lived in a large palace, had 150 wives, 10,000 slaves, and a large army.—See Riley's *Narrative* (New York, 1817).

WASTE-BOOK. See *Book-Keeping*.

WAT TYLER, OR WALTER THE TYLER; famous in history as one of the leaders of the revolt of the lower classes in England, in 1381. (See *Richard II.*) It has been suggested that this name was merely assumed, as those of the other leaders of the revolt (Jack Straw, Hob Carter, and Tom Miller) appear to have been, to denote their mean origin, or to conceal their real rank.* The immediate cause of this insurrection is said to have been the insolence of a collector of poll-tax, who, under pretence of ascertaining the age of the tiler's beautiful daughter, offered her intolerable indignities. The tiler, brought into his cottage by the outcry of the girl's mother, felled the tax-gatherer to the ground with a mortal blow. The villeins, and other poor people of Norfolk, Suffolk, Essex, Sussex, were roused by the cry of the men of Kent, in which county lay Dartford, the scene of the occurrence above described, and, declaring there should be no more bondmen, assembled at Blackheath, in May, to the number of 60,000, and took possession of London. Their demands were, the abolition of bondage, the liberty of buying and selling in markets and fairs, a general pardon, and the reduction of the rent of land. At an interview between Tyler and the king, in Smithfield, the former was murdered by some of the attendants of the latter, under pretence that the rebel leader seemed about to seize the king's bridle. The revolt was extinguished with circumstances of great cruelty; more than 1500 wretches perishing by the hand of the hangman. These commotions were not confined to England; and they indicate the growing light of knowledge, which rendered the people impatient of personal slavery, then general (see *Villenage*), and of the chains which a haughty nobility had imposed upon them. Their concurrence with the attempts towards religious reform (see *Wickliffe*) must not be overlooked. "A foolish priest of Kent," says Froissart, "had preached to the peasants that, in the beginning of the world, there were no bondmen. 'Why,' said he, 'should they be kept under, like wild beasts? and why, if they laboured, should they have no wages?

> When Adam delved, and Eve span,
> Where was then the gentleman?'—

"Two verses," says Hume, "which, in spite of prejudice, one cannot but regard with some degree of approbation."

WATCH AND CLOCK MAKING. A clock or a watch movement is an assemblage of wheels and pinions, contained in a frame of two brass plates, connected by means of pillars, the first or great wheel of which, in an eight day clock movement, has concentric with it a cylindrical barrel, having a spiral groove cut on it. To this cylinder is attached one end of a cord, which is wrapped round in the groove, for any determined number of turns; and to the other end of the cord is hung a weight which constitutes a power or force to set the wheels in motion. Their time of continuing in motion will depend on the height through which the weight has to descend, on the number of teeth in the first or great wheel, and on the number of teeth or leaves of the pinion upon which this wheel acts, &c. The wheels in spring clocks, and in watches, are urged on by the force of a spiral spring, contained in a hollow cylindrical barrel, or box, to which one end of a cord or chain is fixed, and lapping it round the barrel for several turns outside: the other end is fixed to the bottom of a solid, shaped like the frustrum of a cone, known by the name of the *fusee*, having a spiral groove cut on it: on the bottom of this cone, or fusee, the first or great wheel is put. The arbour, on which the spring barrel turns, is so fixed in the frame, that it cannot turn when the fusee is winding up: the inner end of the spring hooks on to the barrel arbour, and the outer end hooks to the inside of the barrel. Now, if the fusee is turned round in the proper direction, it will take on the cord or chain, and, consequently, take it off from the barrel. This bends up the spring; and, if the fusee and great wheel are left to themselves, the force exerted by the spring in the barrel to unbend itself, will make the barrel turn in a contrary direction to that by which it was bent up. This force of the spring unbending itself, being communicated to the wheels, will set them in motion, and they will move with considerable velocity. Their time of continuing in motion will depend on the number of turns of the spiral groove on the fusee, the number of teeth in the first or great wheel, and on the number of leaves in the pinion upon which the great wheel acts, &c. The wheels, in any sort of movement, when at liberty, or free to turn, and when impelled by a force, whether it is that of a weight or of a spring, would soon allow this force to terminate; for, as the action of the force is constant from its first commencement, the wheels would be greatly accelerated in their course, and it would be an improper machine to register time or its parts. The necessity of checking this acceleration, and making the wheels move with a uniform motion, gave rise to the invention of the *escapement*, or *'scapement*, as it is commonly called. To effect this, an alternate motion was necessary, which required no small effort of human ingenuity to produce.—The *escapement* is that part of a clock or watch connected with the beats which we hear it give; and these beats are the effects of the moving power, carried forward by means of the wheels in the movement to the last one, which is called the *swing wheel* in a pendulum clock, and the *balance wheel* in a watch. The teeth of this wheel act on the pallets or verge, which are of various shapes, and which form the most essential part in a 'scapement; they drop from each tooth of the swing or balance wheels, on their respective pallets, giving one beat or impulse to the pendulum or balance, in order to keep up or maintain their motion; and, were it not for the pallets, which alternately stop the teeth of the swing or balance wheels, the motive force would have no check. Hence it is, that, by this mechanism of the 'scapement, the wheels in the movement are prevented from having their revolutions accelerated, which would take place to such a degree as to make the machine run down in a minute or two; whereas, from the resistance opposed by the pallets, it is kept going for twenty-four or thirty hours, for a week or a month, or even for twelve months. In the clocks or watches, however, which as a matter of curiosity, have been made to go so long, it was not possible to have an accurate measure of time. See *Clock*.

WATELET, CLAUDE HENRY; a French writer

* The case of the celebrated Jack Cade presents a similar instance. His real name was John Aylmere, and he was a physician, as appears from Ellis's Letters Illustrative of English History, second series.

of eminence on the fine arts and the belles-lettres. He held the office of a receiver-general of the finances, was a member of the French academy, and of several foreign learned societies, and died at Paris, in 1786, aged sixty-eight. He published, in 1760, a poem *Sur l'Art de peindre*, and was the author of several other works, the most important of which is the Dictionary of Painting, Sculpture and Engraving, forming part of the *Encyclopédie Méthodique*.

WATER. The composition of this fluid has been fully demonstrated both from analysis and synthesis. It is found that when hydrogen gas is burnt (an operation in which oxygen is combined with it), water is formed, and is the only sensible product. This is the proof by synthesis. On the other hand, when water is acted on by substances capable of attracting oxygen, these are oxidated, the water disappears, and hydrogen gas is evolved. The proportions of these elements in water are as follows: one volume of oxygen to two volumes of hydrogen; or, by weight, eight parts oxygen to one of hydrogen. Water is a transparent and colourless liquid, destitute of smell, and nearly without taste. It refracts light powerfully. When its internal movements are prevented, it is a very slow conductor of heat, and an imperfect conductor of electricity. It is almost incompressible, a pressure equal to 2000 atmospheres occasioning a diminution of only one ninth of its bulk. Water being the substance most easily procured in every part of the earth in a state of purity, it has been chosen, by universal consent, to represent the unit of the specific gravity of all solid and liquid bodies. When we say the specific gravity of a body is two, we mean that it weighs twice as much as the same volume of water would do. Now, a cubic foot of water, at the temperature of 60° Fahr., and when the barometer stands at 30 inches, weighs 998·217 avoirdupois ounces, which is only 1·783 ounces less than 1000. Hence, if we know the specific gravity of a body, we have very nearly the weight of a cubic foot of it in avoirdupois ounces. 100 cubic inches of air at 60° Fahr., when the barometer stands at 30 inches, weigh 31·1446 grains. Hence it follows that water, at that temperature and pressure, is 810·734 times heavier than air. Water passes to the solid state at 32° Fahr. When it shoots into ice, it forms, in the first place, a prism, not very regular in shape, but very long. From this primary prism other smaller ones shoot out on both sides, and always at angles of 60° and 120°. Hail is always crystallized in the form of two six-sided pyramids applied base to base. Ice has been observed in crystals having the form of a rhomboid of 120° and 60°. In taking the solid form, water undergoes an enlargement of volume from eight parts to nine; and this expansion even takes place previous to the congelation, during the reduction of temperature for six or eight degrees, the greatest density of water being about 40° Fahr. In the act of freezing, too, the greater part of the air, which the water holds loosely dissolved, is expelled. Electricity is also rendered sensible in its congelation. Water passes into vapour when exposed to the atmosphere at any natural temperature, and even ice evaporates, as is proved by its losing weight when suspended in the air. The transition into vapour is promoted by heat: at 212°, under a medium atmospheric pressure, water boils. (See *Steam*.) Water absorbs the aërial fluids, but in quantities very different, according to the force of attraction which it exerts towards them. Of some of the acid gases it absorbs many times its own volume; of others, the quantity is so inconsiderable as not to be very perceptible, unless ascertained by an apparatus peculiarly adapted to show the result. The quantities absorbed are greater as the temperature is low, down to freezing. They are also augmented by pressure. 100 cubic inches of recently-boiled water, at the mean temperature and pressure, absorb of

Sulphuretted hydrogen,	100	cubic inches.
Carbonic acid	100	"
Nitrous oxide,	100	"
Olefiant gas,	17·5	"
Oxygen,	3·7	"
Carbonic oxide,	1·56	"
Nitrogen,	1·58	"
Hydrogen,	1·93	"

All water which has been exposed to the atmosphere (as spring and river water) contains a portion of air, from which it derives a sparkling quality and agreeable taste. It is thus also fitted for supporting the respiration of fishes. It appears that the oxygen is absorbed in preference to the nitrogen, and in considerably larger quantity. All the powerful acids exert a strong attraction for water, such as the sulphuric, the nitric, muriatic, fluoric and phosphoric acids. Few of these can even be obtained free from it in an insulated state, and it appears to have an important effect in their more characteristic acid properties. A similar attraction is exerted between water and the fixed alkalies, as also between it and the alkaline earths. The compound salts, also, always contain water, even those of them which appear altogether insoluble. Water, though incapable of combining with the metals, exerts a chemical action upon them, affording to several of them oxygen, at the temperature of ignition, and, at a natural temperature aided by atmospheric air, oxidating or corroding others: it also combines with some of their oxides. Water is a solvent of many other substances. Many of the animal or vegetable products are insoluble in it, and all of them are affected by it as a chemical agent. Those compounds in which water exists in intimate combination, and the properties of which it appears to modify, are named *hydrates*. It sometimes exists in union, in the proportion of one atom (represented by nine to hydrogen as one); sometimes two atoms (or eighteen parts by weight) combined, and sometimes even ten atoms. From the extensive solvent power of water, it is never met with pure in nature. Every kind of spring or river water is impregnated with saline or earthy bodies of different kinds. Spring water contains carbonate of lime, muriate of lime, and muriate of soda, with a trace of magnesia, and sometimes a little sulphate of potash or soda. River water contains carbonate of lime, muriate of soda, each of these also sometimes a little alkali. Well water, besides these, contains always a portion of sulphate of lime, the presence of which is the cause of the quality termed *hardness* in water. Rain or snow water is freer from these foreign substances, but is not perfectly pure, as it contains a trace of muriate of soda and muriate of lime. The presence of these different saline and earthy substances is judged of by the following tests: in the quantity of a few drops of each to one or two of water. A solution of nitrate of silver produces a turbid appearance from the presence of any sulphate or carbonate, and the turbid appearance of it arising from the latter is removed

adding a drop or two of pure nitric acid. A solution of nitrate of silver gives a blush precipitate from the presence of any muriate; and if this test is applied after the previous application of nitrate of barytes (care being taken that this last is free from all muriatic acid), it is more certain, as any precipitation from the presence of a sulphate or carbonate is removed. A solution of acetate of lead causes a turbid appearance, if sulphates or carbonates are present; while it produces a less marked effect from the presence of muriates. A solution of oxalate of ammonia detects lime by precipitation: and a solution of soap in alcohol indicates, by the degree of turbid appearance it produces, the predominance of sulphate of lime, or the degree of hardness, as it is called. If a solution of phosphate of soda produce a milkiness after a previous addition of a similar quantity of carbonate of ammonia, magnesia is present. The presence of free carbonic acid is detected by a slight milkiness being produced by the addition of an equal portion of lime water to the water, and with still more delicacy by super-acetate of lead. It is also discovered in the air expelled by boiling, which, on being agitated with lime water, affords a milky precipitate. Water is freed from all foreign substances by distillation.

WATERS, MINERAL. Under the article *Mineral Waters*, in this work, their definition was given, and a division of them into classes pointed out: a notice also of some of their principal localities was appended. In this place, we shall present some additional information respecting the localities of mineral waters, their temperature, chemical constitution, and medicinal qualities. The division of mineral waters above alluded to, was into sulphureous, carbonated, chalybeate and saline.

Among the most celebrated waters of the sulphureous class are those of Aix-la-Chapelle, twelve leagues west from Cologne, nine north-east from Liege, and eighty from Paris. Its thermal waters appear to have been known to the Romans; but they owe their modern fame to Charlemagne, who made Aix-la-Chapelle his residence, and occasionally held his levee in the bath, with all his attendants. The temperature of these waters varies, at the different baths, from 110° to 143° Fahr. They contain carbonates of soda, lime and magnesia, muriate and sulphate of soda and silex. The gases are in the following proportions:—

Nitrogen,	51·25
Carbonic acid,	28·26
Sulphureted hydrogen,	20·49
	100·00

Their medicinal qualities have been long well known. They are adapted to all chronic cutaneous disorders, asthmatic affections, chronic rheumatism, dyspepsia, diseases of the uterus, stiffness, weakness and contraction of the limbs from gun-shot wounds. Their use is external and internal. Those waters of the present class existing in the United States of America which are the best known, are the *White Sulphur springs of Virginia*.

The carbonated waters, whose characteristic is the predominance of carbonic acid, are both cold and thermal. Their medical use is most advantageously displayed in allaying the thirst and heat of feverish action which accompany a disturbed state of the stomach, and inflammation of the liver and other viscera, and in subduing irritation of the kidneys, and checking copious discharges. The two most celebrated thermal acidulous springs in France are those of Mont d'Or and of Vichi. The former were known to the Romans. There are four principal springs at Mont d'Or, the temperature of three of which are decidedly thermal, and stand respectively at 107°, 109° and 113° Fahr.; while the fourth is of the low temperature of 52° Fahr. An analysis of one of these springs gives,

Free carbonic acid,	120	grs.
Carbonate of soda,	189	,,
Sulphate of soda,	57	,,
Muriate of soda,	145	,,
Alumina,	62	,,
Carbonate of lime,	116	,,
Oxide of iron,	11	,,
Carbonate of magnesia,	38	,,
Total,	748	

There are seven springs at Vichi, ranging in temperature from 72° to 112° Fahr. The proportions of the saline ingredients vary in each. All contain, however, carbonic acid, carbonates of lime, magnesia, soda, sulphate of soda and muriate of soda.

Of the cold carbonated waters, those of *Seltz*, situated on the Rhine, nine leagues north-east of Strasburg, are the most celebrated. The artificial Seltz water is made as follows:—

Water,	20 oz.
Carbonic acid,	5 times the volume.
Carbonate of soda,	4 grs.
Muriate of soda,	22 ,,
Carbonate of magnesia,	2 ,,

The best example of this class afforded by America, is found in the Sweet springs, Monroe county, Virginia.

Chalybeate waters owe their characteristic properties, both chemical and medicinal, to an impregnation of iron, in the state of an oxide, which is held in solution by carbonic acid. They are limpid, inodorous, and have a peculiar styptic taste. Exposed to the air, they become covered with an iridescent pellicle, and a quantity of ochrey matter subsides, the water at the same time losing its taste. The effects of waters of this class are modified by the quantity of carbonic acid in excess, and of saline ingredients. One of the purest of the class is that of Tunbridge, in England. The waters of Tunbridge Wells are not strong, however, with saline or ferruginous ingredients, one gallon containing only seven and a half grains. They are found particularly useful in dyspepsia, uterine debility, cutaneous complaints, and gravel. The most noted chalybeates in Europe are the Spa, in the kingdom of Belgium, and Pyrmont, in Westphalia. Spa is a small town, situated in a mountainous district, which forms part of the forest of Ardennes. It is ten leagues from Aix-la-Chapelle, six from Liege, and seventy-five from Paris. The edifices and places of public amusement are on a magnificent scale. There are seven springs, of which number that of Pouhon is the principal. It contains, according to Bergmann, in one hundred pounds of the water,

Crystallised carbonate of soda,	154 grs.
Muriate of soda,	16 ,,
Carbonate of iron,	89 ,,
Carbonate of lime,	154 ,,
Carbonate of magnesia,	363 ,,
	748

A hundred cubic inches of the water contain forty-five cubic inches of carbonic acid gas. The action of these waters is tonic, aperient, and cooling; they strengthen muscular action, and are efficacious in diseases proceeding from weakness and relaxation

of the tissues. Pyrmont is situated near the river Weser, four leagues from Hamelet, in Westphalia. It has six principal springs, all of the temperature of 55° Fahr. The Pyrmont springs contain, in one hundred pounds of the water,

Crystallised muriate of soda,	122 grs.
Muriate of magnesia,	134 ..
Crystallised sulphate of soda,	547 ..
Carbonate of iron,	105½ ..
Carbonate of lime,	349½ ..
Carbonate of magnesia,	329 ..
Resinous principles,	9 ..
	1605½

One hundred pounds of this water contain fifteen hundred grains of carbonic acid. It is said to be eminently tonic. In the United States of America, there are a great number of chalybeate springs: the most noted of which are those of Ballston.

Under the saline class are comprised those mineral waters in which there are neutral salts enough to produce a marked, and generally purgative operation. The salts most usually present are the sulphates, muriates, and carbonates; such as the sulphates of magnesia and soda, muriates and carbonates of soda and lime. The proportion of gaseous matter is seldom large. When there is a considerable addition of carbonic acid in these waters, they become more grateful to the taste, and sit easier on the stomach. With an impregnation of iron, they acquire tonic and stimulating powers, and are used with other views than merely to their purgative operation. Of the thermal saline waters, the most celebrated are those of *Plombières*, *Bourbon-Lancy*, in France; of *Carlsbad* and *Teplitz*, in Germany; of *Lucca* and *St Julian*, in Italy. Plombières, in the department of the Vosges, ninety leagues from Paris, owes its conveniences to Stanislaus, king of Poland. The temperature of its springs varies from 90° to 144° Fahr. A pint of the water contains

Carbonate of soda,	2½ grains
Sulphate of soda,	2½ ..
Muriate of soda,	1½ ..
Silex,	1½ ..
Carbonate of lime,	½ ..
Animal matter,	1½ ..

The waters of Bourbon-Lancy are celebrated in the annals of France, as the means by which Catharine de Medicis, wife of Henry II., was cured of her sterility. She made use of them, agreeably to the advice of her physician, Fernel, as drink, and by way of bath. She had after this visit, in due time and series, her three children, Henry, Charles, and Francis, all three kings of France in succession. From gratitude to her physician, she presented him, on the birth of each son, 10,000 crowns. The efficacy of these waters is chiefly due to their elevated temperature.

Bohemia abounds in mineral waters. The most distinguished are those of Carlsbad. The most important of the springs at this place arises with great vehemence, and in a most copious stream, intolerably hot to the touch, and boiling up with violence. Its temperature is invariably 165° Fahr. The analysis of Berzelius shows the water of this spring to contain

Sulphate of soda,	2·56714
Carbonate of soda,	1·29200
Muriate of soda,	1·04893
Carbonate of lime,	0·31219
Fluate of lime,	0·00331
Phosphate of lime,	0·00819
Carried over,	5·20576
Brought over,	5·20576
Carbonate of strontites,	0·00331
Carbonate of magnesia,	0·14819
Phosphate of Alumine,	0·00331
Carbonate of manganese,	a trace.
Silex,	0·07304
	5·43561

The Teplitz waters, though less efficacious than those of Carlsbad, enjoy considerable reputation. Their temperature is 117° Fahr. The thermal waters of St Julian springs contain a large proportion of saline ingredients; and their easy access attracts a large company of Italians and strangers.

The most noted cold saline mineral waters in Europe are those of Epsom and Cheltenham, in England, and Seidlitz and Seidschütz, in Bohemia. At Cheltenham, there are six different springs. A wine gallon of the water contains 480 grains of sulphate of soda, 40 grains of muriate of soda, some muriate of lime, and muriate and carbonate of magnesia, oxide of iron, carbonic acid and sulphureted hydrogen. Of the Seidlitz waters, a more copious notice must be taken. The strength of the simple saline springs is that of the village Seidlitz, in Bohemia, nine miles from Prague. Five pints of its water contain

Resinous matter,	1½ grains
Carbonate of magnesia,	6½ ..
Sulphate of magnesia,	140 ..
Sulphate of soda,	361½ ..
Sulphate of lime,	25 ..
Carbonate of lime,	19 ..
Carbonic acid,	6 ..

The Seidlitz water is generally converted into a tepid temperature before being drunk. The following is the formula for preparing artificial Seidlitz waters:—

Pure water,	20 ounces.
Carbonic acid,	3 times the vol.
Sulphate of magnesia,	144 grains.
Muriate of magnesia,	16 ..

The mixtures sold in the shops under the name of *Seidlitz powders* have no resemblance in composition to the real salts of that name. The powders prepared by the apothecary are one set of tartaric acid, the other of the bi-carbonate of soda, which when added together in solution in water, form a tartrate of soda, with a disengagement of carbonic acid. The *patent Seidlitz powders*, as they are called, consist of two different powders. That contained in the white paper consists of two drachms of tartarized soda, and two scruples of carbonate of soda; that in the blue paper of thirty-five grains of tartaric acid. Of the saline mineral springs of the United States, those of Saratoga are by far the most celebrated.

The medicinal qualities of this spring have acquired for it a reputation abroad, to which no fountain in America has yet attained; and it is highly probable, from the active ingredients that enter into its composition, that it will continue to retain the ascendency. Such are its rare and peculiar qualities, that, while it operates as a mild and efficient medicine, it possesses the property of an agreeable and delightful beverage; and it is also sought after and drunk by all classes of people to apply to gratify the palate, or to allay the thirst; although, in this way, it is frequently taken in sufficient quantities to produce its most active effects upon the bowels, it is seldom, if ever, known to be attended with any unpleasant consequences.

always considered, by those who thus use it, as invigorating and healthy.

Sea-Water exceeds all others in the extent of its saline impregnation. On an average—for there is a difference, in this respect, in various latitudes—the quantity of saline matter appears to be about one twenty-ninth, of which from the experiments of Bergmann and Lavoisier, there are about twenty muriate of soda, five muriate of magnesia, three sulphates of magnesia and soda, and one sulphate of lime. An analysis of doctor Murray gives, out of 10,000 parts of water obtained from the frith of Forth, 220·01 parts of common salt, 33·16 sulphate of soda, 42·08 muriate of magnesia and 7·84 muriate of lime. Sea-water also contains potash and small quantities of hydriodic and hydrobromic acids. Sea-water is used medicinally, either as an aperient or an alterative. The waters of the Dead sea, according to doctor Marcet, contain, in 100 grains,

Sulphate of lime. . .	0·054 grains.
Muriate of soda, .	10·676 .
Muriate of lime, . .	3·800 ..
Muriate of magnesia, . .	10·100 ..

WATER CEMENTS. See *Cements.*

WATER, HOLY. See *Holy Water.*

WATER-CRESS (*sisymbrium nasturtium*); a cruciferous plant, said to be found in all parts of the globe. It grows on the margin of clear streams, or even partly immersed in the water. The stem is decumbent at the base, upright, and somewhat branching above, and a foot or more in length. The leaves are smooth and pinnatifid, with the lobes more or less sinuate on the margin, and the terminal one always largest. The flowers are small and white. The plant is employed in medicine, as an antiscorbutic. Great quantities are also consumed as salad in Paris, and other cities of the north of Europe; and it is now cultivated, to a considerable extent, in many places. In the bed of a clear stream, the plants are inserted in rows, in the direction of the current; and all that is necessary is to take up and replant occasionally, to keep them free from mud, or any accumulation of foreign matter, and to see that other plants do not find their way into the plantation.

WATER-LILY (*nymphæa*); a beautiful genus of aquatic plants, the greatest ornament of our lakes and slow-moving waters. Their roots are large and fleshy, often creeping horizontally at the bottom of the water. The leaves are rounded and heart-shaped, supported on a stalk so long as to permit them to float on the surface. The flowers are large, and contain numerous petals, so as to appear double. In the morning, they raise themselves out of the water to expand, and close again, reposing upon the surface, in the afternoon. The celebrated *lotus* of Egypt, (*N. lotus*), has flowers of a pink colour, and the margin of the leaves toothed. It grows in vast quantities in the plains of Lower Egypt, near Cairo, at the time they are under water. The roots are oblong, tuberous, as large as an egg, blackish externally, and yellow within, and are eaten, cooked in various manners. The seeds are also used in some districts to make a sort of bread. This custom existed in the time of Herodotus and Theophrastus. The yellow water-lilies are now separated from the genus, under the name of *nuphar*. They are much less ornamental than the preceding, and differ essentially in the form of the flower.

WATER-MELON. See *Melon.*

WATER-SNAKE. See *Serpent.*

WATERFORD; a maritime county in the province of Munster in Ireland, bounded by the river Suir, which separates it from Kilkenny and Tipperary, on the north; by the harbour of its own name, an arm of the sea running up between this county and Wexford, on the east; by the sea, on the south; and by the county of Cork, on the west, the river Blackwater here flowing along part of its boundary. It is about fifty-one miles in length, and twenty-nine in breadth, and contains 710 English square miles, or 454,400 English acres, divided into the liberties of the city of Waterford, and seven baronies, and including seventy-four parishes belonging to the sees of Waterford and Lismore.

Very little of this district is level, the far greater part being hilly, and much of it mountainous. It is only on the south and east that it is rich and productive; on the west and north, which are occupied by the high grounds, the proportion of fertile land is inconsiderable. Yet the wooded banks of the Suir and the Blackwater, and of the streams that join them, present many delightful and romantic views, diversified by ancient castles and the modern seats of the proprietors. The Suir, which has its source in Tipperary, on the north, after entering this county, flows almost due east, till it joins the Barrow and the Nore, beyond the city of Waterford, and then, taking a southern direction, these united streams enter the sea at the harbour of Waterford; forming an estuary nine Irish miles long, and two broad. At the city of Waterford, the Suir is about a mile broad, with a depth sufficient for vessels of considerable burden. The Blackwater rises on the confines of Kerry, and, after traversing the county of Cork, comes into Waterford, a little to the east of Fermoy. At Cappoquin, beyond Lismore, where it suddenly bends to the south, it becomes navigable for small vessels, and pursuing its course southwards, falls into the sea at Youghall Bay. The climate of this and the other districts on the south coast of Ireland is exceedingly mild. Frost and snow are never of any duration, and cattle continue to graze all the year round.

In this county there are some very large estates, of which the most extensive belongs to the Duke of Devonshire. Leases are commonly for twenty-one years and a life; and on the banks of the rivers, where the land is most valuable, farms are small. According to Mr Wakefield's information, "in this county, when the eldest daughter of a farmer marries, the father, instead of giving her a portion, divides his farm between himself and son-in-law; the next daughter gets one-half of the remainder, and this division and subdivision continues as long as there are daughters to be disposed of. In regard to the male children, they are turned out into the world, and left to shift for themselves the best way they can." A great deal of butter is made even among the mountains, where small cows, suited to the nature of the pastures, form the principal stock. There are very few sheep, and those of a bad description; and comparatively but a small portion is in tillage. Where lime is used as a manure, it must be brought from a distance, as there is no limestone to the east of the Blackwater. Orchards are numerous on the banks of this river, and extensive plantations of timber trees have been formed in various parts. Furze is so much used as fuel, that whole fields are kept under this shrub for the purpose. The towns are Waterford, Dungarvon, Tallagh, and Lismore, all except the first, places of

no great importance. Population of the county, in 1841, 172,971.

WATERFORD; a city and seaport of Ireland, and chief town of the county of Waterford, situated on the river Suir, ninety-four miles south-west of Dublin. This city employs many vessels in the Newfoundland trade, whence they sail to the West Indies, and return with the productions of these islands. The harbour is deep and spacious, and protected by a fort. The quay about half a mile long, is considered the most beautiful in Europe. A fine wooden bridge has been erected here, to facilitate communication with the counties of Wexford and Kilkenny. The population of Waterford, including the suburbs, in 1841 was 23,216, which is some thousands less than it was estimated at nearly fifty years ago. By the reform act of 1832, it is entitled to return two members to the imperial parliament, to which it previously returned but one.

WATERLANDERS. See *Anabaptists*.

WATERLOO; a Belgic village, on the road from Charleroi to Brussels, about ten miles from the latter city, at the entrance of the forest of Soignies. A short distance from this village, occurred, June 18, 1815, the memorable battle to which Wellington gave the name of his head-quarters, *Waterloo;* Blücher that of the turning point of the contest, *Belle Alliance;* and the French that of the chief point of their attack, *St Jean*. After the engagement at Quatre Bras (q. v.), and in consequence of the battle of Ligny, Wellington had retired to the forest of Soignies, and, June 17, occupied an advantageous position on the heights extending from the little town of Braine la Leud to Ohain. Blücher having promised to support him with all his army, he here resolved to risk a battle. The British army was divided into two lines. The right of the first line consisted of the second and fourth British divisions, the third and sixth Hanoverians, and the first corps of Belgians, under lord Hill. The centre was composed of the corps of the prince of Orange, with the Brunswickers and troops of Nassau, having the guards, under general Cocke, on the right, and the division of general Alten on the left. The left wing consisted of the divisions of Picton, Lambert and Kempt. The second line was, in most instances, formed of the troops deemed least worthy of confidence, or which had suffered too severely, in the action of the seventeenth, to be again exposed until necessary. It was placed behind the declivity of the heights to the rear, in order to be sheltered from the cannonade, but sustained much loss from shells, during the action. The cavalry were stationed in the rear, and distributed all along the line, but chiefly posted on the left of the centre, to the east of the Charleroi causeway. The farm-house of La Haye Sainte, in the front of the centre, was garrisoned; but there was not time to prepare it effectually for defence. The villa, gardens and farm-yard of Hougomont formed a strong advanced post towards the centre of the right. The whole British position formed a sort of curve, the centre of which was nearest to the enemy, and the extremities, particularly the right, drawn considerably backward. Napoleon had bivouacked, a cannon-shot from the British camp, on the eminence of Belle Alliance. His army consisted of three corps of infantry, two of cavalry, and all the guards. It might contain about 90,000 soldiers.* On the other hand, the combined British and Dutch forces (prince Frederic of the Netherlands having remained at Hal with 19,000 men) amounted to about 60,000 men. According to Gourgaud's account, Napoleon's design was to break the centre of the British, and cut off their retreat, but in all events to separate them from the Prussians. The battle began about noon, June 18, by an attack of the second French battalion on the advanced post of Hougomont. The wood, defended by the troops of Nassau, was taken by the French, but the house, garden and farm-offices were maintained by the British guards. About two o'clock, four columns of French infantry advanced from Belle Alliance, against the British centre. The cavalry supported them, but were repulsed by the British cavalry, while the infantry, who had forced their way to the centre of the British position, were attacked by a brigade brought up from the second line by general Picton, while, at the same time, a brigade of heavy British cavalry charged them in flank. The French columns were broken with great slaughter, and more than 2000 men made prisoners. About this period, the French made themselves masters of the farm of La Haye Sainte, and retained it for some time, but were at last driven out by shells. Shortly after, a general attack of the French cavalry was made on the square, chiefly towards the centre of the British right. In spite of the continued fire of thirty pieces of artillery, they compelled the artillery-men to retire within the squares. The cuirassiers continued their onset, and rode up to the squares, in the confidence of sweeping them away before their charge, but they were driven back by the dreadful fire of the British infantry. Enraged at the small success of his exertions, Napoleon now threw his cuirassiers on the British line, between two squares. They broke through between the squares, but were attacked and defeated by the British and Dutch cavalry. During the battle, several French batteries were stationed only a few hundred paces in front of the British, and did great execution. At five o'clock, the repeated attacks of superior numbers had already weakened the British, and victory seemed to incline to the side of the French. At this juncture, the van of the fourth Prussian battalion (which the French thought, at first, to be the corps of Grouchy), under the command of general Bülow, showed itself in front of the forest of Frichemont, on the right flank and the rear of the enemy. The battalion had left Wavre (q. v.) the same morning, and, animated by the presence of prince Blücher, had overcome all the obstacles on the march. The sixth French corps, hitherto stationed as the reserve of the right wing, was immediately opposed to the Prussians, and a bloody fight ensued. It was six o'clock when this took place. Napoleon, meanwhile, when he perceived the approach of the Prussians, instead of diminishing his forces on the British line, resolved to assail it with his forces. The second French corps, all the cavalry, and all the guards, therefore, put themselves in motion. Wellington quietly awaited their approach, and, as soon as the dense columns had arrived within a short distance, he opened on them so murderous a fire that they stopped, and were compelled to fire in return. The right wing of the French had also advanced at the same time; the centre, had driven the Nassau soldiers from Papelotte, and attacked the Prussians in front.

* According to Gourgaud, Napoleon's army amounted to not more than 67,000 men and 240 pieces of artillery. Marshal Grouchy marched, on the seventeenth, upon Wavre, with 35,220 men and 110 pieces of artillery.

mont. This movement destroyed, for a moment, the connexion of the Prussians with the British left wing, and made the situation of affairs, at this juncture, critical. The sudden appearance of the first brigade of the first Prussian battalion, under general Ziethen, decided the battle. Their arrival had been delayed by a necessary change in their march and by the badness of the roads. These brave soldiers immediately separated the sixth French corps from the rest of the army, and, by means of twenty-four cannon brought to bear on the rear of the enemy, put them to flight. At the same moment, the British cavalry had overthrown and dispersed, after a brave resistance, the infantry stationed at La Haye. These troops became mingled, at Belle Alliance, with those who were pursued, by the first Prussian corps; and thus their defeat became complete. The British and Prussians followed hotly, and kept up a continued fire. The disorder of the French now exceeded all that had been hitherto witnessed. Obedience and order had ceased; infantry and cavalry, generals and servants, soldiers and officers, were mingled in wild confusion; every one consulted only his own preservation. All the artillery and baggage were abandoned. The disorder finally increased to an incredible degree, when Planchenoit was taken by the combined exertions of Hiller's brigade and a part of the second battalion. At Belle Alliance, the victorious generals met. Prince Blücher now ordered a pursuit on the part of the Prussians, with all the disposable troops, under general count Gneisenau's personal direction. In Jemappes, which was taken by a sudden attack, the travelling carriage of Napoleon, with his jewels, his plate, and other valuables, as well as many military chests, and the rest of the baggage of the French army, fell into the hands of the conquerors. Upwards of 200 cannon, two eagles, and 6000 prisoners, were the trophies of this victory. The whole French army was dispersed and disabled. The loss in killed and wounded amounted to 35,000. The British army lost, on the eighteenth, in killed, two generals, 173 officers, and 3242 privates, and, including the wounded (among whom were five generals and 803 officers), about 10,580 men. The Dutch lost, on this day, 2000 men. The loss of the Prussian army amounted to 207 officers and 6984 men. Napoleon hastened to Paris. Grouchy, however, returned through Namur (which the allies had not occupied, and where the Prussians attacked him with a loss of 1600 men) to Laon, by the road through Rethel. General Gourgaud, in his *Campagne de* 1815, attributes the loss of the battle to the faults committed by marshal Ney. But the ex-prefect Gamot has justified the marshal by printing the original orders, which did not allow Ney to act otherwise. It is nevertheless true, that Ney caused the cavalry to advance too far. Marchand has also refuted Gourgaud's account. Napoleon himself gives two reasons for the loss of the battle: 1. The non-arrival of Grouchy (but Grouchy did not receive, till seven o'clock on the evening of the eighteenth, the command, given by Napoleon in the forenoon, to join the right wing of the French); 2. the attack of the mounted grenadiers and the reserved cavalry without his command and knowledge. Napoleon, as he says himself, was in great personal danger. When the British, towards the end of the battle, became the assailants, a portion of their cavalry and sharpshooters came near the place where Napoleon was. He placed himself at the head of a battalion, and resolved to attack and die; but Soult seized his horse's reins, and exclaimed, "They will take you prisoner, sire, and not kill you." He, with generals Drouot, Bertrand and Gourgaud, succeeded in removing the emperor from the field of battle. Napoleon, however, repeatedly exclaimed, both before and after his arrival at St Helena, "*J'aurais dû mourir à Waterloo.*" A graphic description of the battle has been given by Sir Walter Scott, in his Paul's Letters to his Kinsfolk.

WATERLOO, ANTHONY, a painter and engraver, was born in Utrecht (according to some, in Amsterdam), in 1618. His paintings are confined almost entirely to the scenery around Utrecht. Weeninx painted the men and animals in his landscapes. He is said to have died of want in an hospital.

WATERSPOUT. See *Whirlwind.*

WATERVILLE; a flourishing post-town in Kennebec county, Maine, on the west side of the river Kennebec, eighteen miles north by east from Augusta. The principal village is finely situated at the head of boat navigation, and has considerable trade. The township is much intersected by streams affording excellent mill seats, and has a fertile soil. Population in 1840, 2971. Here is a college under the direction of the Baptist denomination. It was founded in 1820. It had, in 1843, a president and six teachers. 210 alumni, (of whom 70 had been divines) 70 students, and 7000 volumes in its library.

WATLINGSTREET; one of the Roman military roads made in Britain, while in possession of the Romans, running from Dover by St Alban's, Dunstable, Towcester, Atterston and Shrewsbury, and ending at Cardigan, in Wales.

WATSON, RICHARD; an English prelate, born at the village of Heversham, in Westmoreland, in 1737. His father was a clergyman, and master of a free grammar school, where the son received his early education. In 1754, he became a sizar of Trinity college, Cambridge, where he was distinguished for his intense application to study, and for the singularity of his dress, which consisted of a coarse, mottled Westmoreland coat, and blue yarn stockings. He regularly took his degrees, and became a college tutor, and, in 1760, obtained a fellowship. In 1764, he was elected professor of chemistry, when he first applied himself to the study of that science, and with great success, as appears from the five volumes of Chemical Essays which he subsequently published. On the death of doctor Rutherforth, in 1771, he succeeded him as regius professor of divinity. He early distinguished himself by a display of his political opinions, in a sermon preached before the university, on the anniversary of the revolution, which was printed under the title of the Principles of the Revolution vindicated. This discourse excited a degree of public attention only exceeded by Hoadly's celebrated sermon on the Kingdom of Christ. A short time previous to this exhibition of his politics, doctor Watson appeared as the opponent of Gibbon, to whom he addressed a series of letters, entitled an Apology for Christianity. The patronage of the duke of Rutland was exerted to obtain his promotion to the see of Llandaff, where he succeeded bishop Barrington, in 1782; and he was permitted to hold, at the same time, the archdeaconry of Ely, his professorship, and other ecclesiastical preferments. Shortly after, he addressed to the archbi-

shop of Canterbury a letter containing a project for equalizing the value of church benefices. In 1785, he published a valuable collection of Theological Tracts, selected from various authors, with additions, in 6 vols., 8vo. The following year, he received a large addition to his income by the bequest of a valuable estate from Mr Luther of Ongar, in Essex, who had been one of his pupils at Cambridge. During the illness of the king, in 1788, bishop Watson, in a speech in the house of lords, strongly defended the right of the prince of Wales to the regency, in opposition to the doctrine maintained by Mr Pitt. In 1796, the bishop appeared a second time as the defender of revealed religion, in his Apology for the Bible, designed as an answer to Paine's Age of Reason. In 1798, he published an Address to the People of Great Britain, on the danger which threatened that country, from the influence of those principles which had occasioned the revolution in France. Gilbert Wakefield, having published a reply to this address, was prosecuted for sedition, and sentenced to imprisonment; but in the proceedings against him, bishop Watson took no part whatsoever. He always continued to be the advocate for liberality, both in politics and religion: but his fears from the ascendency of French principles were strongly expressed in a publication under the title of the Substance of a Speech intended to have been spoken in the House of Lords, November 22, 1803. The latter part of his life was chiefly spent in retirement at Calgarth park, situated near the lakes of his native county, where he amused himself with making extensive plantations of timber-trees. He died at that place, July 4, 1816. Besides the works already mentioned, he published several papers in the Philosophical Transactions; Sermons, and Theological Essays; and after his death, his autobiographical memoirs were edited by his son.

WATSON, ROBERT, LL.D., a native of St Andrew's, in Scotland, studied at the university there, and afterwards at Glasgow and Edinburgh, adopted the ecclesiastical profession, and became a preacher. After having delivered lectures on rhetoric and the principles of composition, at Edinburgh, he obtained the professorship of logic at St Andrew's, to which was added, by royal patent, that of rhetoric and the belles lettres. On the death of the principal, doctor Watson succeeded him, but died in 1780. He published the History of Philip II. of Spain, (2 vols., 1777), and undertook the History of Philip III., which, being left imperfect at his death, was completed and published by doctor William Thomson (1783.)

WATT, JAMES, the celebrated improver of the steam engine, was born at Greenock, in 1736. His father was a respectable merchant and magistrate of that town, and James received a good education in its public schools. He had a delicate constitution, and very soon displayed the same love of retirement and study which was visible in all his after life. Even before he left school, he felt a strong liking for the mechanic arts, and appears to have selected a profession for himself. At the age of eighteen, he repaired to London, and there received instruction for about a year from an eminent mathematical instrument maker. At that time ill health compelled him to return to Greenock; and he afterwards pursued his studies and his occupations without more instruction. His progress was, nevertheless, extremely rapid, and he soon acquired so much skill and reputation, that in the year 1757, and in the twenty-first year of his age, he was appointed mathematical instrument maker to the University of Glasgow. He had apartments given him in the College, where he remained till 1763, when he removed into the town, previous to his marriage, which took place in the following year.

From this time, till 1774, he acted as a civil engineer—made several surveys for canals and harbours, and some of his plans were afterwards carried into execution. It was during these ten years, that he thought of, and completed most of his improvements of the steam engine; but it was not till the year 1774, that he united himself with Mr Boulton, a great manufacturer at Birmingham, in order to carry his improvements into execution. In consequence of this, he removed to Soho, near Birmingham, where he continued to reside till his death, which took place in his eighty-fourth year, at his seat of Heathfield, on August 25th, 1819.

Mr Watt was twice married; first, in 1764, to his maternal cousin, Miss Miller, who died in 1773, leaving a daughter and a son; and, secondly, after removing to Birmingham, to Miss MacGregor of Glasgow, by whom he had two children, who both died in their infancy. He had also the misfortune to see his daughter, by Miss Miller, go before him to the grave, though not till she had given him two grand children. His son was long associated with him in his business and his studies, and entered into partnership with the son of Mr Boulton, at the head of that establishment at Soho, near Birmingham, which their fathers formed, and which is at present known to all Europe.

Mr Watt was a fellow of the Royal Societies both of London and Edinburgh, and one of the few natives of this country who have been elected members of the National Institute of France.

The improvements which Mr Watt made on the steam engine were so great as to give it almost a new form. "It was by his inventions," says Lord Jeffrey, "that its action was so regulated as to make it capable of being applied to the finest and most delicate manufactures, and its power so increased as to set weight and solidity at defiance—that it has become a thing stupendous alike for force and its flexibility—for the prodigious power it can exert, and for the ease, precision, and dexterity with which this power can be varied, distributed, and applied. The trunk of an elephant, that can pick up a pin, or rend an oak, is nothing to it. It can engrave a seal and crush masses of obdurate metal like wax—draw out, without breaking, a thread as fine as gossamer, and lift a ship of war like a bubble in the air. It can embroider muslin and forge anchors, cut steel into ribbons, and impel ships vessels against the fury of the waves." The improved steam engine, continues the same writer, "fought the battles of Europe, and now enables us to pay the interest of our debt, and to maintain the arduous struggle in which we are still engaged with the skill and capital of countries less oppressed with taxation. But these are poor and mean views of its importance. It has increased indefinitely the mass of human comforts and enjoyments—has armed the feeble hand of man with a power to which no limits can be assigned, and rendered the dominion of mind over the most refractory qualities of matter. The blessing is not exclusive but unbounded; and the fabled inventors of the plough and the loom, who were deified for their benefits, did not receive more than the unerring gratitude of their rude contemporaries."

ferred less important benefits on mankind than the inventor of the steam engine."

In fact, almost every thing valuable in our present engines, except the mere principle of creating *power* by condensing steam, may be regarded as the invention of Mr Watt, or as naturally resulting from it. During his residence at Glasgow, about 1764, a model of the steam engine then in use, employed to instruct the students at College, was put into his hands to be repaired. Steam, it is well known, can hardly be prevented from condensing into water, in any vessel that is not very nearly of the same temperature as the steam itself. When this model was put into the hands of Mr Watt, the general practice was, to condense the steam in the same cylinder in which the piston works; but this cylinder being of cast iron, was, at every stroke, cooled nearly down to the temperature of the water employed to condense the steam; and the consequence was, that a great quantity of heat was wasted in again giving the cylinder the necessary temperature.

Mr Watt, after many trials, fell on a plan of saving all this waste of heat and fuel, by causing the steam to pass into a separate vessel for condensation, so that the iron cylinder in which the rarefied steam was admitted, to cause the next stroke of the engine, was never cooled at all, and no heat wasted in again bringing it to a proper temperature. This was the first great improvement made by Mr Watt, and he calculated that it saved nearly two-thirds of the quantity of steam generated, and fuel consumed. In 1769, he took out a patent for this improvement, which he styled "A method of lessening the consumption of fuel and steam in steam engines;" and sought to introduce it into use for draining mines—at that time, and long after, the only purpose for which steam engines were employed.

A conjunction, however, of many favourable circumstances was necessary to ensure success to his schemes. Among these was, his finding and associating himself with Mr Boulton, a gentleman of a most enterprising spirit, in love with great and difficult undertakings, with money at command, and who had some years before established his manufactory near Birmingham, upon a scale as unrivalled for extent and elegance, as for the perfection and variety of the processes carried on.

They began by erecting an engine at Soho, and showing it to all those concerned in mining. Being fully convinced of the utility and benefit of the invention, they went so far as to erect engines on several mines at their own expense, for which they were to be paid in the proportion of one-third of the fuel saved.

Up to 1780, the use of the steam engine was confined to raising water, and when intended to give motion to mill works, the water raised was made to turn an overshot wheel in the ordinary way. This being, however, attended with a great loss of power, Mr Watt endeavoured to apply directly the up-and-down movement of the steam engine, in straight lines to wheels and mill work. There was, at that time, several examples of such an application of a movement in straight lines; for example, the common spinning wheel, having a heavy broad rim which acts as a fly, is turned round by means of a perpendicular movement given by the foot, and the application of a crank. It was only necessary to copy this, and Mr Watt's wish would have been gratified. The most simple method is not, however, in general, that which is first thought of, and Mr Watt, in fact, proposed what is now regarded as a very complex means of effecting his wish. He was, however, prevented from carrying his project into execution, by a workman employed to make the model, communicating it to a Mr Ricards of Birmingham, who took out a patent for it in his own name, and thus deprived Mr Watt of the use of his own invention. He was obliged, therefore, to have once more recourse to his own mind, and succeeded in effecting the same object, by a means difficult to describe, but which answered perfectly well, and is known by the name of the sun and planet motion. Successive improvements, however, each of which cost a vast deal of trouble and expense, led to the introduction of more simple methods, till at length the movement of the steam engine backwards and forwards in straight lines, was converted into a rotatory movement, by a means precisely similar to that which turns a common spinning-wheel round by the foot.

The steam engine differs from all other species of machinery, in this, that they are but the means of applying power which already exists, but this creates the power it applies; and we have thus a double means of controlling it. We can make it greater or less at our pleasure, while in all other machines, we can only direct the application of power which already exists, and may be said to run to waste when not employed by man. By Mr Watt's admirable inventions, we now not only create power, when, and where we please, but we are enabled to apply it in any manner. His second great invention, or rather, we should say, application of very old inventions, was the immediate cause of the extensive employment of steam engines, so that at this moment, independent of those things which no other power could perform, it is probable that steam does more work than is equal to the unassisted labour of 3,000,000 of men. The earliest of Mr Watt's steam engines, giving a rotatory movement, were erected in 1784, one for Mr Whitbread's brewhouse, and one at the Albion mills, in which Messrs Watt and Boulton were partners.

Mr Watt also invented or improved a variety of other instruments. To him, Dr Beddoes was indebted for many of those different machines for the application of factitious airs as medicine, of which an account is published in that gentleman's pamphlet on Pneumatic Medicine. He also invented a machine for copying letters and other writings, by means of a thin moist paper and two rollers, which saves time, labour, and money; and ensures accuracy, despatch, and secrecy. Like most other ingenious men, he was exposed to considerable expense, trouble, and injury, by having his inventions pirated; but of this he never took any other notice, than to protect his rights and the interest of his family and children, by having recourse to the laws of his country. Such was the influence of his mild character and perfect fairness and liberality, that all men of learning and science who were at all acquainted with him, loved him as a friend; even pretenders to these accomplishments were subdued by his plain sincerity, so that he disarmed envy itself. "Perhaps," says Lord Jeffrey, from whom we have already quoted, "no individual of his age possessed so much and such varied information—had read so much, or remembered what he had

read so accurately and well. He had great quickness of apprehension, and could extract something precious out of every thing presented to him. He was minutely and extensively learned in chemistry, in the arts connected with his profession, and in most of the branches of physical science. It is not, however, so well known, though more extraordinary, that he was also well acquainted with many subjects of antiquarian research, metaphysics, medicine, and etymology, and perfectly at home in all the details of architecture, music and law. He was also familiar with both the literature and languages of modern Europe, and it was not uncommon to hear this great mechanician expound the metaphysical theories of the Germans, or criticise the measures or the matter of their poetry. He possessed, in an extraordinary degree, the power of digesting and arranging, in its proper place, all the information he received, and of rejecting instinctively whatever was worthless or immaterial. From the dull books he perused, therefore, or the idle talk he listened to, he extracted at once, by a rare species of intellectual alchemy, all that was worthy of attention, and reduced it, for his own use, to its true value and smallest form. With these vast resources, his conversation was at all times rich, copious, instructive, and pleasing; possessing the charms of familiarity with the treasures of knowledge. He was social, simple, and unassuming; and kind and indulgent to all who approached him. Though he liked to talk, he rarely suggested the topic of conversation, but readily took that one which was presented by those around him, astonishing them by the treasures he drew from the mine they had unconsciously opened. He seemed to have no predilection for one subject more than another, but allowed his mind, like a great cyclopædia, to be opened at any letter, and only endeavoured to select from his inexhaustible stores, what might be best adapted to the taste and capacity of his hearers. He was kind and affectionate, generous and considerate of the feelings of others, and liberally encouraged all young persons who showed any indications of talent, or applied to him for advice or assistance. His health, delicate in his youth, seemed to become firmer as he advanced in years, and he preserved, almost to the last moment of his existence, the full command of his intellect, his alacrity of spirit, and all the social gaiety, which had illuminated his happier days. After the year 1817, he applied himself, with all the ardour of early life, to the invention of a machine for copying sculpture and statuary, and exhibited his performance amongst his friends, as the production of a young artist just entering on his 83d year."

WATT, ROBERT, M.D., the author of the Bibliotheca Britannica, and of several medical treatises, was the son of a small farmer in the parish of Stewarton, Ayrshire, where he was born in May, 1774. His early life was mostly spent in the humble capacity of plough-boy or farm-servant; but having imbibed a strong desire for an academical education, he laid aside as much of his earnings as he could spare, and applied himself, in the intervals of manual occupation, to the Latin and Greek languages. It was not long ere he thus qualified himself for beginning his course at the university. In 1793, at the age of eighteen, he matriculated in the Glasgow College, and, from that period, went regularly through the successive classes in the university, up to the year 1797. During the summer recesses, he supported himself by teaching, at first as a private tutor; but latterly he took up a small public school in the village of Symington, in Ayrshire. It was his first determination to follow the clerical profession; but after he had attended two sessions at the Divinity Hall of Glasgow, he turned himself to the study of medicine: and, in order to have every advantage towards acquiring a proficiency in that branch of knowledge, he removed to Edinburgh, which has been so long celebrated as a medical school. Here he remained until he had gone through the usual studies of the science. In 1799, he set up as surgeon in the town of Paisley; and soon began to attain great popularity in his profession, and to reap the reward of his talents and perseverance. In a short time he had engrossed so much practice, as to find it necessary to take in, as partner and assistant, Mr James Muir, who had been his fellow-student at Edinburgh. The only work which he ventured to publish while at Paisley, amid the many which he composed and contemplated, was one, entitled "Cases of Diabetes, Consumption, &c.; with Observations on the History and Treatment of Disease in general." This appeared in 1803, and excited considerable interest at the time, among the learned of the profession. In 1810, he removed to Glasgow, as affording a wider field for the exertion of his talents; and there, in addition to his practice as a physician, he commenced lecturer on medicine. His success in Glasgow was complete and immediate. As a physician, he suddenly acquired a most respectable and extensive practice; and as a lecturer, his popularity was equally gratifying. The continental war, which was then raging, occasioned a great demand for surgeons, and increased the number of students much above the ordinary average. Dr Watt's lecture-room was numerously attended; and he spared no pains or expense that might conduce to the advantage of his pupils. With a view to their benefit, he formed a library of medical books, which was very complete and valuable, containing, besides all the popular works on medicine, many scarce and high-priced volumes. Of this library he published a catalogue, in 1812; to which he appended, "An Address to Medical Students on the best Method of prosecuting their Studies."

The "Bibliotheca Britannica" may be said to have originated with the formation of this library. Besides the catalogue of it, which was printed in the usual form, having the works arranged under their respective authors in alphabetical order, he drew out an index of the various *subjects* which the volumes embraced, making references to the place which each held upon the shelf; and thus brought before his eye, at one view, all the books in his possession that treated on any particular point. The utility of the index to himself and his students, soon turned his mind to the consideration of one upon a more comprehensive scale, that would embrace all the medical works which had been printed in the British dominions. This he immediately set about drawing out, and devoted much of his time to it. After he had nearly completed his object, he extended the original plan by introducing works on law, and latterly works on divinity and miscellaneous subjects, including all the publications of merit. Thus the "Bibliotheca Britannica" grew upon his hands, and thus many the most splendid monuments of human intellect and industry, originate in trifling or small beginnings.

In 1813, Dr Watt published a "Treatise on

History, Nature, and Treatment of Chincough." He was led to investigate particularly this disease, by a severe visitation of it in his own family, in which four of his children were affected at the same time, the two eldest of whom died. To the volume is subjoined, "An Inquiry into the Relative Mortality of the principal Diseases of Children, and the Numbers who have died under Ten Years of Age, in Glasgow, during the last Thirty Years." In 1814, he issued, anonymously, a small volume, entitled "Rules of Life, with Reflections on the Manners and Dispositions of Mankind." The volume consisted of a number of apophthegms and short sentences, many of them original, and the others, selected from the best English writers. In 1817, he was obliged, from delicacy of health, to discontinue altogether his professional pursuits. He had, by this time, brought his great work the "Bibliotheca Britannica," to a very considerable state of forwardness; had become interested in it, and anxious for its completion. He probably saw that, from the state of his constitution, the duration of his life must be but limited, and was desirous, while yet some strength remained, to place the work in such a state, that even his death would not prevent its publication. He retired, therefore, with his family, to a small country-house about two miles from Glasgow, engaged several young men as amanuenses, and devoted himself exclusively to the compilation. In this literary seclusion, he was for some time able to make great progress in his undertaking; but his disease, which was of the stomach, gradually gained ground, and he died upon the 12th of March, 1819, aged only forty-five.

Dr Watt's personal appearance was prepossessing. He was tall in stature, and in early life, before his health declined, robust. His countenance displayed great intelligence. In private life, he was universally esteemed. His character was formed on the strictest principles of morality, with which was blended a general urbanity of manners, that won at once the good-will of whoever he addressed. Of his various works, the "Bibliotheca Britannica" is the one by which he will continue to be remembered. Few compilations, of similar magnitude and variety, ever presented, in a first edition, a more complete design and execution. It is divided into two parts; the first part containing an alphabetical list of *authors*, to the amount of above forty thousand, and under each a chronological list of his works, their various editions, sizes, price, &c., and also of the papers he may have contributed to the more celebrated journals of art and science. This division differs little in its construction from that of a common catalogue, only that it is universal in its character, and in many instances, gives short biographical notices of the author, and critical opinions of his works. It also gives most ample lists of the various editions of the Greek and Roman classics, &c., and, under the names of the early printers, lists of the various books which they printed. In the second part, all the titles of works, recorded in the first part, and also anonymous works, are arranged alphabetically under their principal *subjects*. This part forms a minute index to the first, and upon it, the chief claim of the "Bibliotheca" to novelty and value rests; for it lays before the reader at a glance, a chronological list of all the works that have been published on any particular subject that he may wish to consult, with references to their respective authors, or with the publisher's name, if anonymous. While, in short, the first part forms a full and comprehensive catalogue of authors and their works, the second forms an equally complete and extensive encyclopedia of all manner of subjects on which books have been written. The utility of such a work, to the student and author in particular, must be obvious; for, with the facility with which he can ascertain in a dictionary the meaning of a word, can he here ascertain all that has been published on any branch of human knowledge.

Dr Watt married, while in Paisley, the daughter of a farmer in his father's neighbourhood, by whom he had nine children. At his death, the publication of the "Bibliotheca" devolved upon his two eldest sons, who devoted themselves to its completion with filial enthusiasm. John, the elder of the two, died in 1821, at the age of twenty; James, his brother, lived to see the work completed, but died in 1829. The printing of the "Bibliotheca" was completed in 1824, in four large quarto volumes. Messrs Archibald Constable and Company, of Edinburgh entered into engagements for the work, but, owing to the failure of that house, the author's family never received any benefit from its publication.

WATTEAU, Antoine; a painter of great merit, talents and industry, born in 1684, at Valenciennes. His parents, whose situation in life was very humble, with difficulty contrived to give him the instructions of a very inferior master in the country, who qualified him for the situation of a scene-painter at the Parisian opera. The genius of Watteau, however, soon carried him beyond that lowly sphere; and at length, without any further assistance, he produced a picture which gained the prize at the academy. The king, whose notice his performance had attracted, settled a pension on him, for the purpose of enabling him to complete his study of the art in Italy. The opportunities he enjoyed at Rome, and the intimate acquaintance he formed with some of the best works of Rubens and Vandyck, whose style he afterwards more especially imitated, rescued him entirely from the disadvantages which his early penury had thrown in his way, and obtained him a great reputation, particularly for his conversational pieces, in which his heads and the attitudes of his figures are highly admired. From Rome he went to England; but the incessant application with which he devoted himself to his easel had already begun to make formidable inroads on a constitution naturally weak; and, although he succeeded in returning to France, he did not long survive, dying at Nogent, in the neighbourhood of the capital, in 1721.

WATTEL. See *Vattel*.

WATTS, Isaac, an English non-conformist divine, eminently distinguished for his learning and piety, was born at Southampton, in 1674, and, after being educated there, under a clergyman of the established church, removed, at the age of sixteen, to an academy for dissenters, in London. After pursuing his studies five years with great credit and advantage, he returned to Southampton, and remained two years at home, employed in the further cultivation of his talents. In 1696, he became tutor to the son of Sir John Hartopp, at Stoke Newington, near London, and, in 1702, succeeded doctor Isaac Chauncey, (to whom he had previously been assistant), as minister of a dissenting congregation in the metropolis. An attack of fever, in 1712, obliged him to relinquish for a time his pastoral duties, when he obtained an asylum at the

house of Sir T. Abney, a London alderman, at Newington; and there he resided during the remainder of his life. His literary reputation was extended by numerous works, not only on subjects immediately connected with his profession, but also on several branches of science and letters; in consequence of which, he received diplomas of D.D. from the universities of Aberdeen and Edinburgh, and was generally respected by the friends of learning and virtue of all denominations. He died November 25, 1748. Among his works are Lyric Poems; Psalms and Hymns; Sermons; Philosophical Essays; a discourse on Education; an Elementary Treatise on Astronomy and Geography; a Brief Scheme of Ontology; Logic, and a valuable supplement to it entitled the Improvement of the Mind; besides theological tracts, and various controversial pieces. See Johnson's *Lives of the Poets*.

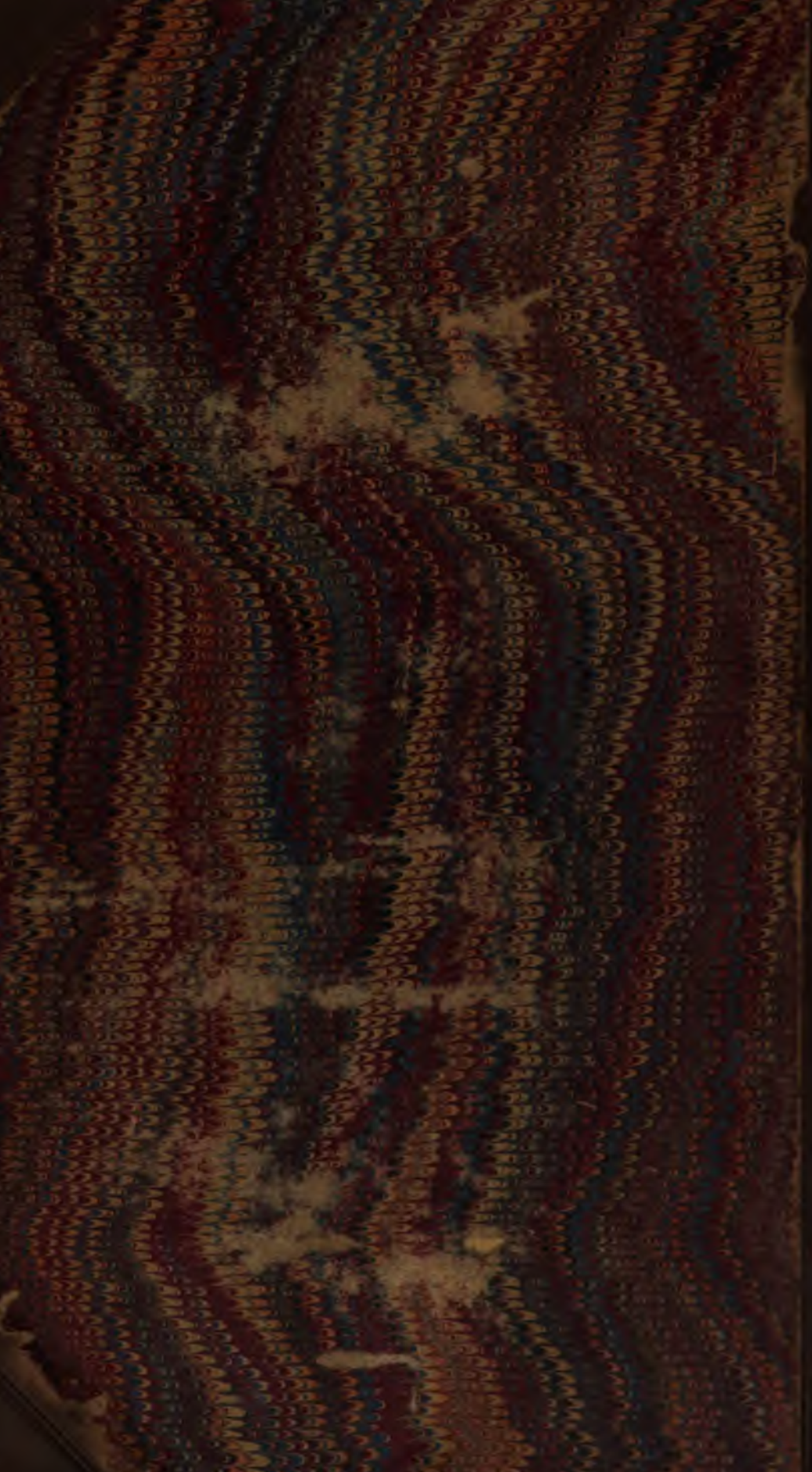
WAVE. The common cause of waves is the friction of the wind upon the surface of the water. Little ridges or elevations first appear, which, by continuance of the force, gradually increase, until they become rolling mountains, where the winds sweep over a great extent of water. In rounding the Cape of Good Hope, waves, or rather a swell, are met with so vast, that a few ridges and a few depressions occupy the extent of a mile. But these are not so troublesome to ships as a short swell with more perpendicular waves. The slope in the former is so gentle that the rising and falling are scarcely felt, while the latter, by the sudden plunging of the vessel, is often destructive. The velocity of waves has relation to their magnitude. The large waves just mentioned, proceed at the rate of from thirty to forty miles an hour. It is a common error to suppose that the water itself advances with the speed of the wave; but, in fact, the form only advances: the substance, with the exception of a little spray, remains rising and falling, in the same place, with the regularity of a pendulum. When a wave, however, reaches a shallow bank or beach, the water becomes really progressive; because then, as it cannot sink directly down, it falls over forward. No wave rises more than ten feet above the general level of the water, which, with the ten feet of descent, gives twenty feet for the whole height of the wave above the next depression. A wave, coming against any obstacle, may be dashed up to a much greater elevation. For the great wave, or boar, at the mouth of some rivers, see *Mascaret*.

WAVELLITE; a beautiful mineral, named in honour of doctor Wavel, its discoverer. It rarely occurs in distinct crystals, which are always small. Their primary form is the right rhombic prism, whose lateral faces incline under angles of 122° 15′ and 57° 45′. Cleavage takes place with ease parallel to this form, and also parallel to its longer diagonal; lustre of the cleavage planes intermediate between pearly and vitreous; colour white, passing into several shades of green, gray, brown, and black; translucent to transparent; hardness equal to fluor; specific gravity 2·33. Its most usual mode of occurrence is in implanted globules; composition thin columnar; surface drusy. When these globules, which vary in size from that of a large pea to that of a pepper-corn, are broken across, the fracture surfaces exhibit a delicate asteriated appearance. Before the blow-pipe, wavellite loses its lustre and transparency, but does not melt. With boracic acid and iron wire, it yields a globule of phosphuret of iron. It consists of

Alumine,	35·5
Phosphoric acid,	35·0
Fluoric acid,	2·5
Lime,	1·0
Oxide of iron and manganese,	1·25
Water,	25·0

It occurs at Barnstaple, in Devonshire, in small veins in clay-slate; at St Austle, in Cornwall, in veins traversing granite, accompanied by fluor, tinore, and copper pyrites; in the Shiant isles, in Scotland; at Zbison, in Bohemia, in a kind of sandstone; at Amberg, in the Upper Palatinate, with brown hæmatite: finally, it occurs, in beautiful green varieties, near Cork, in Ireland.

WAVRE; a small town on the little river Dyle, in Belgium, with about 3000 inhabitants, celebrated on account of the battle fought here by the Prussians and the French, on June 18 and 19, 1815. June 17, after the loss of the battle of Ligny, (see *Quatrebras*), Blücher had taken possession of the steep heights on the other side of Wavre, to await the arrival of the fourth corps coming from Liege, and to facilitate his junction with Wellington, who had also retreated to a favourable position at Mont St Jean. Both had agreed that Wellington should defend his position as long as possible, and Blücher should hasten to assist him. Blücher's whole army, except the third corps, was already on the march on the 18th, when Grouchy attacked Wavre, and a battle took place along the Dyle, the chief part of which was Wavre. All the corps but the third continued their march towards their important destination. (See *Waterloo*.) This battle, which was broken off in the evening, was renewed in the morning; and general Thielemann, the Prussian commander, resolved to retire to a position two leagues distant, as the continuation of the engagement would have been useless, the news of the great victory of Waterloo having already arrived. The enemy left him unmolested. The loss of this party may have amounted to 4000 men.

END OF VOLUME VI.

GLASGOW:
W. G. BLACKIE AND CO., PRINTERS,
VILLAFIELD.